

Kootenai and Idaho Panhandle National Forests

Providing for Ecological Sustainability in the Revised Forest Plans

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Introduction

The overall goal for ecological sustainability is to sustain native ecological systems and support diversity of native plant and animal species.

The National Forest Management Act of 1976 (NFMA) requires that forest plans “provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives, and within the multiple-use objectives of a land management plan adopted pursuant to this section, provide, where appropriate, to the degree practicable, for steps to be taken to preserve the diversity of tree species similar to that existing in the region controlled by the plan” (16 U.S.C. §1604 §6 (g)(3)(B)). The 1982 planning rule requires that “Forest planning shall provide for diversity of plant and animal communities and tree species consistent with the over-all multiple-use objectives of the planning area” (36 CFR 219.26)¹. Also, land management plans shall provide direction to manage fish and wildlife habitat to maintain viable² populations of existing native and desired non-native vertebrate species in the planning area (36 CFR 219.19). This report describes the process that both the IPNF and KNF used to meet these requirements.

Process

The initial focus of the assessment process is on ecosystem diversity, both in addressing the needs of healthy, diverse, and resilient ecosystems within the plan area, and in determining the extent to which maintaining ecosystem diversity will also maintain populations of plant and animal species within their ranges in the plan area. Ecosystem diversity is defined as the variety and relative extent of ecosystem types including their composition, structure, and processes. An assumption relative to terrestrial animals is that ecosystem diversity will maintain habitat for the persistence of the vast majority of species. This has often been referred to as the “coarse filter” conservation approach. For the Kootenai and Idaho Panhandle National Forests, a coarse filter ecosystem diversity evaluation was used to compare existing vegetation communities to a set of reference conditions in order to evaluate changes in disturbance regimes and ecological communities. Based on the results of this evaluation, proposed forest plan components were developed to maintain or move vegetation communities towards a desired level or condition. A similar evaluation was done for ecosystem diversity of aquatic systems.

A complementary approach (species diversity) to the ecosystem diversity analysis was used for those species for which ecological conditions necessary to sustain populations may not be provided by maintaining ecosystem diversity. In these cases, a species-specific approach was used in the analysis and for the establishment of plan components (where necessary). The assessment of individual species is often referred to as the “fine-filter” approach.

¹ The 1982 provisions can be found online at <http://www.fs.fed.us/emc/nfma/includes/nfmareg.html>.

² For planning purposes, a viable population shall be regarded as one that has the estimated numbers and distribution of reproductive individuals to ensure its continued existence is well distributed in the planning area (36 CFR 219.19).

The focus in this analysis is on species that are of regional or local conservation concern as indicated by documented threats to populations or habitats. Native vertebrates and invertebrates known to occur on land administered by the Kootenai and Idaho Panhandle National Forests were considered.

The majority of this diversity analysis was done while the forests were working under previous planning rules. The appendices contain terminology from the 2008 planning rule directives, which is no longer in effect; however, the concepts are still valid: The forests conducted an analysis that considered the species that occurred on the forests, determined which of those species had conservation needs, narrowed down which species could be affected by management on the forests, screened the risks to species through a coarse filter (ecosystem diversity) and developed additional plan components where necessary through a fine filter approach (species diversity).

Ecosystem Diversity

The ecological and species sustainability framework is built on the principle that by restoring and maintaining the key characteristics, conditions, and functionality of native ecological systems and by identifying and managing for additional needs for key species, the forests will be able to maintain and improve ecosystem diversity, provide for the needs of diverse plant and animal species on the forest, and provide management direction to support viable populations of native and desirable plants, fish, and wildlife.

Ecosystem diversity is defined as the variety and relative extent of ecosystem types including their composition, structure, and processes. The major characteristics of forest-wide ecosystem diversity and descriptions of those systems found on the KIPZ are presented in the Vegetation Specialist Reports (project record) and Vegetation sections of the FEISs for the revised Plans. For aquatic ecosystems, the major characteristics are described in Appendix A.

Species Diversity

The criteria established for selection of species in this analysis are a means to identify all species on the forests for which there are conservation concerns. It is assumed that species for which there are no conservation concerns would be adequately conserved through the ecosystem diversity approach. The following steps were used in the assessment:

1. Identification and screening of species.
2. Information gathering.
3. Grouping of species, where possible.
4. Determining plan components for species diversity.

The first three steps are documented in Appendix B (IPNF) and Appendix C (KNF). Additional information on the amphibian group and cold water group is found in Appendix D and Appendix E, respectively. Additional information on the plant groups is found in Appendix F. As noted above, this assessment was done while working under previous planning rules. These appendices contain references to the 2008 Planning Rule, which is no longer in effect. However, the process

and concepts used to identify and screen species, gather information, and group species is sound. Step 4 was updated using the plan components from the revised plans and is documented here.

Plan Components for Ecosystem Diversity and Species Diversity

Terrestrial - IPNF³

The components for ecosystem diversity were evaluated to determine the degree to which they satisfy species diversity objectives. The development of plan components for ecosystem diversity was an iterative process with that of species diversity and the selection of species of concern and species of interest.

Additional ecosystem diversity plan components needed to provide appropriate ecological conditions for specific listed species, species of concern and species of interest are consistent with the limits of agency authorities, the capability of the plan area, and overall multiple use objectives. Information used in conducting the species diversity analysis was used in the development of plan components for ecosystem diversity.

The combination of components for ecosystem diversity and components for species diversity were designed to help provide ecological conditions for all species that have been identified as federally listed species, species of concern, and species of interest. Plan components focus first on providing appropriate amounts and distribution of suitable habitat throughout the plan area over time. Where a broad scale ecosystem diversity framework will not provide appropriate ecological conditions plan components were designed to reduce the risks or other negative outcomes or threats (e.g., various forms of disturbance). Plan components focus on the key risk factors that have contributed to the status of the species, and that have not been fully addressed in the provisions for ecosystem diversity (e.g., key elements 5, 6, and 7 below).

Recovery plans, existing conservation strategies, and agreements were considered in developing plan components. Consulting agencies were involved in determining how the plan components will contribute to recovery of federally listed species.

The proposed forest plan contains a strategic and programmatic strategy and ecosystem plan components to maintain or trend desired vegetation conditions towards more natural levels for various vegetation dominance types and size classes as well as more specific vegetation conditions or components.

Where it was determined that plan components for ecosystem diversity would not fully address a species or group of species requirements, forest plan components were developed to provide habitats and reduce risks or threats. Examples of providing for individual or groups of species include the following:

1. Managing for appropriate amounts and distribution of habitats used by the species, including habitat restoration if necessary.
2. Managing natural and human disturbance factors (e.g. wildland fire, roads, trails, dams) so their impacts on the species are acceptable.
3. Managing biotic interaction (such as invasion of cheatgrass into sagebrush habitats).
4. Managing for disturbances that are key to species survival (such as producing open stand conditions to support red cockaded woodpeckers).

³ Citations can be found in Appendix B.

5. Managing currently known species locations. This may involve all locations or a subset of locations.
6. Managing newly discovered locations. This could involve all or a subset of locations.
7. Maintaining suitable habitat that is not currently occupied but has a likelihood of being occupied in the near future.

Species that are provided for by ecosystem diversity plan components.

Western yellow-billed cuckoo

This species is considered extremely rare in the northern Rocky Mountains (USFWS 2008) and the species is considered rare in the state. There are no records that directly suggest breeding of the species in the state, and there has been only one recorded observation of the species on the forest (IDCDC 2005).

Plan components for ecosystem diversity that could contribute to the species, should its populations expand and occur on the forest in the future, include those that address riparian habitats and associated species.

Plan components for ecosystem diversity include desired conditions for watersheds (**FW-DC-WTR-01, 02, 03**), riparian habitats (**FW-DC-RIP-01, 02, 03, 04, 05, FW-DC-WL-10, 11, MA2a-DC-VEG-01, MA2b-DC-VEG-01**), and aquatic habitats (**FW-DC-AQH-01**).

The forest should comply with management recommendations for western yellow-billed cuckoo through the implementation of riparian guidelines (see **FW-STD-RIP-01, 02, 03, FW-GDL-RIP-03 and 05, MA2a-GDL-VEG-01, MA2b-GDL-VEG-01**).

Plan components for ecosystem diversity address the main risks and threats to yellow-billed cuckoos including habitat conditions within and the protection of riparian areas.

Gillette's checkerspot butterfly

The Butterflies and Moths of North America database (2008) identify the species occurs in Bonner and Shoshone counties. Population trends are not known for Idaho, and it is unknown if this species occurs on NFS lands on the forest. Populations can fluctuate greatly in abundance from year to year (Williams et al. 1984 cited in IDCWCS 2005). Habitat for the species is considered to be common and well distributed (open stands near riparian areas with honeysuckle and/or snowberry) throughout the forest.

Management of the forest for ecosystem diversity will provide habitat for this species by maintaining or increasing habitats within desired ranges for all dominance types (**FW-DC-VEG-01**), and size classes (**FW-DC-VEG-02**). Forestwide desired condition **FW-DC-VEG-04** promotes a reduction in tree densities and the number of canopy layers to better approximate historic fire regimes. **FW-DC-VEG -02** promotes an increase in the amount of lands in the large size class and the retention of large trees in activity areas, including those potentially used by the species. Plan component **FWDC-VEG-11** for the warm/dry setting promotes vegetation conditions move towards the established range. Stands in the drier sites would be more open and park-like with an understory of grasses, shrubs and herbaceous vegetation. The remainder of this setting would include a mosaic with small patches of seedlings, saplings, and small or medium-size trees (depending on the moisture availability of the site and the age of the patch) inter-mixed within larger patches containing mostly medium to large-size trees. Natural disturbance events of fire and insect and disease occur throughout the forest, including riparian areas and adjacent lands and will also contribute to habitat for the species.

Plan components for ecosystem diversity contribute to sustainability of this species by targeting those risks and threats associated with the species habitat requirements, maintaining or moving successional

stages within desired ranges at both the forestwide scale, and for each of the three biophysical settings on the forest.

Fisher

Forest plan components for ecosystem diversity target those habitat elements necessary for the forest to contribute to sustainability of the species in both its terrestrial and aquatic/riparian habitats: Old forest, stands in the large size class, large diameter snags, down wood in the form of logs, and riparian habitats. Desired conditions for vegetation have been developed at both the forestwide scale and for each of three biophysical settings across the forest.

FW-DC-VEG-01 promotes that more of the forest is dominated by shade-intolerant, fire-adapted, relatively drought-tolerant, potentially long-lived conifer tree species including ponderosa pine and western larch.

FW-DC-VEG-02 promotes that more of the forest is dominated by stands in the older, large size class.

FW-DC-VEG-03 emphasizes that old growth stands are more resistant and resilient to disturbance events such as wildfires, droughts, and potential climate change effects. More of the stands have species dominance types and forest structures that would be expected given the biophysical settings where they occur and the historical disturbance regimes and there is an increase in old growth stands dominated by ponderosa pine, western larch, western white pine, and whitebark pine.

FW-DC-VEG-05 emphasizes that the landscape pattern of the forest vegetation consists of a range of patches sizes that have a diversity of successional stages, densities, and compositions, and there is an increase in the size of forest patches that are dominated by trees in the large size class (including the old growth structures).

FW-DC-VEG-07 addresses the snag component throughout the forest, occurring in an uneven pattern and, in particular, over time there is an increase in the number of large diameter snags >20" dbh.

FW-DC-VEG-11 describes appropriate conditions for each of the three biophysical settings on the forest; warm/dry, warm/moist and subalpine. Emphasis is placed on moving the forest (in terms of dominance types and size classes) towards the desired range for vegetation.

In addition to desired conditions, the plan contains standards and guidelines that address the retention of old growth and snags/cavity habitat in areas of vegetation management. **FW-STD-VEG-01** emphasizes that timber harvest and vegetation management should not modify the characteristics of an old growth stand to the extent that it would no longer meet the definition of old growth. **FW-GDL-VEG-01** emphasizes that timber harvest and vegetation management may take place within old growth stands if these activities serve to both increase the resilience of that old growth, and also the resilience of the stand to disturbance or stressors. **FW-GDL-VEG-02** states that road construction or other developments should generally be avoided in old growth stands unless access is needed to implement vegetation management activities for the purpose of increasing the resistance and resilience of the stands to disturbances.

Snag guideline **FW-GDL-VEG-04** emphasizes the retention of all large diameter snags (>20" dbh) as well as a number of snags >15" dbh throughout the forest, based on the biophysical setting. Snag guideline **FW-GDL-VEG-05** emphasizes that where they occur, snags should be grouped, far enough away from a road to prevent loss, the largest snags should be retained on site, and snags or live trees with cavities should be retained.

Plan components for ecosystem diversity include forestwide desired conditions for watersheds (**FW-DC-WTR-01, 02, 03**), riparian habitats (**FW-DC-RIP-01, 02, 03, 04, and 05**), aquatic habitats (**FW-DC-AQH-01**) and aquatic species (**FW-DC-AQS-01**).

Plan components for ecosystem diversity help provide appropriate ecological conditions for fisher. They address the key habitat components required by fisher: large trees, riparian habitats, snags and down wood, and riparian habitats.

Old forest/large diameter snag group

Plan components for ecosystem diversity address the main habitat components for these species: Large size class/old growth and snags. Desired conditions for vegetation have been developed at both the forestwide scale and for each of three biophysical settings across the forest.

FW-DC-VEG-01 promotes that more of the forest is dominated by shade-intolerant, fire-adapted, relatively drought-tolerant, potentially long-lived conifer tree species including ponderosa pine and western larch.

FW-DC-VEG-02 promotes that more of the forest is dominated by stands in the older, large size class.

FW-DC-VEG-03 emphasizes that old growth stands are more resistant and resilient to disturbance events such as wildfires, droughts, and potential climate change effects. More of the stands have species dominance types and forest structures that would be expected given the biophysical settings where they occur and the historical disturbance regimes and there is an increase in old growth stands dominated by ponderosa pine, western larch, western white pine, and whitebark pine.

FW-DC-VEG-05 emphasizes that the landscape pattern of the forest vegetation consists of a range of patches sizes that have a diversity of successional stages, densities, and compositions, and there is an increase in the size of forest patches that are dominated by trees in the large size class (including the old growth structures).

FW-DC-VEG-07 addresses the snag component throughout the forest, occurring in an uneven pattern and, in particular, over time there is an increase in the number of large diameter snags >20" dbh.

FW-DC-VEG-11 describes appropriate conditions for each of the three biophysical settings on the forest: warm/dry, warm/moist and subalpine. Emphasis is placed on moving the forest (in terms of dominance types and size classes) towards the desired range for vegetation.

In addition to desired conditions the plan contains standards and guidelines that address the retention of old growth and snags/cavity habitat in areas of vegetation management. **FW-STD-VEG-01** emphasizes that timber harvest and vegetation management should not modify the characteristics of an old growth stand to the extent that it would no longer meet the definition of old growth. **FW-GDL-VEG-01** emphasizes that timber harvest and vegetation management may take place within old growth stands if these activities serve to both increase the resilience of that old growth, and also the resilience of the stand to disturbance or stressors. **FW-GDL-VEG-02** states that road construction or other developments should generally be avoided in old growth stands unless access is needed to implement vegetation management activities for the purpose of increasing the resistance and resilience of the stands to disturbances.

Snag guideline **FW-GDL-VEG-04** emphasizes the retention of all large diameter snags (>20" dbh) as well as a number of snags >15" dbh throughout the forest, based on the biophysical setting. Snag guideline **FW-GDL-VEG-05** emphasizes that where they occur, snags should be grouped, far enough away from a road to prevent loss, the largest snags should be retained on site,

and snags or live trees with cavities should be retained. In addition, the forestwide desired conditions for wildlife identify that there are group of species associated or dependent on forests that provide the large size class (**FW-DC-WL-11**) and snags/cavity habitat (**FW-DC-WL-12**) and that they are able to find these conditions throughout the forest, including a variety of old growth types and snag sizes, but in particular snags in the large size class.

Forest plan components for ecosystem diversity target those habitat elements necessary for the forest to contribute to sustainability of the species: Old growth, stands in the large size class, large diameter snags and down wood in the form of logs.

Wolverine

Ecosystem diversity

Wolverines are not tied to a specific vegetation type, forest activities would not change the amount of persistent spring snow, and the types of activities allowed on the forest fit under the list on page 7890 of USDI (2013a). The Forest plan direction would not impact the extent of persistent spring snow, or the impact of trapping mortalities, which were two factors identified in USDI (2013a) as potentially impacting wolverine populations. USDI 2014 determined that even those two potential impacts did not threaten the species and listing wolverine under ESA was not warranted. The forestwide desired conditions for vegetation (**FW-DC-VEG-01, 02, 04, 05, and 11**) would maintain a diversity of habitats that could provide foraging opportunities for wolverines.

Species for which additional plan components have been developed

Grizzly bear

Ecosystem diversity

Because they are habitat generalists with large home ranges, almost all of the plan components for ecosystem diversity address habitat components for this species. Desired conditions and guidelines for vegetation have been developed at both the forestwide scale and for each of three biophysical settings across the forest (**FW-DC-VEG-01, 02, 04, 05, 11**).

Access and recreation forestwide desired condition **FW-DC-AR-07** states that the transportation system and its use have minimal impacts on resources including threatened and endangered species.

The plan also provides a number of forestwide desired conditions for threatened and endangered species. **FW-DC-WL-03** states that the recovery of terrestrial threatened and endangered species is the long-term desired condition. **FW-DC-WL-01** promotes secure habitats surrounding areas such as den sites, while **FWDC-WL-02** promotes large blocks of undeveloped (or areas generally free of human disturbance) lands to facilitate the large home ranges of grizzly bears and other large carnivores. **FW-DC-WL-04** and **05** provide for low levels of disturbance and motorized access management that promote recovery of the grizzly bear.

The plan promotes that NFS lands contribute to movement of wildlife including forestwide desired condition **FW-DC-WL-18** and **FW-GDL-WL-15** through **GDL-WL-17**, **GA-DC-WL-LK-01, 02**, **GA-DC-WL-PO-01**, **GA-DC-WL-PR-01, 03**, and **GA-DC-WL-SJ-02**, **MA1a-DC-WL-01**, **MA1b-DC-WL-01**, **MA1c-DC-WL-01**, and **MA1e-DC-WL-01**, and **MA5-DC-WL-01**.

FW-OBJ-WL-01 addresses restoration of wildlife habitats and emphasizes habitats for listed species.

Species diversity

The plan also provides desired conditions specific to grizzly bear. The plans incorporate the direction established in the Forest Plan Amendments for Motorized Access Management within the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones (**FW-STD-WL-02**). These components address the main stressors associated with motorized use within these two recovery zones as well as for all areas of occupied use outside of the recovery zones on both forests.

The revised plans also contain species diversity components that address risks and threats associated with emergence of grizzly bear from den sites during the spring period (**FW-STD-WL-04**, and **FW-GDL-WL-01**). **FW-GDL-WL-18** states that elements contained in the most recent “Interagency Grizzly Bear Guidelines,” or a conservation strategy once a grizzly bear population is delisted, would be applied to management activities. **FW-STD-WL-03** states that permits and operating plans shall specify sanitation measures and adhere to the forestwide food/attractant storage order in order to reduce human/wildlife conflicts and mortality by making wildlife attractants inaccessible through proper storage or disposal.

Plan components address the principle risks and threats under control of the forest identified for grizzly bear. Implementation of direction in the access amendment will increase the amount of secure habitat in the recovery zone and indirectly may reduce conflicts resulting from hunting. The access amendment addresses disturbance and displacement during the spring, summer and fall. Under the revised plan, habitat conditions throughout the recovery area will be maintained or improved.

Canada lynx

Ecosystem diversity

The Northern Rockies Lynx Management Direction (USDA 2007, ROD) will be carried forward in its entirety as existing direction in the plans (**FW-STD-WL-01**). In addition the forest plans contain ecosystem diversity components at both the forestwide scale and for each of three biophysical settings that are designed to maintain or restore the vegetation composition, structure, size and age class within the ranges of natural variability that over time, provide for the suite of habitats that are essential for Canada lynx, including healthy prey populations (**FW-DC-VEG 01, 02, 04, 05, 08, 11**). **FW-DC-VEG-08** addresses one of the principle components of lynx habitat: down wood used for denning.

The plan promotes that NFS lands contribute to movement of wildlife including forestwide desired condition **FW-DC-WL-18** and **FW-GDL-WL-15** through **GDL-WL-17**, **GA-DC-WL-LK-01, 02**, **GA-DC-WL-PO-01**, **GA-DC-WL-PR-01, 03**, and **GA-DC-WL-SJ-02**, **MA1a-DC-WL-01**, **MA1b-DC-WL-01**, **MA1c-DC-WL-01**, and **MA1e-DC-WL-01**, and **MA5-DC-WL-01**.

Species diversity

The plan also provides wildlife desired conditions that apply to Canada lynx. **FW-DC-WL-01**, **FW-DC-WL-03**, **FW-DC-WL-13** promote lynx habitat. **FW-STD-WL-01** states that the Northern Rockies Lynx Management Direction (2007) and ROD is included in Appendix B of the Plan and shall be applied.

Plan components for ecosystem and species diversity including the Northern Rockies Lynx Management Direction address the principle risks and threats under control of the forest identified for Canada lynx. Forest plan components address lynx habitat, including snowshoe hare habitat, down wood, and movement of lynx within and across lynx analysis units.

Plan components for grizzly bear will also benefit Canada lynx. These include the implementation of the direction in the Forest Plan Amendments for Motorized Access Management within the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones. The grizzly bear recovery areas and the Canada lynx recovery area overlap and management of wheeled motorized vehicle will benefit lynx as well as grizzly bear. Implementation of the access amendment could result in lower levels of motorized wheeled vehicle access and increases in secure (core) habitat in the recovery zone. Indirectly, lower levels of wheeled motorized vehicle access and increases in secure habitat on NFS lands may result in less access by hunters and trappers and a reduction in the potential for encounters.

Implementation of direction in the access amendment will increase the amount of secure habitat in the recovery zone and indirectly may reduce conflicts resulting from hunting. The access amendment addresses potential of disturbance and displacement during the spring, summer and fall. Forest plan components promote movement toward forests that are more representative, redundant, and resilient with the potential of reducing catastrophic fire in lynx habitat. Under the revised plan, habitat conditions throughout the recovery area will be maintained or improved.

Changes in wheeled motorized vehicle access in the United States would not change the mortality risk from legal trapping in Canada; however, wheeled motorized vehicle access may be reduced south of the international border, thus cumulatively, mortality risk from accidental trapping may decrease. Hunting for other wildlife species occurs on both sides of the border. Hunter encounters with lynx may result in a lynx death from malicious shooting. Reducing wheeled motorized vehicle access may slightly reduce this mortality risk factor by making it more difficult for hunters to reach lynx use areas, while facilitating a slight increase in predation risk due to a reduction in hunting opportunities of lynx kitten predator species, such as mountain lions.

Woodland caribou

Ecosystem diversity

Plan components for ecosystem diversity address the main habitat components for this species: Large size class and old growth. Desired conditions for vegetation have been developed at both the forestwide scale and for each of three biophysical settings across the forest.

FW-DC-VEG-01 promotes that more of the forest is dominated by shade-intolerant, fire-adapted, relatively drought-tolerant, potentially long-lived conifer tree species.

FW-DC-VEG-02 promotes that more of the forest is dominated by stands in the older, large size class.

FW-DC-VEG-03 emphasizes that old growth stands are more resistant and resilient to disturbance events such as wildfires, droughts, and potential climate change effects. More of the stands have species dominance types and forest structures that would be expected given the biophysical settings where they occur and the historical disturbance regimes.

FW-DC-VEG-05 emphasizes that the landscape pattern of the forest vegetation more closely resembles the historic pattern and there is an increase in the size of forest patches that are dominated by trees in the large size class (including the old growth structures).

FW-DC-VEG-11 describes appropriate conditions for each of the three biophysical settings on the forest including the warm/moist and subalpine settings used by caribou. Emphasis is placed on moving the forest (in terms of dominance types and size classes) towards the desired range for vegetation. On wet sites in the warm/moist setting emphasis is placed on an abundance of large, old, mature forests often dominated by the climax western hemlock and western redcedar. High tree densities and canopy coverage of 70 percent or more exist through most successional structural stages. Mature stands support very large trees (often 30 to 50 inches in diameter), are open-grown and occasionally park-like in appearance, and are generally two- or multi-storied.

In addition to desired conditions the plan contains guidelines that address the retention of old growth in areas of vegetation management. **FW-STD-VEG-01** states that within old growth stands, timber harvest and other vegetation management activities shall not be authorized if the activities would likely modify the characteristics of the stand to the extent that the stand would be no longer meet the definition of old growth. **FW-GDL-VEG-01** emphasizes that timber harvest and vegetation management should not reduce the amount (acres) of old growth. It also emphasizes that timber harvest and vegetation management may take place within old growth stands if these activities serve to both increase the resilience of that old growth, and also maintain the level of old growth related structural elements that are appropriate for that old growth type. **FW-GDL-VEG-02** addresses the potential for loss of existing old growth through road management and public access.

Access and recreation forestwide condition **FW-DC-AR-07** states that the transportation system and its use have minimal impacts on resources including threatened and endangered species.

The plan promotes that NFS lands contribute to movement of wildlife **FW-DC-WL-18** and **FW-GDL-WL-15** through **GDL-WL-17**, **GA-DC-WL-LK-01, 02**, **GA-DC-WL-PO-01**, **GA-DC-WL-PR-01, 03**, and **GA-DC-WL-SJ-02**, **MA1a-DC-WL-01**, **MA1b-DC-WL-01**, **MA1c-DC-WL-01**, and **MA1e-DC-WL-01**, and **MA5-DC-WL-01**.

Species diversity

The plan also provides desired conditions specific to woodland caribou. **FW-DC-WL-03** states that the recovery of terrestrial threatened and endangered species is the long-term desired condition. **FW-DC-WL-01** states that birthing and rearing areas for terrestrial threatened and endangered species are relatively free of human disturbance, and **FW-DC-WL-07** promotes that NFS lands contribute to movement and promote actions that minimize disturbance throughout the year. **FW-GDL-WL-02** would trend seasonal habitat towards target stand conditions, while **FW-GDL-WL-03** and **FW-GDL-WL-04** would minimize disturbance during calving and winter, respectively. Disturbance in summer habitat would be minimized by **FW-GDL-WL-19**.

Plan components for grizzly bear will also benefit woodland caribou. These include the implementation of the direction in the Forest Plan Amendments for Motorized Access Management within the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones. The Selkirk Grizzly Bear recovery area and the Selkirk Mountains woodland caribou recovery area overlap and management of wheeled motorized vehicle will benefit caribou as well as grizzly bear. Implementation of the access amendment could result in lower levels of motorized wheeled vehicle access and increases in secure (core) habitat in the recovery zone. Indirectly, lower levels of wheeled motorized vehicle access and increases in secure habitat on NFS lands on the IPNFs may result in less access by hunters and a reduction in the potential for hunter/caribou encounters.

Plan components address the principle risks and threats under control of the forest identified for woodland caribou. Forest plan components promote movement toward forests that are more representative, redundant, and resilient with the potential of reducing catastrophic fire in caribou habitat. Under the revised Land Management Plan, habitat conditions throughout the recovery area will be maintained or improved. The Plan components will increase the amount of lands being managed for old growth and maintain or improve habitat conditions of known movement corridors. Snowmobile use in the recovery area is being addressed in travel management planning. Implementation of direction in the access amendment will increase the amount of secure habitat in the recovery zone and indirectly may reduce conflicts resulting from hunting. The access amendment addresses disturbance and displacement during the spring, summer and fall.

Common loon

Ecosystem diversity

The forest provides for the conservation of watersheds (water, soil, and riparian) through a number of forestwide desired conditions but also through the development of riparian habitat conservation areas (RHCAs) as described in the riparian and habitat desired conditions (**FW-DC-WTR-01, FW-DC-RIP-01, FW-DC-RIP-03, FW-DC-RIP-04, FW-DC-RIP-05, FW-DC-AQH-01, FW-DC-AQS-01**). The forest also provides protection of watersheds and aquatics through the implementation of direction contained in the Inland Native Fish Strategy (**FW-STD-RIP-03**).

To minimize the spread of aquatic invasive species, projects should be consistent with **FW-GDL-AQS-02** which states that all equipment (e.g. boots, waders, boats, surveying equipment, machinery) used in water should be treated to prevent the introduction of aquatic invasive species and aquatic borne diseases.

Species diversity

In addition to the components for ecosystem diversity discussed above, the forest also promotes the conservation of common loons in its forestwide wildlife desired conditions and guidelines that address habitat by providing low levels of disturbance (**FW-DC-WL-11, FW-GDL-WL-24**).

Management for ecosystem and species diversity provides for the maintenance of habitats within existing and potential nesting habitat. Plan components have been developed to address the principle stressors of common loon, access to nesting and rearing areas and disturbance during the active nesting period on established sites.

Harlequin duck

Ecosystem diversity

Plan components for ecosystem diversity include forestwide desired conditions for watersheds (**FW-DC-WTR-01, 02, 03, 04**), riparian habitats (**FW-DC-RIP-01, 02, 03, 04, 05**), and aquatic habitats (**FW-DC-AQH-01, 05**). Desired conditions for aquatic species (**FW-DC-AQS-01**) address the sustainability of macroinvertebrates and other aquatic organisms, the primary food sources for harlequin ducks. Plan components for watersheds and aquatics are also contained in the Inland Native Fish Strategy (**FW-STD-RIP-03**).

The forest should comply with management recommendations for harlequin duck through the implementation of riparian guidelines in riparian habitat conservation areas during ground disturbing activities (see **FW-STD-RIP-01, 02, 03, FW-GDL-RIP-01** through **5**). **FW-GDL-AQS-02** addresses the potential for introduction of aquatic invasive species and aquatic borne diseases.

Species diversity

FW-DC-WL-11 states that a mosaic of aquatic and riparian habitats with a low level of disturbance is available for associated species, while **FW-GDL-WL-15** protects nesting and rearing areas from disturbance within in active nesting and rearing areas.

Management for ecosystem and species diversity provides for the maintenance of habitats within existing nest and potential nesting habitat. Plan components have been developed to address the principle stressors harlequin duck associated with human disturbance around known and potential breeding streams during the active nesting and rearing period.

Northern bog lemming

Ecosystem diversity

Plan components for ecosystem diversity include forestwide desired conditions for watersheds (**FW-DC-WTR-01, 02, 03, 04**), riparian habitats (**FW-DC-RIP-01, 02, 03, 04, and 05**), aquatic habitats (**FW-DC-AQH-01, 05**) and aquatic species (**FW-DC-AQS-01**). Plan components also include implementation of the Inland Native Fish Strategy (**FW-STD-RIP-03**).

The forest will manage habitat for northern bog lemming through the implementation of riparian buffers. In general very little management occurs in these areas, unless restoration activities are being conducted to improve stream and/or riparian conditions. Protection of many of these unique habitats is provided through special management designation including research natural areas (RNAs) and special interest areas (SIAs).

The forest also hopes to minimize the spread of exotic invasive species as a result of its management actions through guideline **FW-GDL-AQS-02**, which states that all equipment (e.g. boots, waders, boats, surveying equipment, machinery) used in water should be treated to prevent the introduction of aquatic invasive species and aquatic borne diseases.

Species diversity

The revised plan contains a guideline specific to peatlands (**FW-GDL-VEG-09**) that places a buffer around peatlands/bogs.

Management for ecosystem and species diversity provides for the maintenance of habitats within existing and potential habitat such as peatlands and other riparian areas. Plan components have been developed to protect peatlands/bogs that support bog lemmings.

Black swift

Ecosystem diversity

Plan components for ecosystem diversity include forestwide desired conditions for watersheds (**FW-DC-WTR-01, 02, 03, 04**), riparian habitats (**FW-DC-RIP-01, 02, 03, 04, 05**), aquatic habitats (**FW-DC-AQH-01, 04, 05**) and aquatic species (**FW-DC-AQS-01**). Plan components also include implementation of the Inland Native Fish Strategy (**FW-STD-RIP-03**).

Species diversity

Plan components that would apply to the black swift include the protection of known nest sites from disturbance (**FW-GDL-WL-25**).

The plan components for ecosystem and species address the main risk and threat to black swifts, protection of nest sites and nesting habitat.

Bat group

Ecosystem diversity

Plan components for ecosystem diversity address the main habitat components for this species: Large size class/old growth, snags and riparian areas. Desired conditions for vegetation have been developed at both the forestwide scale and for each of three biophysical settings across the forest:

FW-DC-VEG-01 promotes that more of the forest is dominated by shade-intolerant, fire-adapted, relatively drought-tolerant, potentially long-lived conifer tree species including ponderosa pine and western larch.

FW-DC-VEG-02 promotes that more of the forest is dominated by stands in the older, large size class.

FW-DC-VEG-03 emphasizes that old growth stands are more resistant and resilient to disturbance events such as wildfires, droughts, and potential climate change effects. More of the stands have species dominance types and forest structures that would be expected given the biophysical settings where they occur and the historical disturbance regimes and there is an increase in old growth stands dominated by ponderosa pine, western larch, western white pine, and whitebark pine.

FW-DC-VEG-05 emphasizes that the landscape pattern of the forest vegetation consists of a range of patch sizes that have a diversity of successional stages, densities, and compositions.

FW-DC-VEG-07 addresses the snag component throughout the forest.

FWDC-VEG-11 describes appropriate conditions for each of the three biophysical settings on the forest: warm/dry, warm/moist and subalpine. Emphasis is placed on moving the forest (in terms of dominance types and size classes) towards the middle of the desired range for vegetation.

In addition to desired conditions, the plan contains guidelines that address the retention of old growth and snags/cavity habitat in areas of vegetation management. **FW-STD-VEG-01** states that within old growth stands, timber harvest or other vegetation management activities shall not be authorized if the activities would likely modify the characteristics of the stand to the extent that the stand would no longer meet the definition of old growth. **FW-GDL-VEG-01** emphasizes that timber harvest and vegetation management should not reduce the amount (acres) of old growth. It also emphasizes that timber harvest and vegetation management may take place within old growth stands if these activities serve to both increase the resilience of that old growth, and also maintain the level of old growth related structural elements that are appropriate for that old growth type. **FW-GDL-VEG-02** addresses the potential for loss of existing old growth and one of its primary structural components, snags, through road management and public access. Snag guideline **FW-GDL-VEG-04** emphasizes the retention of all large diameter snags (>20" dbh) as well as a number of snags >15" dbh throughout the forest, based on the biophysical setting. Snag guideline **FW-GDL-VEG-05** emphasizes that where they occur, snags should be grouped, far enough away from a road to prevent loss, the largest snags should be retained on site and snags or live trees with cavities should be retained.

In addition the forestwide desired conditions for wildlife identify that there are group of species associated or dependent on forests that provide the large size class (**FW-DC-WL-12**) and snags/cavity habitat (**FW-DC-WL-13**) and that they are able to find these conditions throughout the forest, including a variety of old growth types and snag sizes, but in particular snags in the large size class.

Plan components for ecosystem diversity also include forestwide desired conditions for watersheds (**FW-DC-WTR-01, 02, 03, 04**), riparian habitats (**FW-DC-RIP-01, 02, 03, 04, 05**), and aquatic habitats (**FW-DC-AQH-01, 05**). Desired conditions for aquatic species (**FW-DC-AQS-01**) address the sustainability of macroinvertebrates and other aquatic organisms. Plan components for watersheds and aquatics are also contained in the Inland Native Fish Strategy (**FW-STD-RIP-03**).

The forest should comply with management recommendations for the implementation of riparian guidelines in Riparian Conservation Areas during ground disturbing activities (see **FW-STD-RIP-01** through **03**, **FW-GDL-RIP-01** through **5**). **FW-GDL-AQS-02** addresses the potential for introduction of aquatic invasive species and aquatic borne diseases.

Species diversity

Plan components specific to the bat group include a forestwide condition that addresses roosting sites such as caves and mines, buildings, large trees and snags. **FW-DC-WL-16** states that caves, mines, and

snags with loose bark provide areas for roosting, hibernation, or maternity sites for various species of bats. Guidelines **FW-GDL-WL-09** and **10** address the installation of bat gates on abandoned mines and the protection of roost sites from human disturbance, and buildings that may provide roost sites.

Management for ecosystem and species diversity provides for the maintenance of habitats including old growth, snags, riparian habitats, caves and mines, and buildings. Plan components have been developed to address the principle stressors of bats, disturbance during the active roosting period and on established hibernation and maternity sites.

Burned forest species group

Ecosystem diversity

Plan components for ecosystem diversity include desired conditions for vegetation forestwide as well as for each of three biophysical settings. Desired conditions and subsequent guidelines have been developed related to a number of components that provide habitats for these species: Old growth, lands managed for old growth, stands in the older, large size class, snags and burned forests. In addition plan components have been developed to address riparian habitats on the forest.

FW-DC-VEG-02 promotes more of the forest dominated by stands in the older, large size class. **FWDC-VEG-03** promotes that old growth stands are more resistant and resilient to disturbance events such as wildfires, droughts, and potential climate change effects.

FW-DC-VEG-05 addresses landscape pattern of the forest vegetation and promotes an increase in the size of forest patches that are dominated by trees in the large size class (including the old growth structures).

The revised plan also emphasizes the retention and/or management of stand structures including snags and live trees greater than 15” dbh throughout the forest (**FW-DC-VEG-07**). Snags occur throughout the Forest in an uneven pattern and provide a diversity of habitats for wildlife species and contribute to the sustainability of snag dependent species. Snag numbers, sizes and species vary by biophysical setting and are consistent with natural succession and historical disturbance regimes. Over time the number of large diameter snags (20” dbh or greater) increases in all biophysical settings.

In addition to desired conditions the plan provides guidelines for the main habitat components described above: Old growth, snags and burned forest.

Part of the forestwide desired condition (**FW-DC-VEG-03**) is that old growth stands are more resistant and resilient to disturbances such as fire, insect and disease and climate change. One method to accomplish that is through vegetation management; however, guideline **FW-STD-VEG-01** states that there should be no reduction in the amount of old growth as a result of timber harvest or vegetation management. Timber harvest and vegetation management may take place within old growth stands, and in lands managed for old growth, if these activities serve to both increase the resilience of that old growth, and also maintain the level of old growth related structural elements that are appropriate for that old growth type (**FW-GDL-VEG-01**). In addition, guideline **FW-GDL-VEG-02** was developed to reduce the potential for a reduction in old growth and snags within old growth stands as a result of road construction and public access.

Where vegetation management activities are proposed, snag guidelines (**FW-GDL-VEG-04**) were developed to retain all snags greater than 20” dbh, in addition to a number of snags and live trees greater than 15” dbh, where they exist, while providing for human safety. Guideline **FW-GDL-VEG-05** provides further direction for management of snags across the forest.

Species diversity

Plan components were developed specifically to address species associated with burned forests. A forestwide desired condition was developed to address that, where applicable and not a safety concern, small to large patches of fire killed trees (either natural or prescribed fires) are available to provide primary habitat for population expansions for species associated with burned forests (**FW-DC-WL-15**). Guideline **FW-GDL-WL-08** was developed to address the retention of burned forests as well as habitat components within burned forests.

Plan components were also developed to address those habitat components that provide for these species outside of those timeframes when burned forest habitats are not available; old growth and snags. A forestwide desired condition (**FW-DC-WL-13**) was developed to address species associated or dependent on snags that promotes snags (especially large diameter snags) across the forest including areas of vegetation management.

Management for ecosystem and species diversity provides for the maintenance of habitats for species in the burned forest group, including burned forest habitat, snags and old forests. Plan components have been developed to address the retention of habitat.

Terrestrial mollusk group

Guidance for management of terrestrial mollusks and their habitat was developed in conjunction with the regional office (Region 1) and the Montana Natural Heritage Program (Hendricks and Maxell 2005). Emphasis is placed on protection of known locations on NFS lands throughout the forest. This includes the retention of cover and down wood in order to maintain moist habitat conditions required by these species, as well as the direct impact of equipment or fire on individual species or populations.

Ecosystem diversity

Plan components for ecosystem diversity related to species in this group include desired conditions for vegetation at both the forestwide scale and for each of three biophysical settings. Forestwide desired condition **FW-DC-VEG-08** addresses one of the principle components of mollusk habitat, down wood (fine and coarse woody debris and logs), while a number of forestwide desired conditions related to soil and riparian habitats address in part management activities on NFS lands. Forestwide desired condition **FW-DC-SOIL-03** provides for minimization of soil impacts and the retention of organic matter and down wood. Forestwide desired conditions for riparian habitat including **FW-DC-RIP-01** which promotes healthy, functioning riparian systems and associated habitats in order to support well distributed native and desired non-native invertebrate populations. A number of forestwide conditions and guidelines have been developed in relation to riparian conservation areas and aquatic habitats (**FW-STD-RIP-01** through **03**, **FW-GDL-RIP-01** through **05**)

Species diversity

Forestwide desired condition **FW-DC-WL-14** identifies that terrestrial mollusks, in addition to other wildlife species, find down wood throughout the forest in all biophysical settings.

Management for ecosystem and species diversity provides for the maintenance of habitats for terrestrial mollusks, including the retention of moisture regimes. Plan components have been developed to address the principle stressors of terrestrial mollusks.

Peregrine falcon

Ecosystem diversity

Management of the forest for ecosystem diversity is discussed in the vegetation forestwide desired conditions. In particular, the plan proposes to manage vegetation communities, discussed in terms of dominance types (**FW-DC-VEG-01**) and size classes (**FW-DC-VEG-02**), within desired ranges which have been identified for the entire forest and for three biophysical settings. It is considered that management of vegetation within desired ranges will provide habitats for the majority of the birds and small mammals known to occur on the forest and supply the main prey base of falcons.

Species diversity

The plan also contains plan components for species diversity in both forestwide desired conditions (**FW-DC -WL-08** for peregrine falcon and **FW-DC -WL-10** for forest land birds) and in a guideline (**FW-GDL-WL-20**) that specifically addresses activities on NFS lands around active raptor nest sites.

Management for ecosystem and species diversity provides for the maintenance of habitats for land birds, the main prey base of falcons. Plan components have been developed to address the principle stressors of peregrine falcons, disturbance during the active nesting season.

Northern goshawk

Species diversity

Forest plan components for species diversity (**FW-GDL-WL-20**) address the main risk factor to northern goshawk, disturbance of known occupied nest sites.

Overall, the short term sustainability of goshawks in the northern region is not an issue. Habitat for goshawks is considered to be well distributed across the region and both forests. The principle issue on the forests is disturbance of nest sites during the nesting period which can result in nest failure. Plan components have been developed to address this issue.

Mountain goat

Overall, in Montana sustainability of mountain goat is not an issue, and mountain goat populations are considered secure (S5). However, concerns have been raised on the KNF with mountain goats and motorized use in the West Cabinets. Mountain goats in Idaho are considered a species of greatest conservation need and vulnerable to extinction or extirpation.

For most of the areas that provide mountain goat habitat the forests have proposed land allocations of recommended wilderness (MA 1b) or backcountry (MA 5). The desired condition for recommended wilderness is that these areas provide for non-motorized use, which would result in no impact to goats during the winter season. This includes the IPNF portion of the West Cabinets.

For those lands allocated to MA 5 (on the IPNF) or 5a, 5b, or 5c (on the KNF) the final determination of suitable uses for these MAs will be determined upon completion of a travel management plan, and/or project level analysis, but until that time existing uses will continue. The desired condition for these lands provides for a variety of motorized and non-motorized activities (summer only, winter only or year-round). Although it is impossible to determine at this time, overall it is expected that current use of the area will continue.

In addition to land allocations the plan provides a desired condition **FW-DC-WL-17**, and guidelines **FW-GDL-WL-11** and **12** that address the issue of mountain goats and motorized winter use (December 1 to April 30).

Plan components have been developed to address the principle stressors of mountain goat: disturbance during the winter season on established use areas.

Bald eagle

Ecosystem diversity

Plan components for ecosystem diversity include forestwide desired conditions that promote an increase in areas dominated by the older, large size class (**FW-DC-VEG-02**), emphasize the retention of old growth (**FW-DC-VEG-03**), and a variety of species and sizes of snags, in particular large diameter snags (**FW-DC-VEG-07**). The plan also emphasizes an increase in the size of forest patches in the large size class (including old growth structures) (**FW-DC-VEG-05**).

The plan also provides for ecosystem diversity in the form of guidelines for activities on NFS lands: to maintain all existing old growth and increase the amount of lands managed for old growth (**FW-GDL-VEG-01**), even though management activities may occur within old growth for the benefit of restoring old growth conditions, and (**FW-GDL-VEG-02**) to prevent the loss of old growth and two of its primary structural components (snags and down wood) through road construction and/or public access. **FW-STD-VEG-01** states that within old growth stands, timber harvest or other vegetation management activities shall not be authorized if the activities would likely modify the characteristics of the stand to the extent that the stand would no longer meet the definition of old growth.

Guidelines (**FW-GDL-VEG-04** and **FW-GDL-VEG-05**) for ecosystem diversity also promote the retention of snags in areas of vegetation management in amounts identified as appropriate for each of the three biophysical settings on the forest. Emphasis is placed on retaining all large diameter (>21" dbh) snags throughout the forest.

Species Diversity

The plan provides for species diversity in the form of guidelines specific to bald eagle and its habitat in order to minimize impacts to existing nest sites during the nesting season or to eagles on established roost sites (**FW-GDL-WL-05**). The plan also provides for the retention of existing nest sites and established roost sites (**FW-GDL-WL-06**) as activities are conducted on NFS lands. The plan provides for the maintenance of habitat components within existing nest territories and in potential bald eagle habitat (**FW-GDL-WL-07**).

Management for ecosystem and species diversity provides for the maintenance of habitats within existing nest territories and potential nesting habitat as bald eagles continue to expand on the forest. Plan components have been developed to address the principle stressors of bald eagle: disturbance during the active nesting period and on established roost sites.

Gray wolf

Ecosystem diversity

Plan components for ecosystem diversity include desired conditions for both the forestwide scale and for each of three biophysical settings based in part on size class and dominance types (**FW-DC-VEG-01, 02, 04, 05, and 11**). The desired condition is such that vegetation conditions are within the desired ranges. Plan components for ecosystem diversity strive to make the forest more representative of those vegetation conditions that wolves and other wildlife developed in and to make forests more resilient to major fires or other natural disturbance events (i.e. more of the forest is dominated by shade-intolerant, fire-adapted, relatively drought-tolerant, potentially long-

lived conifer tree species such as western white pine, ponderosa pine, western larch, and whitebark pine). The plan also emphasizes an increase in the size of forest patches in the large size class (including old growth structures) (**FW-DC-VEG-05**).

In particular the plan emphasizes habitats within the warm/dry and warm/moist biophysical settings (**FW-DC-VEG-11**), where the majority of the big game winter range is found. The vegetation desired condition for these settings incorporate the wildlife desired condition for big game winter range habitat components for canopy and hiding cover.

Species diversity

The plan also provides for gray wolves and its main prey component, big game, in the form of forestwide desired conditions (**FW-DC-WL-17**, **FW-DC-WL-19**, and **FW-DC-WL-20**) and in the form of guidelines (**FW-GDL-WL-11** through **FW-GDL-WL-14**, and **FW-GDL-WL-22**) that address the main risks and threats to gray wolf: disturbance near den and rendezvous sites while in use, and big game habitat parameters for cover and security (in particular for activities on big game winter range). Forestwide desired conditions promote an abundance of big game throughout the forest and low levels of disturbance those timeframes big game are most vulnerable, such as calving and birthing. These guidelines minimize disturbance on big game winter range and to provide security for elk.

Management for ecosystem and species diversity provides for the maintenance of habitats for big game, the main prey base of gray wolves. Plan components have been developed to address the principle stressors of gray wolf, disturbance during the active denning and rearing periods on established den and rendezvous sites.

Terrestrial - KNF⁴

Species that are provided for by ecosystem diversity plan components.

Western yellow-billed cuckoo

This species is considered extremely rare in the northern Rocky Mountains (USFWS 2008) and the species is considered rare in the state (18 observation records) (MNHP 2009). There are no records that directly suggest breeding of the species in the state, and there have been no reported observations of the species on the forest (MNHP 2009).

Plan components for ecosystem diversity that could contribute to the species, should its populations expand and occur on the forest in the future, include those that address riparian habitats and associated species:

Plan components for ecosystem diversity include desired conditions for watersheds (**FW-DC-WTR-01, 02, 03**), riparian habitats (**FW-DC-RIP-01, 02, 03, 04, 05, FW-DC-WL-10, 11, MA2-DC-VEG-01**), and aquatic habitats (**FW-DC-AQH-01**).

The forest should comply with management recommendations for western yellow-billed cuckoo through the implementation of riparian guidelines (see **FW-STD-RIP-01, 02, 03, FW-GDL-RIP-03 and 05, MA2-GDL-VEG-01**).

Plan components for ecosystem diversity address the main risks and threats to yellow-billed cuckoos including habitat conditions within and the protection of riparian areas.

⁴ Citations are found in Appendix C.

Grassland birds

Columbian sharp-tailed grouse may have been extirpated on the forest. For the past 30+ years (and perhaps historically) the species has been rare with only one active breeding area (lek), situated on private lands owned by the Nature Conservancy in the Tobacco Valley near Eureka. Private land development throughout the valley has greatly limited habitat for this species. Breeding is not known to have occurred on NFS lands, due in part to the lack of suitable grassland habitats on the forest. This population has been augmented on various occasions to try and maintain an active population in this area, however no birds have been observed on the lek for the past 4-5 years and no birds have been observed anywhere on the forest for the past several years. Large grassland complexes for sharp-tailed grouse are very rare on NFS lands. Sharp-tailed grouse are not known to occur on the forest at the present time, are not known to have bred on NFS lands, but are only suspected to have used NFS lands in the past. Activities on NFS lands would have very little impact on sharp-tailed grouse habitat and would have no impact on the historical breeding area. Activities on NFS lands that are adjacent to grassland/shrubland habitats on private lands would likely benefit species associated with those habitats, including sharp-tailed grouse as well as other grassland birds.

Plan components for ecosystem diversity include desired conditions for vegetation at both the forestwide scale and for each of three biophysical settings across the forest (**FW-DC-VEG-01, 02, 04, 05, 10, 11**) including the warm/dry setting where habitat for grassland species occur. Plan component **FW-DC-VEG-11** for the warm/dry setting promote vegetation conditions move towards the established range. Stands in the drier sites such as those adjacent to the valley bottoms where the larger grassland complexes occur on private lands would be more open and park-like with an understory of grasses, shrubs and herbaceous vegetation. These include the NFS lands nearest the historical lek used by breeding birds. The remainder of this setting would include a mosaic with small patches of seedlings, saplings, and small or medium-size trees (depending on the moisture availability of the site and the age of the patch) inter-mixed within larger patches containing mostly medium to large-size trees. These stands would provide winter habitat should sharp-tailed grouse return to the area.

Although risks and threats to this species are beyond control of the forest, management of NFS lands for ecosystem diversity could contribute to sustainability of this species by maintaining or moving successional stages within desired ranges at both the forestwide scale and for the warm/dry biophysical setting on the forest. This includes more open stand conditions with grass understories that could potentially be used by this species.

Gillette's checkerspot butterfly

The NatureServe database (2008) identifies that the distribution of Gillette's checkerspot includes only Beaverhead County; however, the Montana Natural Heritage Tracker database (2008) identifies observations in several additional counties. None of these observations include Lincoln County or that portion of Sanders County on the KNF. The Butterflies and Moths of North America database (2008) includes the same findings. The Montana Natural Heritage field guide for this species states that information for this species is not complete. Habitat for the species is considered to be common and well distributed (open stands near riparian areas with honeysuckle and/or snowberry) although the species is not known to occur on the forest. The forest does little to no management in riparian areas that would result in the loss or degradation of habitat for the species. Management in the low elevation forests will contribute habitat for the species by creating openings adjacent to riparian areas while retaining trees for roost sites.

Management of the forest for ecosystem diversity will provide habitat for this species by maintaining or increasing habitats within desired ranges for all dominance types (**FW-DC-VEG-01**), and size classes (**FW-DC-VEG-02**). Forestwide desired condition **FW-DC-VEG-04** promotes a reduction in tree densities and the number of canopy layers to better approximate historic fire regimes. **FW-DC-VEG -02**

promotes an increase in the amount of lands in the large size class and the retention of large trees in activity areas, including those potentially used by the species. Plan component **FW-DC-VEG-11** for the warm/dry setting promotes movement of vegetation conditions towards the established range. Stands in the drier sites would be more open and park-like with an understory of grasses, shrubs, and herbaceous vegetation. The remainder of this setting would include a mosaic with small patches of seedlings, saplings, and small or medium-size trees (depending on the moisture availability of the site and the age of the patch) inter-mixed within larger patches containing mostly medium to large-size trees. Natural disturbance events of fire and insect and disease occur throughout the forest, including riparian areas and adjacent lands and will also contribute to habitat for the species.

Plan components for ecosystem diversity contribute to sustainability of this species by targeting those risks and threats associated with the species habitat requirements; maintaining or moving successional stages within desired ranges at both the forestwide scale and for each of the three biophysical settings on the forest.

Fisher

Forest plan components for ecosystem diversity target those habitat elements necessary for the forest to contribute to sustainability of the species in both its terrestrial and aquatic/riparian habitats: old forest, stands in the large size class, large diameter snags, down wood in the form of logs, and riparian habitats.

Forestwide desired conditions for vegetation have been developed at both the forestwide scale and for each of three biophysical settings across the forest:

FW-DC-VEG-01 promotes that more of the forest is dominated by shade-intolerant, fire-adapted, relatively drought-tolerant, potentially long-lived conifer tree species including ponderosa pine and western larch.

FW-DC-VEG-02 promotes that more of the forest is dominated by stands in the older, large size class.

FW-DC-VEG-03 emphasizes that old growth stands are more resistant and resilient to disturbance events such as wildfires, droughts, and potential climate change effects. More of the stands have species dominance types and forest structures that would be expected given the biophysical settings where they occur and the historical disturbance regimes and there is an increase in old growth stands dominated by ponderosa pine, western larch, western white pine, and whitebark pine.

FW-DC-VEG-05 emphasizes that the landscape pattern of the forest vegetation consists of a range of patches sizes that have a diversity of successional stages, densities, and compositions, and there is an increase in the size of forest patches that are dominated by trees in the large size class (including the old growth structures).

FW-DC-VEG-07 addresses the snag component throughout the forest, occurring in an uneven pattern and, in particular, over time there is an increase in the number of large diameter snags >20" dbh.

FW-DC-VEG-11 describes appropriate conditions for each of the three biophysical settings on the forest: warm/dry, warm/moist, and subalpine. Emphasis is placed on moving the forest (in terms of dominance types and size classes) towards the desired range for vegetation.

In addition to desired conditions the plan contains standards and guidelines that address the retention of old growth and snags/cavity habitat in areas of vegetation management. **FW-STD-VEG-01** emphasizes that timber harvest and vegetation management should not modify the characteristics of an old growth stand to the extent that it would no longer meet the definition of

old growth. **FW-GDL-VEG-01** emphasizes that timber harvest and vegetation management may take place within old growth stands if these activities serve to both increase the resilience of that old growth, and also the resilience of the stand to disturbance or stressors. **FW-GDL-VEG-02** states that road construction or other developments should generally be avoided in old growth stands unless access is needed to implement vegetation management activities for the purpose of increasing the resistance and resilience of the stands to disturbances.

Snag guideline **FW-GDL-VEG-04** emphasizes the retention of all large diameter snags (>20" dbh) as well as a number of snags >15" dbh throughout the forest, based on the biophysical setting. Snag guideline **FW-GDL-VEG-05** emphasizes that where they occur, snags should be grouped, far enough away from a road to prevent loss, the largest snags should be retained on site and snags or live trees with cavities should be retained.

Plan components for ecosystem diversity include forestwide desired conditions for watersheds (**FW-DC-WTR-01, 02, 03**), riparian habitats (**FW-DC-RIP-01, 02, 03, 04, 05**), aquatic habitats (**FW-DC-AQH-01**) and aquatic species (**FW-DC-AQS-01**).

Plan components for ecosystem diversity help provide appropriate ecological conditions for fisher. They address the key habitat components required by fisher: large trees, riparian habitats, snags and down wood, and riparian habitats.

Old forest/large diameter snag group

Plan components for ecosystem diversity address the main habitat components for these species, which are large size class/old growth and snags. Desired conditions for vegetation have been developed at both the forestwide scale and for each of three biophysical settings across the forest:

FW-DC-VEG-01 promotes that more of the forest is dominated by shade-intolerant, fire-adapted, relatively drought-tolerant, potentially long-lived conifer tree species including ponderosa pine and western larch.

FW-DC-VEG-02 promotes that more of the forest is dominated by stands in the older, large size class.

FW-DC-VEG-03 emphasizes that old growth stands are more resistant and resilient to disturbance events such as wildfires, droughts, and potential climate change effects. More of the stands have species dominance types and forest structures that would be expected given the biophysical settings where they occur and the historical disturbance regimes, and there is an increase in old growth stands dominated by ponderosa pine, western larch, western white pine, and whitebark pine.

FW-DC-VEG-05 emphasizes that the landscape pattern of the forest vegetation consists of a range of patches sizes that have a diversity of successional stages, densities, and compositions, and there is an increase in the size of forest patches that are dominated by trees in the large size class (including the old growth structures).

FW-DC-VEG-07 addresses the snag component throughout the forest, occurring in an uneven pattern and, in particular, over time there is an increase in the number of large diameter snags >20" dbh.

FW-DC-VEG-11 describes appropriate conditions for each of the three biophysical settings on the forest: warm/dry, warm/moist and subalpine. Emphasis is placed on moving the forest (in terms of dominance types and size classes) towards the desired range for vegetation.

In addition to desired conditions the plan contains standards and guidelines that address the retention of old growth and snags/cavity habitat in areas of vegetation management. **FW-STD-VEG-01** emphasizes that timber harvest and vegetation management should not modify the characteristics of an old growth stand to the extent that it would no longer meet the definition of

old growth. **FW-GDL-VEG-01** emphasizes that timber harvest and vegetation management may take place within old growth stands if these activities serve to both increase the resilience of that old growth, and also the resilience of the stand to disturbance or stressors. **FW-GDL-VEG-02** states that road construction or other developments should generally be avoided in old growth stands unless access is needed to implement vegetation management activities for the purpose of increasing the resistance and resilience of the stands to disturbances.

Snag guideline **FW-GDL-VEG-04** emphasizes the retention of all large diameter snags (>20" dbh) as well as a number of snags >15" dbh throughout the forest, based on the biophysical setting. Snag guideline **FW-GDL-VEG-05** emphasizes that where they occur, snags should be grouped, far enough away from a road to prevent loss, the largest snags should be retained on site and snags or live trees with cavities should be retained. In addition the forestwide desired conditions for wildlife identify that there are groups of species associated or dependent on forests that provide the large size class (**FW-DC-WL-11**) and snags/cavity habitat (**FW-DC-WL-12**) and that they are able to find these conditions throughout the forest, including a variety of old growth types and snag sizes, but in particular snags in the large size class.

Forest plan components for ecosystem diversity target those habitat elements necessary for the forest to contribute to sustainability of the species, which includes old growth, stands in the large size class, large diameter snags, and down wood in the form of logs.

Wolverine

Ecosystem diversity

Wolverines are not tied to a specific vegetation type, forest activities would not change the amount of persistent spring snow, and the types of activities allowed on the forest fit under the list on page 7890 of USDI (2013a). The Forest plan direction would not impact the extent of persistent spring snow, or the impact of trapping mortalities, which were two factors identified in USDI (2013a) as potentially impacting wolverine populations. USDI 2014 determined that even those two potential impacts did not threaten the species and listing wolverine under ESA was not warranted. The forestwide desired conditions for vegetation (**FW-DC-VEG-01, 02, 04, 05, and 11**) would maintain a diversity of habitats that could provide foraging opportunities for wolverines.

Species for which additional plan components have been developed

Canada lynx

Ecosystem diversity

The Northern Rockies Lynx Management Direction (USDA 2007) will be carried forward in its entirety as existing direction in the revised forest plan. In addition, the revised forest plan contain ecosystem diversity components at both the forestwide scale and for each of three biophysical settings that are designed to maintain or restore the vegetation composition, structure, size and age class within the ranges of natural variability that, over time, provide for the suite of habitats that are essential for Canada lynx, including healthy prey populations (**FW-DC-VEG 01, 02, 04, 05, 08, 11**). **FW-DC-VEG-08** addresses down wood used for denning, which is one of the principle components of lynx habitat.

The revised plan promotes that NFS lands contribute to movement of wildlife throughout the forest including forestwide desired condition **FW-DC-WL-17** and **FW-GDL-WL-12** thru **FW-GDL-WL-14**, **GA-DC-WL-BUL-01, 04**, **GA-DC-WL-CLK-03**, **GA-DC-WL-FSH-01**, **GA-DC-WL-KOO-02**, **GA-**

DC-WL-LIB-01, 04, GA-DC-WL-TOB-02, 05, MA1a-DC-WL-01, MA1b-DC-WL-01, MA1c-DC-WL-01, and MA5abc-DC-WL-01.

Species diversity

The revised plan also provides wildlife desired conditions that apply to Canada lynx. **FW-DC-WL-01, FW-DC-WL-03, FW-DC-WL-13** promote lynx habitat.

FW-STD-WL-01 states that the Northern Rockies Lynx Management Direction (2007) and ROD is included in Appendix B of the Plan and shall be applied.

Plan components for ecosystem and species diversity including the Northern Rockies Lynx Management Direction address the principle risks and threats under control of the forest identified for Canada lynx. Forest plan components address lynx habitat, including snowshoe hare habitat, down wood, and movement of lynx within and across lynx analysis units.

Plan components for grizzly bear will also benefit Canada lynx. These include the implementation of the direction in the Forest Plan Amendments for Motorized Access Management within the Selkirk and Cabinet-Yaak Grizzly Bear Recovery zones. The grizzly bear recovery areas and the Canada lynx recovery area overlap and management of wheeled motorized vehicle will benefit lynx as well as grizzly bear. Implementation of the access amendment could result in lower levels of motorized wheeled vehicle access and increases in secure (core) habitat in the recovery zone. Indirectly, lower levels of wheeled motorized vehicle access and increases in secure habitat on NFS lands may result in less access by hunters and trappers and a reduction in the potential for encounters.

Implementation of direction in the access amendment will increase the amount of secure habitat in the recovery zone and indirectly may reduce conflicts resulting from hunting. The access amendment addresses potential of disturbance and displacement during the spring, summer, and fall. Forest plan components promote movement toward forests that are more representative, redundant, and resilient with the potential of reducing catastrophic fire in lynx habitat. Under the revised plan, habitat conditions throughout the recovery area will be maintained or improved.

Changes in wheeled motorized vehicle access in the United States would not change the mortality risk from legal trapping in Canada; however, wheeled motorized vehicle access may be reduced south of the international border, thus cumulatively, mortality risk from accidental trapping may decrease. Hunting for other wildlife species occurs on both sides of the border. Hunter encounters with lynx may result in a lynx death from malicious shooting. Reducing wheeled motorized vehicle access may slightly reduce this mortality risk factor by making it more difficult for hunters to reach lynx use areas, while facilitating a slight increase in predation risk due to a reduction in hunting opportunities of lynx kitten predator species, such as mountain lions.

Grizzly bear

Ecosystem diversity

Because they are habitat generalists with large home ranges, almost all of the plan components for ecosystem diversity address habitat for this species. Desired conditions and guidelines for vegetation have been developed at both the forestwide scale and for each of three biophysical settings across the forest (**FW-DC-VEG-01, 02, 04, 05, 11**).

Access and recreation forestwide desired condition **FW-DC-AR-07** states that the transportation system and its use have minimal impacts on resources including threatened and endangered species.

The plan also provides a number of forestwide desired conditions for threatened and endangered species. **FW-DC-WL-03** states that the recovery of terrestrial threatened and endangered species is the long-term desired condition. **FW-DC-WL-01** promotes secure habitats surrounding areas such as den sites, while **FWDC-WL-02** promotes large blocks of undeveloped (or areas generally free of human disturbance) lands to facilitate the large home ranges of grizzly bears and other large carnivores. **FW-DC-WL-04** and **05** provide for low levels of disturbance and motorized access management that promote recovery of the grizzly bear.

The plan promotes that NFS lands contribute to movement of wildlife including **FW-DC-WL-17** and **FW-GDL-WL-12** through **FW-GDL-WL-14**, **GA-DC-WL-BUL-01, 04**, **GA-DC-WL-CLK-03**, **GA-DC-WL-FSH-01**, **GA-DC-WL-KOO-02**, **GA-DC-WL-LIB-01, 04**, **GA-DC-WL-TOB-02, 05**, **MA1a-DC-WL-01**, **MA1b-DC-WL-01**, **MA1c-DC-WL-01**, and **MA5abc-DC-WL-01**.

FW-OBJ-WL-01 addresses restoration of wildlife habitats and emphasizes habitats for listed species.

Species diversity

The plan also provides desired conditions specific to grizzly bear. The plans incorporate the direction established in the Forest Plan Amendments for Motorized Access Management within the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones (“access amendment”) (**FW-STD-WL-02**). These components address the main stressors associated with motorized use within these two recovery zones as well as for all areas of occupied use outside of the recovery zones on both forests.

FW-STD-WL-02 and **03** set motorized access standards that would facilitate recovery of the grizzly bear.

The revised plan also contain species diversity components that address risks and threats associated with emergence of grizzly bear from den sites during the spring period (**FW-STD-WL-05**, and **FW-GDL-WL-01**). **FW-GDL-WL-15** states that elements contained in the most recent “Interagency Grizzly Bear Guidelines,” or a conservation strategy once a grizzly bear population is delisted, would be applied to management activities. **FW-STD-WL-04** states that permits and operating plans shall specify sanitation measures and adhere to the forestwide food/attractant storage order in order to reduce human/wildlife conflicts and mortality by making wildlife attractants inaccessible through proper storage or disposal.

Specific to the Kootenai portion of the NCDE, plan component **FW-STD-WL-03** addresses risks and threats associated with motorized access management with direction for open and total motorized route densities and secure habitats (core). Site-specific motorized access densities and secure core habitat are developed at the project level in consultation with the FWS and through appropriate public involvement and National Environmental Policy Act (NEPA) procedures.

Plan components address the principle risks and threats under control of the forest identified for grizzly bear. Implementation of direction in the access amendment will increase the amount of secure habitat in the recovery zone and indirectly may reduce conflicts resulting from hunting. The access amendment addresses disturbance and displacement during the spring, summer, and fall. Under the revised plan, habitat conditions throughout the recovery area will be maintained or improved.

Common loon

Montana Partners in Flight (Casey 2000) identify that minimization of development and recreation activities on known nesting lakes, at least during critical portions of the breeding cycle, is perhaps the best means of managing loon habitat specifically in northwest Montana. Posting of nesting or nursery lakes most susceptible to disturbance has been shown to be effective. It is unlikely that activities on NFS lands would result in loss or degradation of loon habitat (lakes greater than 13 acres in size).

Ecosystem diversity

The forest provides for the conservation of watersheds (water, soil, and riparian) through a number of forestwide desired conditions but also through the development of riparian habitat conservation areas (RHCAs) as described in the watershed, riparian, and aquatic desired conditions (**FW-DC-WTR-01, FW-DC-RIP-01, FW-DC-RIP-03, FW-DC-RIP-04, FW-DC-RIP-05, FW-DC-AQH-01, FW-DC-AQS-01**). The forest also provides protection of watersheds and aquatics through the implementation of direction contained in the Inland Native Fish Strategy (**FW-STD-RIP-03**).

To minimize the spread of aquatic invasive species projects should be consistent with **FW-GDL-AQS-02**, which states that all equipment (e.g. boots, waders, boats, surveying equipment, machinery) used in water should be treated to prevent the introduction of aquatic invasive species and aquatic borne diseases.

Species diversity

In addition to the components for ecosystem diversity discussed above, the forest also promotes the conservation of common loons in its forestwide wildlife desired conditions and guidelines that address habitat by providing low levels of disturbance (**FW-DC-WL-10** and **FW-GDL-WL-20**).

Harlequin duck

Ecosystem diversity

Plan components for ecosystem diversity include forestwide desired conditions for watersheds (**FW-DC-WTR-01, 02, 03, 04**), riparian habitats (**FW-DC-RIP-01, 02, 03, 04, 05**), and aquatic habitats (**FW-DC-AQH-01, 05**). Desired conditions for aquatic species (**FWDC-AQS-01**) address the sustainability of macroinvertebrates and other aquatic organisms, the primary food sources for harlequin ducks. Plan components for watersheds and aquatics are also contained in the Inland Native Fish Strategy (**FW-STD-RIP-03**).

The forest should comply with management recommendations for harlequin duck through the implementation of riparian guidelines in riparian habitat conservation areas during ground disturbing activities (see **FW-STD-RIP-01, 02, 03, FW-GDL-RIP-01** through **5**). **FW-GDL-AQS-02** addresses the potential for introduction of aquatic invasive species and aquatic borne diseases.

Species diversity

FW-DC-WL-10 states that a mosaic of aquatic and riparian habitats with a low level of disturbance is available for associated species, while **FW-GDL-WL-19** protects nesting and rearing areas from disturbance within in active nesting and rearing areas.

Management for ecosystem and species diversity provides for the maintenance of habitats within existing nest sites and potential nesting habitat. Plan components have been developed to address the principle stressors harlequin duck associated with human disturbance around known and potential breeding streams during the active nesting and rearing period.

Northern bog lemming

Ecosystem diversity

Plan components for ecosystem diversity include forestwide desired conditions for watersheds (**FW-DC-WTR-01, 02, 03, 04**), riparian habitats (**FW-DC-RIP-01, 02, 03, 04, 05**), aquatic habitats (**FW-DC-AQH-01, 05**) and aquatic species (**FW-DC-AQS-01**). Plan components also include implementation of the Inland Native Fish Strategy (**FW-STD-RIP-03**). **FW-DC-VEG-12** provides direction specific to peatlands.

The forest will manage habitat for northern bog lemming through the implementation of riparian buffers. In general very little management occurs in these areas, unless restoration activities are being conducted to improve stream and/or riparian conditions. In addition the plan contains a guideline specific to peatlands (**FW-GDL-VEG-09**) that places a buffer around peatlands/bogs. Protection of many of these unique habitats is provided through special management designation including research natural areas (RNAs) and special interest areas (SIAs).

The forest also hopes to minimize the spread of exotic invasive species as a result of its management actions through guideline **FW-GDL-AQS-02**, which states that all equipment (e.g. boots, waders, boats, surveying equipment, machinery) used in water should be treated to prevent the introduction of aquatic invasive species and aquatic borne diseases.

Species diversity

Plan components specific to peatlands includes a guideline (**FW-GDL-VEG-09**) to protect peatlands/bogs.

Management for ecosystem and species diversity provides for the maintenance of habitats within existing and potential habitat such as peatlands and other riparian areas. Plan components have been developed protect peatlands/bogs that support bog lemmings.

Bat group

Ecosystem diversity

Plan components for ecosystem diversity address the main habitat components for this species, which include large size class/old growth, snags, and riparian areas. Desired conditions for vegetation have been developed at both the forestwide scale and for each of three biophysical settings across the forest:

FW-DC-VEG-01 promotes that more of the forest is dominated by shade-intolerant, fire-adapted, relatively drought-tolerant, potentially long-lived conifer tree species including ponderosa pine and western larch.

FW-DC-VEG-02 promotes that more of the forest is dominated by stands in the older, large size class.

FW-DC-VEG-03 emphasizes that old growth stands are more resistant and resilient to disturbance events such as wildfires, droughts, and potential climate change effects. More of the stands have species dominance types and forest structures that would be expected given the biophysical settings where they occur and the historical disturbance regimes, and there is an increase in old growth stands dominated by ponderosa pine, western larch, western white pine, and whitebark pine.

FW-DC-VEG-05 emphasizes that the landscape pattern of the forest vegetation consists of a range of patch sizes that have a diversity of successional stages, densities, and compositions.

FW-DC-VEG-07 addresses the snag component throughout the forest.

FWDC-VEG-11 describes appropriate conditions for each of the three biophysical settings on the forest: warm/dry, warm/moist and subalpine. Emphasis is placed on moving the forest (in terms of dominance types and size classes) towards the middle of the desired range for vegetation.

In addition to desired conditions the plan contains guidelines that address the retention of old growth and snags/cavity habitat in areas of vegetation management. **FW-STD-VEG-01** states that within old growth stands, timber harvest or other vegetation management activities shall not be authorized if the activities would likely modify the characteristics of the stand to the extent that the stand would no longer meet the definition of old growth. **FW-GDL-VEG-01** emphasizes that timber harvest and vegetation management should not reduce the amount (acres) of old growth. It also emphasizes that timber harvest and vegetation

management may take place within old growth stands if these activities serve to both increase the resilience of that old growth, and also maintain the level of old growth related structural elements that are appropriate for that old growth type. **FW-GDL-VEG-02** addresses the potential for loss of existing old growth and one of its primary structural components, snags, through road management and public access. Snag guideline **FW-GDL-VEG-04** emphasizes the retention of all large diameter snags (>20" dbh) as well as a number of snags >15" dbh throughout the forest, based on the biophysical setting. Snag guideline **FW-GDL-VEG-05** emphasizes that, where they occur, snags should be grouped far enough away from a road to prevent loss, the largest snags should be retained on site, and snags or live trees with cavities should be retained.

In addition the forestwide desired conditions for wildlife identify that there are groups of species associated or dependent on forests that provide the large size class (**FW-DC-WL-11**) and snags/cavity habitat (**FW-DC-WL-12**), and that they are able to find these conditions throughout the forest, including a variety of old growth types and snag sizes, but in particular snags in the large size class.

Plan components for ecosystem diversity also include forestwide desired conditions for watersheds (**FW-DC-WTR-01, 02, 03, 04**), riparian habitats (**FW-DC-RIP-01, 02, 03, 04, 05**), and aquatic habitats (**FW-DC-AQH-01, 05**). Desired conditions for aquatic species (**FW-DC-AQS-01**) address the sustainability of macroinvertebrates and other aquatic organisms. Plan components for watersheds and aquatics are also contained in the Inland Native Fish Strategy (**FW-STD-RIP-03**).

The forest should comply with management recommendations for the implementation of riparian guidelines in RHCAs during ground disturbing activities (see **FW-STD-RIP-01** through **03**, **FW-GDL-RIP-01** through **5**). **FW-GDL-AQS-02** addresses the potential for introduction of aquatic invasive species and aquatic borne diseases.

Species diversity

Plan components specific to the bat group include a forestwide condition that addresses roosting sites such as caves and mines, buildings, large trees and snags. **FW-DC-WL-15** states that caves, mines, and snags with loose bark provide areas for roosting, hibernation, or maternity sites for various species of bats. Guidelines **FW-GDL-WL-06** and **07** address the installation of bat gates on abandoned mines and the protection of roost sites from human disturbance, and buildings that may provide roost sites.

Management for ecosystem and species diversity provides for the maintenance of habitats including old growth, snags, riparian habitats, caves and mines, and buildings. Plan components have been developed to address the principle stressors of bats, disturbance during the active roosting period and on established hibernation and maternity sites.

Burned forest species group

Ecosystem diversity

Plan components for ecosystem diversity include desired conditions for vegetation forestwide as well as for each of three biophysical settings. Desired conditions and subsequent guidelines have been developed related to a number of components that provide habitats for these species: old growth, lands managed for old growth, stands in the older, large size class, snags and burned forests. In addition plan components have been developed to address riparian habitats on the forest which will contribute habitats for the olive-sided flycatcher.

FW-DC-VEG-02 promotes more of the forest dominated by stands in the older, large size class.

FW-DC-VEG-03 promotes that old growth stands are more resistant and resilient to disturbance events such as wildfires, droughts, and potential climate change effects.

FW-DC-VEG-05 addresses landscape pattern of the forest vegetation and promotes an increase in the size of forest patches that are dominated by trees in the large size class (including the old growth structures).

The plan also emphasizes the retention and/or management of stand structures including snags and live trees greater than 15” dbh throughout the forest:

FW-DC-VEG-07 Snags occur throughout the Forest in an uneven pattern and provide a diversity of habitats for wildlife species and contribute to the sustainability of snag dependent species. Snag numbers, sizes and species vary by biophysical setting and are consistent with natural succession and historical disturbance regimes. Over time the number of large diameter snags (20” in dbh or greater) increases in all biophysical settings.

In addition to desired conditions the plan provides guidelines for the main habitat components described above, which are old growth, snags and burned forest.

Part of the forestwide desired condition (**FW-DC-VEG-03**) is that old growth stands are more resistant and resilient to disturbances such as fire, insect and disease and climate change. One method to accomplish that is through vegetation management; however, **FW-STD-VEG-01** states that there shall not be a reduction in the amount of old growth as a result of timber harvest or vegetation management. Timber harvest and vegetation management may take place within old growth stands, and in lands managed for old growth if these activities serve to both increase the resilience of that old growth, and also maintain the level of old growth related structural elements that are appropriate for that old growth type (**FW-GDL-VEG-01**). In addition, **FW-GDL-VEG-02** was developed to decrease the potential for a reduction in old growth and snags within old growth stands as a result of road construction and public access.

Where vegetation management activities are proposed, snag guidelines (**FW-GDL-VEG-04**) were developed to retain all snags greater than 20” dbh, in addition to a number of snags and live trees greater than 15” dbh, where they exist, while providing for human safety. Guideline **FW-GDL-VEG-05** provides further direction for management of snags across the forest.

Species diversity

Plan components were developed specifically to address species associated with burned forests. A forestwide desired condition was developed to address that, where applicable and not a safety concern, small to large patches of fire killed trees (either natural or prescribed fires) are available to provide primary habitat for population expansions for species associated with burned forests (**FW-DC-WL-14**). Guideline **FW-GDL-WL-05** was developed to address the retention of burned forests as well as habitat components within burned forests.

Plan components were also developed to address those habitat components that provide for these species outside of those timeframes when burned forest habitats are not available, which are old growth and snags. A forestwide desired condition (**FW-DC-WL-12**) was developed to address species associated or dependent on snags that promotes snags (especially large diameter snags) across the forest including areas of vegetation management.

Management for ecosystem and species diversity provides for the maintenance of habitats for species in the burned forest group, including burned forest habitat, snags and old forests. Plan components have been developed to address the retention of habitat.

Terrestrial mollusk group

Guidance for management of terrestrial mollusks and their habitat was developed in conjunction with the regional office (Region 1) and the Montana Natural Heritage Program (Hendricks and Maxell 2005). Emphasis was placed on protection of known locations on NFS lands throughout the forest. This includes the retention of cover and down wood in order to maintain moist habitat conditions required by these species, as well as the direct impact of equipment or fire on individual species or populations.

Ecosystem diversity

Plan components for ecosystem diversity related to species in this group include desired conditions for vegetation at both the forestwide scale and for each of three biophysical settings. Forestwide desired condition **FW-DC-VEG-08** addresses one of the principle components of mollusk habitat; down wood (fine and coarse woody debris and logs), while a number of forestwide desired conditions related to soil and riparian habitats address in part management activities on NFS lands. Forestwide desired condition **FW-DC-SOIL-03** provides for minimization of soil impacts and the retention of organic matter and down wood. Forestwide desired conditions for riparian habitat including **FW-DC-RIP-01** which promotes healthy, functioning riparian systems and associated habitats in order to support well distributed native and desired non-native invertebrate populations. A number of forestwide standards and guidelines have been developed in relation to riparian conservation areas and aquatic habitats (**FW-STD-RIP-01** through **03**, **FW-GDL-RIP-01** through **05**).

Species diversity

Forestwide desired conditions **FW-DC-WL-13** identify that terrestrial mollusks, in addition to other wildlife species, find down wood throughout the forest in all biophysical settings.

Management for ecosystem and species diversity provides for the maintenance of habitats for terrestrial mollusks, including the retention of moisture regimes. Plan components have been developed to address the principle stressors of terrestrial mollusks.

Peregrine falcon

Ecosystem diversity

Management of the forest for ecosystem diversity is discussed in the vegetation forestwide desired conditions. In particular, the plan proposes to manage vegetation communities, discussed in terms of dominance types (**FW-DC-VEG-01**) and size classes (**FW-DC-VEG-02**), within desired ranges which have been identified for the entire forest and for three biophysical settings. It is considered that management of vegetation within desired ranges will provide habitats for the majority of the birds and small mammals known to occur on the forest and supply the main prey base of falcons.

Species diversity

The plan also contains plan components for species diversity in both forestwide desired conditions (**FW-DC -WL-07** for peregrine falcon and **FW-DC -WL-09** for forest land birds) and in a guideline (**FW-GDL-WL-16**) that specifically addresses activities on NFS lands around active raptor nest sites

Management for ecosystem and species diversity provides for the maintenance of habitats for land birds, the main prey base of falcons. Plan components have been developed to address the principle stressors of peregrine falcons, including disturbance during the active nesting season.

Northern goshawk

Species diversity

Forest plan components for species diversity (**FW-GDL-WL-16**) address the main risk factor to northern goshawk: disturbance of known occupied nest sites.

Overall, the short term sustainability of goshawks in the northern region is not at risk. Habitat for goshawks is considered to be well distributed across the region and both forests. The principle issue on the forests is disturbance of nest sites during the nesting period which can result in nest failure. Plan components have been developed to address this issue.

Mountain goat

Species diversity

Overall, in Montana sustainability of mountain goat is not an issue, and mountain goat populations are considered secure (S5). However, concerns have been raised on the KNF with mountain goats and motorized use in the West Cabinets

For most of the areas that provide mountain goat habitat the forests have proposed land allocations of recommended wilderness (MA 1b) or backcountry (MA 5). The desired condition for recommended wilderness is that these areas provide for non-motorized use, which would result in no impact to goats during the winter season. This includes the KNF portion of the West Cabinets.

For those lands allocated to 5a, 5b, or 5c the final determination of suitable uses for these MAs will be determined upon completion of a travel management plan, and/or project level analysis, but until that time existing uses will continue. The desired condition for these lands provides for a variety of motorized and non-motorized activities (summer only, winter only, or year-round).

In addition to land allocations the plan provides a desired condition specific to big game/native ungulates (**FW-DC-WL-16**), and guidelines (**FW-GDL-WL-08** and **09**) that address the issue of big game/native ungulates and motorized winter use (December 1 to April 30).

Plan components have been developed to address the principle stressors of mountain goat, including disturbance during the winter season on established use areas.

Bald eagle

Ecosystem diversity

Plan components for ecosystem diversity include forestwide desired conditions that promote an increase in areas dominated by the older, large size class (**FW-DC-VEG-02**), emphasize the retention of old growth (**FW-DC-VEG-03**), and a variety of species and sizes of snags, in particular large diameter snags (**FW-DC-VEG-07**). The plan also emphasizes an increase in the size of forest patches in the large size class (including old growth structures) (**FW-DC-VEG-05**).

The plan also provides for ecosystem diversity in the form of standard and guidelines for activities on NFS lands. **FW-GDL-VEG-01** maintains all existing old growth and increases the amount of lands managed for old growth, even though management activities may occur within

old growth for the benefit of restoring old growth conditions. **FW-GDL-VEG-02** aims to prevent the loss of old growth and two of its primary structural components, snags and down wood, through road construction and/or public access. **FW-STD-VEG-01** states that within old growth stands, timber harvest or other vegetation management activities shall not be authorized if the activities would likely modify the characteristics of the stand to the extent that the stand would no longer meet the definition of old growth.

Guidelines (**FW-GDL-VEG-04** and **FW-GDL-VEG-05**) for ecosystem diversity also promote the retention of snags in areas of vegetation management in amounts identified as appropriate for each of the three biophysical settings on the forest. Emphasis is placed on retaining all large diameter (>21" dbh) snags throughout the forest.

Species diversity

The plan provides for species diversity in the form of guidelines specific to bald eagle and its habitat in order to minimize impacts to existing nest sites during the nesting season or to eagles on established roost sites (**FW-GDL-WL-2**). The plan also provides for the retention of existing nest sites and established roost sites (**FW-GDL-WL-03**) as activities are conducted on NFS lands. The plan provides for the maintenance of habitat components within existing nest territories and in potential bald eagle habitat (**FW-GDL-WL-04**).

Management for ecosystem and species diversity provides for the maintenance of habitats within existing nest territories and potential nesting habitat as bald eagles continue to expand on the forest. Plan components have been developed to address the principle stressors of bald eagle, disturbance during the active nesting period and on established roost sites.

Gray wolf

Ecosystem diversity

Plan components for ecosystem diversity include desired conditions for both the forestwide scale and for each of three biophysical settings based in part on size class and dominance types (**FW-DC-VEG-01, 02, 04, 05, and 11**). The desired condition is such that vegetation conditions are within the desired ranges. Plan components for ecosystem diversity strive to make the forest more representative of those vegetation conditions that wolves and other wildlife developed in and to make forests more resilient to major fires or other natural disturbance events, i.e. more of the Forest is dominated by shade-intolerant, fire-adapted, relatively drought-tolerant, potentially long-lived conifer tree species (western white pine, ponderosa pine, western larch, and whitebark pine). The plan also emphasizes an increase in the size of forest patches in the large size class (including old growth structures) (**FW-DC-VEG-05**).

In particular the plan emphasizes habitats within the warm/dry and warm/moist biophysical settings (**FW-DC-VEG-11**), where the majority of the big game winter range is found. The vegetation desired condition for these settings incorporate the wildlife desired condition for big game winter range habitat components for canopy and hiding cover.

Species diversity

The plan also provides for gray wolves and its main prey component, big game, in the form of forestwide desired conditions (**FW-DC-WL-16, FW-DC-WL-18, and FW-DC-WL-19**) and in the form of guidelines (**FW-GDL-WL-08 through 11, and FW-GDL-WL-18**) that address the main risks and threats to gray wolf, disturbance near den and rendezvous sites while in use, and

big game habitat parameters for cover and security (in particular for activities on big game winter range). Forestwide desired conditions promote an abundance of big game throughout the forest and low levels of disturbance those timeframes big game are most vulnerable, such as calving and birthing. These guidelines minimize disturbance on big game winter range and to provide security for elk.

Management for ecosystem and species diversity provides for the maintenance of habitats for big game, the main prey base of gray wolves. Plan components have been developed to address the principle stressors of gray wolf, disturbance during the active denning and rearing periods on established den and rendezvous sites.

Aquatic

Plan Components for Ecosystem Diversity (All Aquatic)⁵

Retention of the Inland Native Fish Strategy (INFISH, US Forest Service 1995; **FW-STD-RIP-03**) provides protection for riparian and aquatic habitat and native fishes on both forests. INFISH contains goals, objectives, standards and guidelines that essentially mitigate effects of management actions on aquatic ecosystems. INFISH created Riparian Habitat Conservation Areas (RHCA) where riparian and aquatic resources have priority for management. Riparian Management Objectives (RMOs) were developed as examples of favorable habitat that stream systems should trend towards. The INFISH strategy protects, maintains and/or improves water body features (stream, lake, and pond morphology, wetland features). Water quality (temperature, sediment, chemistry) and water body features (e.g., pools, large wood) are addressed in the RMOs. The goals in INFISH are “establish an expectation of healthy, functioning watersheds, riparian areas, and associated fish habitats” (US Forest Service 1995, p. A-1).

Plan components for aquatic ecosystem diversity include desired conditions that support natural potential condition and inherent resilience to disturbance (**FW-DC-WTR-01** and **FW-DC-WTR-03**), water quality and flows and full support of beneficial uses (including coldwater biota and salmonid spawning) (**FW-DC-WTR-02**, **FW-DC-WTR-04**, and **FW-DC-WTR-05**). Desired conditions for riparian areas support healthy, functioning riparian systems and associated habitats that support well-distributed native and desirable non-native, plant, vertebrate, and invertebrate communities (**FW-DC-RIP-01**). Integrity of water body features and water quality (**FW-DC-RIP-02** and **03**) and vegetation (**FW-DC-RIP-04** and **FW-DC-RIP-05**) support aquatic ecosystem diversity. Natural characteristics of wetlands (including peatlands) are supported in the desired condition (**FW-DC-WTR-01**).

Water body features (morphology) and water quality are protected through several guidelines, including watershed guidelines regarding ground disturbing activities in impaired watersheds (**FW-GDL-WTR-01**), and treatment of decommissioned roads and trails or those put in intermittent stored service to avoid future risks to aquatic systems (**FW-GDL-WTR-02** and **FW-GDL-WTR-03 (KNF)**). The riparian standards provide protection to water body features and/or

⁵ Unless specified, the plan component references are the same in both the IPNF and KNF revised forest plans.

water quality. **FW-STD-RIP-01, 02, and 03**) provide over-arching protection and direction for restoration where needed of riparian and aquatic resources. Protection from some specific activities is covered through **FW-GDL-RIP-01** (road maintenance), **FW-GDL-RIP-02** (grazing), **GDL-RIP-03** and **FW-GDL-RIP-04** (fire suppression activities), and **GDL-RIP-05** (logging).

Plan Components for Ecosystem Diversity and Species Diversity (by Group)

Amphibian Group⁶

Plan components, including desired conditions and guidelines for watersheds (soil, water, and riparian areas) and aquatic-dependent species, including the inclusion of riparian habitat conservation areas (RHCAs), should provide habitat for the amphibian group. The Plans emphasize the need to maintain or restore habitat conditions in riparian conservation areas.

In general, management of terrestrial habitats within or towards the desired vegetation conditions will provide suitable habitat conditions for the amphibian group. In particular, the plan contains components to maintain levels of down wood appropriate for a particular biophysical setting in all areas of proposed management activity.

More specifically, the plan contains components to address the major risks and threats of habitat loss and degradation, and diseases and parasites. The plan components for riparian areas apply to all riparian habitat conservation areas (RHCAs) and to projects and activities in areas outside of RHCAs that may potentially degrade RHCAs.

There are also several sources of strategic management direction outside of forest plans that contribute to species sustainability. These include State water quality standards, Best Management Practices, Executive Orders, the Forest Service directive system, and a variety of laws and regulations.

The following plan components for ecosystem diversity and species diversity address the habitat characteristics and stressors affecting sustainability of the species comprising the amphibian group. The following plan components in conjunction with other design criteria should provide for the needs and sustainability of this group.

Ecosystem diversity

In addition to the plan components discussed under Ecosystem Diversity (Aquatic), the following ecosystem diversity plan components support the amphibian group.

Desired conditions provide for amphibian group habitats (**FW-DC-WTR-03, FW-DC-AQH-01** and **FW-DC-AQH-04**), connectivity (**FWDC-AQH-02**), and support amphibian group populations (**FWDC-AQH-03**). Stream habitat conditions that provide for additional ecosystem diversity are described in **FWDC-AQH-05**.

⁶ Background information on the amphibian group is documented in Appendix D.

Species diversity

Desired condition components support the continued sustainability and expansion of stronghold populations, genetic integrity and life history strategies of amphibians (**FW-DC-AQS-01**). Effects of non-native fishes and undesirable non-native species are addressed (**FW-DC-AQS-02**). **FWDC-AQS-03** emphasizes cooperation and coordination among agencies, tribes, and other groups to ensure an upward trend in amphibian populations.

Treatment of all equipment used in water prevents introduction of aquatic invasive species and aquatic-borne diseases that may affect amphibians (**FW-GDL-AQS-02**).

Objectives that will maintain or improve species diversity include plan components for restoration activities such as **FW-OBJ-AQS-01**, **FW-OBJ-AQH-01**, and **FW-OBJ-AQH-03**.

*Cold Water Group*⁷

Region 1 aquatic specialists used the following criteria for evaluating whether plan components as described in the revised Forest Plans will provide for aquatic species sustainability:

Will plan components provide for native aquatic species in the Cold Water Group including population size, connectivity (where desired), and genotypic and phenotypic geographic distribution? Self-sustaining populations and metapopulations should provide for genetic and phenotypic diversity. Metapopulations and habitat redundancy should provide for continued existence beyond disturbance events.

There are also several sources of strategic management direction outside of forest plans that provide for species sustainability. These include State water quality standards, Best Management Practices, Executive Orders, the Forest Service directive system and a variety of laws and regulations.

The following plan components for ecosystem diversity and species diversity address the habitat characteristics and stressors affecting sustainability of the species comprising the cold water group. The following plan components in conjunction with other design criteria should provide for the needs and sustainability of the cold water group.

Ecosystem diversity

In addition to the plan components discussed under Ecosystem Diversity (Aquatic), the following ecosystem diversity plan components support the cold water group.

Desired conditions provide for cold water group habitats (**FW-DC-AQH-01**), connectivity (**FW-DC-AQH-02**), and support populations (**FW-DC-AQH-03**). Stream habitat conditions that support ecological diversity for the cold water group are described in **FW-DC-AQH-05 (IPNF)**.

⁷ Background information on the cold water group is documented in Appendix E.

Species diversity

INFISH (**FW-STD-RIP-03**) was developed for native fishes and therefore applies to the cold water group. Some specific standards and guidelines for native fishes include providing fish passage at road crossings (**RF-5**), locating water drafting sites to avoid adverse effects to fish (**RA-5**), and restoration of fish and wildlife habitat (**FW-1, 2, 3, 4**).

Desired condition components support the continued sustainability and expansion of stronghold populations, genetic integrity and life history strategies of fish, and richness and densities of macroinvertebrate communities (**FW-DC-AQS-01** and **FW-DC-AQS-07 (KNF)**). Effects of non-native fishes and undesirable non-native species are addressed under the plan component **FW-DC-AQS-02**. Cooperation and coordination among agencies, tribes, and other groups help to ensure an upward trend in desired aquatic species (**FW-DC-AQS-03**).

Specific desired conditions for the recovery of bull trout and improving their populations are found in **FW-DC-AQS-04** and **FW-DC-AQS-05**, respectively.

Direct effects to native fish redds are protected from grazing (**FW-GDL-RIP-02**). Fish, eggs, and aquatic organisms are protected from effects of drafting water through **FW-GDL-RIP-04**. Timing restrictions on activities that may harass fish or directly deliver sediment into occupied streams protect native fish spawning and incubation (**FW-GDL-AQS-01**). Treatment of all equipment used in water prevents introduction of aquatic invasive species and aquatic-borne diseases (**FW-GDL-AQS-02**).

Objectives that will maintain or improve species diversity include plan components for restoration activities such as **FW-OBJ-AQS-01**, **FW-OBJ-AQH-01**, and **FW-OBJ-AQH-03**.

Plants⁸

Aquatic Plant Species Group

The following plan components for ecosystem diversity and species diversity address the most significant habitat characteristics and stressors affecting sustainability of this species group:

Ecosystem diversity:

FW-DC-VEG-10 - Invasive species

FW-DC-VEG-11 – Biophysical setting desired conditions

FW-DC-WTR-01 - Watershed condition (including streams, lakes, wetlands, peatlands, and riparian areas)

FW-DC-WTR-02 - Normal seasonal flow recharge

FW-DC-RIP-01 - Riparian Conservation Areas (RHCAs)

FW-DC-RIP-04 - Riparian vegetation HRV

FW-DC-VEG-12 - Peatlands

FW-DC-AQH-01 - Provide habitats that support aquatic communities

FW-DC-AQH-04 - Rare and unique aquatic habitats

FW-DC-AQS-01 - Aquatic habitat supports populations

⁸ Background information on the plant species groups is documented in Appendix F.

FW-OBJ-VEG-02 – Noxious weeds and invasive plant species

Species diversity:

FW-GDL-VEG-07– Guideline for conservation of federally listed and regionally sensitive plant species

FW-DC-VEG-09 – Desired conditions for federally listed and regionally sensitive plants

This combination of components for ecosystem diversity and species diversity helps provide appropriate ecological conditions for rare aquatic plant species. They address the key stressors affecting the species on national forest lands through mitigation of management activities that have the greatest influence on aquatic habitats (see especially **FW-GDL-VEG-07**). In particular, the desired conditions for watershed condition (**FW-DC-WTR-01**) and riparian and wetland recharge (**FW-DC-WTR-02**) address: 1) resilience to disturbance; 2) long-term maintenance of physical and biological integrity; and 3) hydrologic function, all of which are crucial for sustainability of these habitats. The desired conditions for aquatic communities (**FW-DC-AQH-01**), availability of rare and unique aquatic habitats (**FW-DC-AQH-04**), and self-sustaining populations of aquatic species (**FW-DC-AQS-01**) also directly apply to this species group and will promote sustainability over time. The invasive species desired condition (**FW-DC-VEG-10**) and objective (**FW-OBJ-VEG-02**) address aquatic non-native invasive species such as *Phalaris arundinacea*.

Cold Forest Plant Species Group

The following plan components for ecosystem diversity and species diversity address the most significant habitat characteristics and stressors affecting sustainability of this species group:

Ecosystem diversity:

FW-DC-AR-07 – Transportation system: minimal impacts on threatened, endangered, and sensitive species

FW-DC-VEG-03 – Old growth

FW-DC-VEG-08 – Down wood (including logs)

FW-DC-VEG-11 – Biophysical setting desired conditions

FW-DC-FIRE-03 – Wildland fire trends vegetation toward desired conditions, and is suppressed to protect key resources

FW-DC-SOIL-01 – Soil properties maintain productivity

FW-DC-SOIL-02 – Soil impacts are minimized

FW-DC-SOIL-03 – Volcanic ash-influenced soils retain unique properties

FW-OBJ-VEG-01 – Forest health (including increased representation of whitebark pine)

FW-OBJ-FIRE-02 – Fire management (including use of unplanned ignitions for resource benefit)

FW-GDL-VEG-01 and **02** – Old growth

Species diversity:

FW-GDL-VEG-07– Guideline for conservation of federally listed and regionally sensitive plant species

FW-DC-VEG-09 – Desired conditions for federally listed and regionally sensitive plants

This combination of components for ecosystem diversity and species diversity helps provide appropriate ecological conditions for rare plant species occurring in cold forest habitats. They address the key stressors affecting the species on national forest lands through mitigation of management activities (such as timber harvest and prescribed fire) that could have the greatest

influence on cold forest habitats (see especially **FW-GDL-VEG-07**). The plan component for the transportation system (**FW-DC-AR-07**) supports minimal impacts on species of concern and species of interest. The plan components for old growth (**FW-DC-VEG-03**, **FW-GDL-VEG-01** and **02**) and forest health (**FW-OBJ-VEG-01**) address: 1) resilience to disturbance; 2) management for expected dominance types and forest structures; and 3) promotion of old growth forests, including whitebark pine and forest habitat types for several of the other cold forest rare plant species. The plan component for fire management (**FW-OBJ-FIRE-02**) supports the use of wildland fire, which will promote restoration objectives for whitebark pine. The soil desired conditions (**FW-DC-SOIL-01** through **03**) address ground disturbance, soil impacts, and mycorrhizal relationships. Some members of this species group may be considered habitat generalists; they are associated with a fairly broad range of ecosystem characteristics or vegetation types, without an affinity to a narrow set of habitat conditions or unique features. The combination of plan components addresses these species by providing guidance to manage relevant forested ecosystems toward desired conditions (e.g., **FW-DC-VEG-11**, which indicates the desired conditions for forests in the subalpine biophysical setting). Desired conditions for whitebark pine are also outlined in this latter component.

Deciduous Riparian Plant Species Group

The following plan components for ecosystem diversity and species diversity address the most significant habitat characteristics and stressors affecting sustainability of this species group:

Ecosystem diversity:

- FW-DC-AR-07** – Transportation system: minimal impacts on threatened, endangered, and sensitive species
- FW-DC-VEG-10** - Invasive species
- FW-DC-VEG-11** – Biophysical setting desired conditions
- FW-DC-FIRE-03** – Wildland fire trends vegetation toward desired conditions, and is suppressed to protect key resources
- FW-DC-WTR-01** - Watershed condition (including streams, lakes, wetlands, peatlands, and riparian areas)
- FW-DC-WTR-02** - Normal seasonal flow recharge
- FW-DC-RIP-01** - Riparian Conservation Areas (RHCAs)
- FW-DC-RIP-04** - Riparian vegetation HRV
- FW-DC-GRZ-01** – Grazing at sustainable levels while protecting resources
- FW-OBJ-VEG-02** – Noxious weeds and invasive plant species
- FW-GDL-RIP-01, 03** through **05**– Riparian area guidelines

Species diversity:

- FW-GDL-VEG-07**– Guideline for conservation of federally listed and regionally sensitive plant species
- FW-DC-VEG-09** – Desired conditions for federally listed and regionally sensitive plants

This combination of components for ecosystem diversity and species diversity helps provide appropriate ecological conditions for rare plant species occurring in deciduous riparian habitats. They address the key stressors affecting the species on national forest lands through mitigation of management activities that have the greatest influence on riparian habitats (see especially **FW-GDL-VEG-07**). In particular, the plan components for watershed condition (**FW-DC-WTR-01**), riparian and wetland recharge (**FW-DC-WTR-02**), Riparian Habitat Conservation Area desired conditions (**FW-DC-RIP-01**) and guidelines (**FW-GDL-RIP-01, 03** through **05**), and riparian vegetation HRV (**FW-DC-RIP-04**) address: 1) resilience to disturbance; 2) long-term

maintenance of physical and biological integrity; and 3) hydrologic function, all of which are crucial for sustainability of these habitats. The desired conditions for grazing at sustainable levels (**FW-DC-GRZ-01**) address livestock use and will promote sustainability over time. The invasive species desired condition (**FW-DC-VEG-10**) and objective (**FW-OBJ-VEG-02**) address non-native invasive species.

Dry Forest Plant Species Group

The following plan components for ecosystem diversity and species diversity address the most significant habitat characteristics and stressors affecting sustainability of this species group:

Ecosystem diversity:

FW-DC-AR-07 – Transportation system: minimal impacts on threatened, endangered, and sensitive species

FW-DC-VEG-03 – Old growth

FW-DC-VEG-10 – Invasive species

FW-DC-VEG-11 – Biophysical setting desired conditions

FW-DC-FIRE-03 – Wildland fire trends vegetation toward desired conditions, and is suppressed to protect key resources

FW-DC-SOIL-01 – Soil properties maintain productivity

FW-DC-SOIL-02 – Soil impacts are minimized

FW-DC-SOIL-03 – Volcanic ash-influenced soils retain unique properties

FW-DC-GRZ-01 – Grazing at sustainable levels while protecting resources

FW-OBJ-VEG-01 – Forest health

FW-OBJ-VEG-02 - Noxious weeds / invasive plant species

FW-GDL-VEG-01 and **02** – Old growth

Species diversity:

FW-GDL-VEG-07– Guideline for conservation of federally listed and regionally sensitive plant species

FW-DC-VEG-09 – Desired conditions for federally listed and regionally sensitive plants

This combination of components for ecosystem diversity and species diversity helps provide appropriate ecological conditions for rare plant species occurring in dry forest habitats. They address the key stressors affecting the species on national forest lands through mitigation of management activities (such as timber harvest and prescribed fire) that could have the greatest influence on dry forest habitats (see especially **FW-GDL-VEG-07**). The plan component for the transportation system (**FW-DC-AR-07**) supports minimal impacts on threatened, endangered, and sensitive species. The plan components for old growth (**FW-DC-VEG-03**, **FW-GDL-VEG-01** and **02**) and forest health (**FW-OBJ-VEG-01**) address: 1) resilience to disturbance; 2) management for expected dominance types and forest structures; and 3) promotion of old growth forests, including ponderosa pine and other warm/dry forest habitat types occupied by several of the dry forest rare plant species. The plan component for fire management (**FW-DC-FIRE-03**) supports the use of wildland fire, which will promote restoration objectives for ponderosa pine and other forest and grassland vegetation types supporting this species group. The soil desired conditions (**FW-DC-SOIL-01** through **03**) address ground disturbance, soil impacts, and mycorrhizal relationships. The invasive species desired condition (**FW-DC-VEG-10**) and objective (**FW-OBJ-VEG-02**) address non-native invasive species that may threaten the ecological integrity of dry forest habitats. The combination of plan components addresses habitats for these species by providing guidance to manage relevant forested ecosystems toward desired conditions (e.g., **FW-DC-VEG-11**, which includes the desired conditions for forests in the

warm/dry biophysical setting). For the driest sites in the warm/dry setting, the desired condition specifically describes stands that are open-grown and park-like, with abundant large-diameter ponderosa pine, lesser amounts of large-diameter Douglas-fir, small patches of tree regeneration, and an understory of grasses, shrubs and herbaceous vegetation. These characteristics will provide suitable habitat for many of the rare plants in the dry forest species group.

Moist Forest Plant Species Group

The following plan components for ecosystem diversity and species diversity address the most significant habitat characteristics and stressors affecting sustainability of this species group:

Ecosystem diversity:

FW-DC-AR-07 – Transportation system: minimal impacts on threatened, endangered, and sensitive species

FW-DC-VEG-03 – Old growth

FW-DC-VEG-08 – Down wood (including logs)

FW-DC-VEG-11 – Biophysical setting desired conditions

FW-DC-FIRE-03 – Wildland fire trends vegetation toward desired conditions, and is suppressed to protect key resources

FW-DC-SOIL-01 – Soil properties maintain productivity

FW-DC-SOIL-02 – Soil impacts are minimized

FW-DC-SOIL-03 – Volcanic ash-influenced soils retain unique properties

Species diversity:

FW-GDL-VEG-07 – Guideline for conservation of federally listed and regionally sensitive plant species

FW-DC-VEG-09 – Desired conditions for federally listed and regionally sensitive plants

This combination of components for ecosystem diversity and species diversity helps provide appropriate ecological conditions for rare plant species occurring in moist forest habitats. They address the key stressors affecting the species on national forest lands through mitigation of management activities (such as timber harvest) that could have the greatest influence on moist forest habitats (see especially **FW-GDL-VEG-07**). The plan component for the transportation system (**FW-DC-AR-07**) supports minimal impacts on species of concern and species of interest. The plan component for old growth (**FW-DC-VEG-03**) addresses: 1) resilience to disturbance; 2) management for expected dominance types and forest structures; and 3) promotion of old growth western redcedar forests where many of the moist forest rare plant species occur. Availability of logs as substrate is addressed in the desired condition for down wood (**FW-DC-VEG-08**). The soil desired conditions (**FW-DC-SOIL-01** through **03**) address ground disturbance, soil impacts, and mycorrhizal relationships. Some members of this species group may be considered habitat generalists; they are associated with a broad range of ecosystem characteristics or vegetation types, without an affinity to a narrow set of habitat conditions or unique features. The combination of plan components addresses these species by providing guidance to manage relevant forested ecosystems toward desired conditions (e.g., **FW-DC-VEG-11**, which indicates the desired conditions for forests in the warm/moist biophysical setting).

Peatland Plant Species Group

The following plan components for ecosystem diversity and species diversity address the most significant habitat characteristics and stressors affecting sustainability of this species group:

Ecosystem diversity:

FW-DC-VEG-10 - Invasive species

FW-DC-VEG-11 – Biophysical setting desired conditions

FW-DC-WTR-01 - Watershed condition (including streams, lakes, wetlands, peatlands, and riparian areas)

FW-DC-WTR-02 - Normal seasonal flow recharge

FW-DC-RIP-01 - Riparian Conservation Areas (RHCAs)

FW-DC-RIP-04 - Riparian vegetation HRV

FW-DC-VEG-12 - Peatlands

FW-DC-AQH-01 - Provide habitats that support aquatic communities

FW-DC-AQH-04 - Rare and unique aquatic habitats

FW-DC-AQS-01 - Aquatic habitat supports populations

FW-DC-GRZ-01 – Grazing at sustainable levels while protecting resources

FW-OBJ-VEG-02 – Noxious weeds and invasive plant species

FW-GDL-VEG-09– Activity buffer adjacent to peatlands

Species diversity:

FW-GDL-VEG-07– Guideline for conservation of federally listed and regionally sensitive plant species

FW-DC-VEG-09 – Desired conditions for federally listed and regionally sensitive plants

This combination of components for ecosystem diversity and species diversity helps provide appropriate ecological conditions for rare peatland plant species. They address the key stressors affecting the species on national forest lands through mitigation of management activities that have the greatest influence on peatland habitats (see especially **FW-GDL-VEG-09** and **FW-GDL-VEG-07**). In particular, the desired conditions for watershed condition (**FW-DC-WTR-01**) and riparian and wetland recharge (**FW-DC-WTR-02**) address: 1) resilience to disturbance; 2) long-term maintenance of physical and biological integrity; and 3) hydrologic function, all of which are crucial for sustainability of these habitats. The desired conditions for peatlands (**FW-DC-VEG-12**), availability of rare and unique aquatic habitats (**FW-DC-AQH-04**), and self-sustaining populations of aquatic species (**FW-DC-AQS-01**) also directly apply to this species group and will promote sustainability over time. The invasive species desired condition (**FW-DC-VEG-10**) and objective (**FW-OBJ-VEG-02**) address non-native invasive species, such as *Phalaris arundinacea*, that may threaten the ecological integrity of peatlands.

Subalpine Grassland Plant Species Group

The following plan components for ecosystem diversity and species diversity address the most significant habitat characteristics and stressors affecting sustainability of this species group:

Ecosystem diversity:

FW-DC-AR-07 – Transportation system: minimal impacts on threatened, endangered, and sensitive species

FW-DC-VEG-10 – Invasive species

FW-DC-SOIL-01 – Soil properties maintain productivity
FW-DC-SOIL-02 – Soil impacts are minimized
FW-DC-SOIL-03 – Volcanic ash-influenced soils retain unique properties
FW-DC-SFP-01 – Special forest and botanical products
MA1a – Wilderness desired conditions
MA1b – Recommended wilderness desired conditions
MA1c – Wilderness study area desired conditions
MA5 – Backcountry desired conditions
FW-OBJ-VEG-02 – Noxious weeds / invasive plant species

Species diversity:

FW-GDL-VEG-07– Guideline for conservation of federally listed and regionally sensitive plant species
FW-DC-VEG-09 – Desired conditions for federally listed and regionally sensitive plants

This combination of components for ecosystem diversity and species diversity helps provide appropriate ecological conditions for rare plant species occurring in subalpine grassland habitats. They address the key stressors affecting the species on national forest lands through mitigation of management activities (such as trail construction and maintenance of administrative sites) that could have the greatest influence on the habitats (see especially **FW-GDL-VEG-07**). The plan component for the transportation system (**FW-DC-AR-07**) supports minimal impacts on species of concern and species of interest. The plan component for harvest of special forest products (**FW-DC-SFP-01**) supports sustainable harvest of such species; while the rare species in this group are not likely to be harvested, this component will be useful in managing the habitats in a sustainable manner. The soil desired conditions (**FW-DC-SOIL-01** through **03**) address ground disturbance, soil impacts, and mycorrhizal relationships. The desired conditions for wilderness (**MA1a**), recommended wilderness (**MA1b**), wilderness study areas (**MA1c**), and backcountry areas (**MA5**) support protection of this species group from many disturbance activities. The invasive species desired condition (**FW-DC-VEG-10**) and objective (**FW-OBJ-VEG-02**) address non-native invasive species that may threaten the ecological integrity of subalpine grassland habitats.

Appendix A: Characteristics of Ecosystem Diversity (Aquatic)⁹

43.12 – Characteristics of Ecosystem Diversity (Aquatic)

Aquatic ecosystems are stream channels, lakes or estuary beds, water, and biotic communities and the habitat features that occur therein (FSM 2526.05). The three basic types of freshwater ecosystems are:

Lotic: fast-moving water, for example streams and rivers.

Lentic¹⁰: slow-moving or standing water, including pools, ponds, lakes, and reservoirs.

Wetlands: areas where the soil is saturated or inundated for at least part of the time.

The major zones in river ecosystems are typically determined by the stream size and bed's gradient or by the velocity of the current (Vannote *et al.* 1980). The food base of streams within riparian forests is mostly derived from the trees, but wider streams and those that lack a canopy derive the majority of their food base from algae.

Besides large lakes, two important subclasses of lakes are ponds (small lakes that integrate with wetlands), and reservoirs. Pond ecosystems base trophic level is largely based on the autotrophic algae. The largest predator in a pond ecosystem will normally be a fish and in-between range smaller insects and microorganisms. Ponds may have a scale of organisms from small bacteria to big creatures like water snakes, beetles, water bugs, and turtles.

Wetlands are dominated by vascular plants that have adapted to saturated soil. Wetlands are among the most productive natural ecosystems because of the proximity of water and soil. Wetlands are often classified based upon surface water availability, soil characteristics, and vegetation community. Examples of unique wetlands found within forests include peatlands and vernal ponds.

Elements of Aquatic Ecosystems

An ecosystem is composed of biotic communities and abiotic environmental factors. The basic building blocks of the aquatic systems include (see Figure 1):

- Water body features including stream channel morphology; pool, pond, lake and reservoir morphometry; and wetlands.
- Water quality including chemistry, temperature, and sediment.
- Water quantity including surface & ground water flow

⁹ The majority of this diversity analysis was done while the forests were working under previous planning rules. The appendices contain terminology from the 2008 planning rule directives, which is no longer in effect; however, the concepts are still valid: The forests conducted an analysis that considered the species that occurred on the forests, determined which of those species had conservation needs, narrowed down which species could be affected by management on the forests, screened the risks to species through a coarse filter (ecosystem diversity) and developed additional plan components where necessary through a fine filter approach (species diversity).

¹⁰ Descriptions of lentic systems for Idaho and western Montana are found in Rabe and Chadde (1994) and Pierce and Jensen (2002).

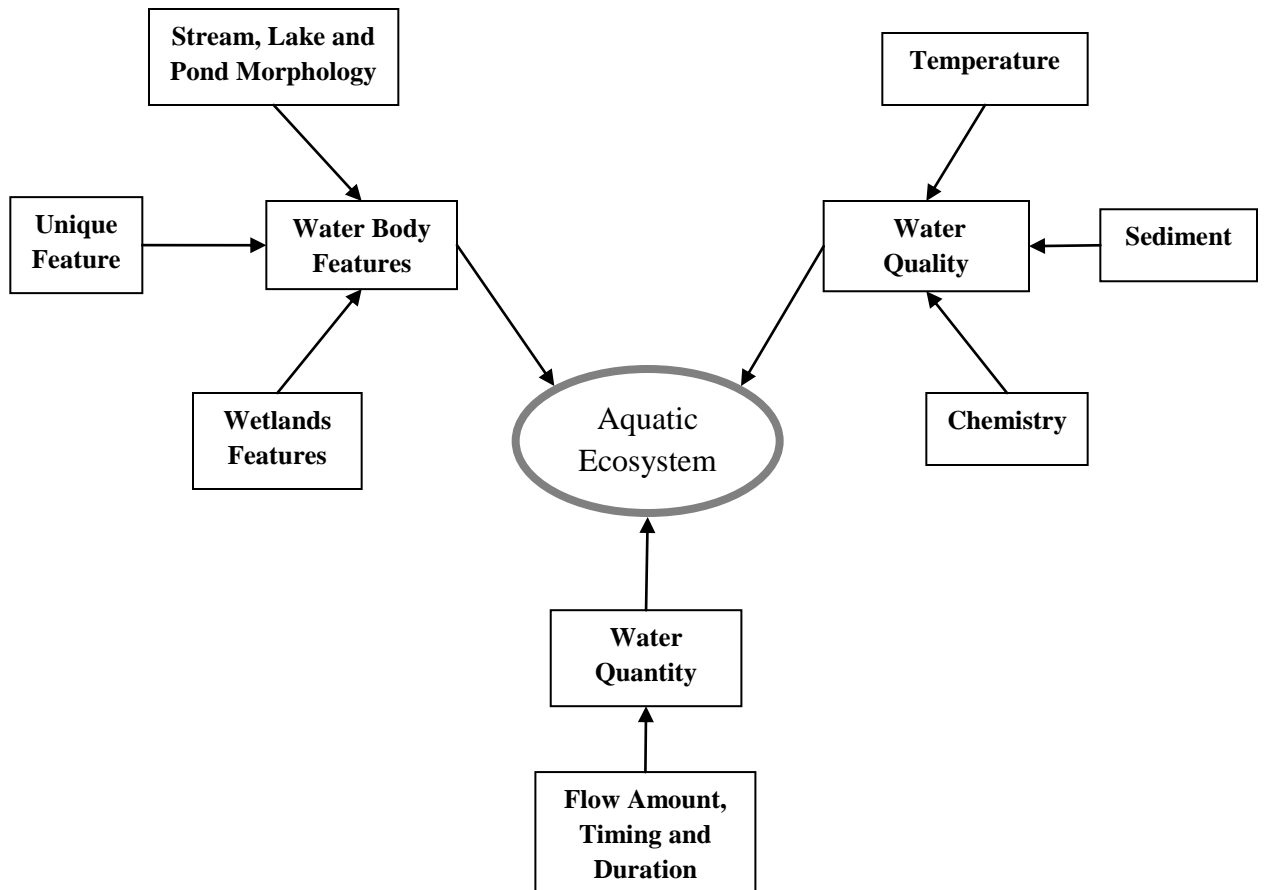


Figure 1. Elements of aquatic ecosystems.

Water Body Features

Stream Channel Morphology

Stream channel morphology refers to the shape and structure features of a stream channel. Morphological features most important in influencing aquatic habitat conditions are pool/riffle ratio (frequency of pools), wood, substrate size and distribution, channel bank steepness (angle), as well as channel width, depth, and gradient. These features are influenced by local geology and climate which can determine the amount and size of sediment, duration and size of peak flows, stream gradient, and channel bank steepness.

Pools are essential to fish because they provide a range of habitats, store nutrients for food, and act as buffers during sediment pulses. The frequency and size of pools are dependent on stream size, gradient, confinement, large woody debris, flow and sediment load. Pool quality, as measured by pool size and depth, is perhaps more important to fish than number of pools.

Residual pool depth, area, and volume of pools can serve as sensitive indicators of changes in sediment load.

The interaction of woody debris and aquatic habitats is very dynamic. Down wood in streams affects the formation and distribution of habitat units, provides cover and complexity, and acts as a substrate for biological activity (Swanson et al. 1982, Harmon et al. 1986). Woody debris jams, and root wads can provide complex habitats for fish. Wood can also influence channel morphology and the formation of pools (Bisson et al. 1987). Downstream transport rates of sediment and organic material are often controlled in part by storage of this material behind wood debris (Beschta 1979). Wood recruitment to aquatic habitats can occur through a variety of methods, including falling in, blow-down, landslides, and beaver activity. Most wood entering aquatic habitats comes from the riparian area closest to the aquatic habitat within approximately one tree height (VanSickle & Gregory 1990).

Substrate size composition is a key characteristic in the formation and maintenance of stream channel morphology. Larger substrates often provide habitat complexity and hydrologic diversity. Stream gradient and stream flow, which are indicators of a stream's energy and ability to move various substrate particles, is closely correlated to substrate size composition. Substrate size distributions can provide an indication of suitability of aquatic habitats for various aquatic organisms. Aquatic macroinvertebrates are sensitive to differences in substrate composition and the amount of interstitial space between the particles. Large particle substrates embedded with fines provide poor habitat for most aquatic invertebrates. Some aquatic organisms use substrate surfaces for egg attachment. An excess of fine substrate particles can also result in smothering of fish eggs in their redds (nests). Often pool tail fines are measured to determine the amount of fine particles in areas typically used by fish to spawn.

Bank stability is key to maintaining aquatic habitat integrity. Banks tend to hold the habitat in place and help to minimize excessive erosion. Stable banks help to provide habitat diversity through development of deep and shallow water habitats. Unstable banks often result in overly wide streams with an abundance of shallow water habitats and few deep water habitats. Bank stability often results in overhanging banks which provide beneficial cover and shade to aquatic organisms.

Bank steepness and stability can be an important indicator of the condition of a stream. Unstable banks contribute sediment to the stream by slumping and surface erosion, causing corresponding decreases in depth, which may increase maximum summer water temperatures and reduce cover for fish. Further, actively eroding stream banks support little or no vegetation, which can reduce both input of organic matter and habitat for riparian dependent species. Factors that contribute to bank stability include soil rock content, vegetation vigor and rooting depth, and amount, timing, and duration of disturbance (e.g., seasonal high flows, grazing, recreation use). Physical disturbance of banks can cause sloughing or breaking off of overhangs and result in bank angles greater than ninety degrees.

Pool, Pond, Lake and Reservoir Habitat Morphometry

The geologic origin of a pool, pond, or lake sets the limits for the morphometry (shape) of its basin. Since reservoirs are artificial they do not follow the natural form and function of other lentic habitats; however, many of their habitat characteristics are similar and are therefore included in this section. The morphometric features most important in influencing lentic aquatic habitat conditions include surface area, depth, and amount of shoreline. Once the basin has formed, a variety of physical, chemical, and biological features interact to produce discernable structure within the water (Goldman & Horne 1983).

Morphometry has important effects in nearly all major physical, chemical, and biological lentic habitat characteristics including: habitat zonation (e.g., shallow, deep), thermal stratification, water chemistry, water movement (including mixing), aquatic vegetation and algal growth, nutrient cycling, and biological structure or food web development.

Substrate size composition influences lentic habitat morphometry and resistance to shoreline erosion. Larger substrates often provide habitat complexity and cover for aquatic species. For some aquatic organisms substrates provide surfaces for egg attachment.

Lentic habitats, like other aquatic habitats, are influenced by the watersheds in which they occur. Watershed conditions and geology affect the amount and timing of sediment, water, organic material, and nutrient delivery to lentic habitats. In addition, watershed geology often influences water chemistry.

Lentic habitats vary widely in size from very large (e.g. Pend Oreille Lake) to very small (e.g., individual vernal pools). Down wood provides additional habitat complexity to lentic habitats especially around the habitat margins. Lentic habitats support a wide variety of aquatic-dependent organisms including, but not limited to, benthic aquatic macroinvertebrates, crustaceans, amphibians, aquatic macrophytes, plankton, algae, and fish.

Wetlands (including peatlands, fens, bogs, seeps, and springs):

Wetlands are lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface. Wetlands vary widely because of regional and local differences in soils, topography, climate, hydrology, water chemistry, vegetation, and other factors, including human disturbance.

Wetlands are recognized as important features in the landscape that provide numerous benefits for water quality, aquatic and terrestrial species. Wetlands protect and improve water quality, store flood waters, and maintain surface water flow during dry periods. Wetlands are among the most biologically productive natural ecosystems. Abundant vegetation and shallow water provide diverse habitat for a wide variety of plant, aquatic, and terrestrial species. Aquatic plant life flourishes in the nutrient-rich environment, and energy converted by the plants is passed up the food chain.

Peatlands are defined as wetlands with waterlogged substrates and approximately 30 cm or more of peat accumulation (Kivinen and Pakarinen 1981). Fens and bogs are two major types of peatlands. There are no true bogs in the Northern Rockies of the United States (Windell *et al.* 1986); all of the peatlands in the region are fens. Peatlands are characterized by specific environmental conditions not found in other wetland ecosystems. Due to their great mass of water-holding organic matter, peatlands are exceptionally stable and may persist for centuries (Chadde *et al.* 1998). Peat accumulation occurs when the rate of accumulation of organic matter exceeds the rate of decomposition, owing primarily to the anaerobic conditions. These habitats are thus also extremely unique in that they are autogenic (self-creating) where conditions permit. A large number of rare and ecologically restricted plant and animal species occur in peatland habitats, and these species form well-defined guilds by their restriction to fens.

Fens are minerotrophic, receiving nutrients from water that has percolated through mineral soil and bedrock, or which has run off from uplands into a surface source such as a creek before entering the fen. Some fens develop on flat or gently sloping terrain and are concave or slightly

raised above their surroundings (Chadde *et al.* 1998). The water sources for such fens are commonly from groundwater that is discharged directly into the overlying peat from beneath.

Floating fen mats are a classic feature of basin or lake-fill peatlands. Roots and rhizomes of living plants and accumulated leaf litter intertwine to form a mat that floats on the water or overlies very unstable mulch below. The vegetation of floating fen mats is variable and can be typical of that associated with poor or rich fens. Floating mats are ecologically stable communities because of their ability to adjust to fluctuating water levels (Chadde *et al.* 1998).

Apart from areas underlain by limestone, most peatlands in the northern Rocky Mountains are best characterized as poor fens. Poor fens are dominated by mosses (especially sphagnum mosses) and have a relatively small number of vascular plant species, notably members of the sedge (Cyperaceae) and heath (Ericaceae) families. The poor fens in the region are typically more acidic, and less floristically diverse, than the rich fens, and also contain far fewer rare species. However, poor fens, such as those found on the IPNF, can have rare, unique plant species. The most extensive, floristically diverse concentration of rich fens occurs in northwest Montana. This region is characterized by a moist climate, abundant surface water, generally calcareous substrate, and a post-glacial landscape featuring potholes and sidehill benches. Rich fens are less acidic and have a greater concentration of calcium carbonate than poor fens.

Seeps and springs are usually small, well-defined areas within diverse community types. Seeps are spots where water oozes from the earth, often forming the source of a small stream (Bates and Jackson 1984), where springs form where a greater volume of water is issuing from the ground. Both seeps and springs may be thermally active, or they may be cold water sources. In otherwise dry landscapes, seeps and springs are important refugia for a variety of wildlife, aquatic and plant species, and in some cases species are restricted to these habitats (such as *Epipactis gigantea*, an orchid species that is confined to thermal and cold springs where water emanates throughout the entire year).

Unique semi-aquatic wetlands include vernal pools. Vernal pools are temporary bodies of water, usually 1 hectare or less in size, that form from melting snow and rain in late winter or early spring (Kulp and Rabe 1984). The pools dry by early fall. Water levels fluctuate seasonally and from year to year, depending on the amount of precipitation. Soils of vernal pools are a mixture of clays, silts, and organic sediments. Some plant species are entirely restricted to vernal pools, including the federally listed species water howellia (*Howellia aquatilis*), which is confined to these habitats in northwest Montana and northern Idaho.

Water Quality

Water Chemistry

Water chemistry in streams, lakes, ponds, and wetlands is variable and dependent on a variety of environmental factors including climate, weathering, geologic parent material, soil type, flow regimes, and vegetation characteristics. Some important water chemistry parameters for the cold water group include nutrient concentrations (primarily phosphorus and nitrogen), pH, conductivity, alkalinity, and dissolved oxygen.

Water chemistry is very important because cold water biota depend on chemical characteristics that are within certain ranges. There are many natural processes that directly and indirectly affect water chemistry. For example, aquatic plants use nutrients (such as nitrogen and phosphorus) and carbon dioxide to grow and photosynthesize during the day. This releases oxygen into the water that can be used by other aquatic organisms. During the night, photosynthesis stops, so oxygen

levels decrease and carbon dioxide increases. The diurnal shifts in carbon dioxide changes the amount of carbonic acid in the water, which ultimately changes the pH.

Some water chemistry characteristics are closely related to solar radiation and air temperature. Cold water holds more oxygen and has less potential to grow aquatic algae and plants. Warmer water that gets more sunlight tends to have less dissolved oxygen because of decomposition of rapidly growing algae and other aquatic plants.

Water Temperature

Water temperature in streams, lakes, ponds, and wetlands is variable and dependent on a variety of environmental factors including climate, flow regime (surface and sub-surface), and riparian vegetation. Water temperatures are generally very cold at high elevations where streams are fed by springs and snowmelt. Water bodies at lower elevations generally have warmer temperature regimes.

Water temperature is a very important habitat parameter for the cold water group. Cold water temperatures are particularly important for native salmonids. Cold water typically has high concentrations of dissolved oxygen.

Sediment

Sediment is found in a variety of forms in all rivers, streams, ponds, and lakes. It can be in the form of suspended or bedload, and can range in size from large boulders to tiny clay particles. Large sediment material, such as boulders and cobbles are most often found in steep gradient streams, while gravels, sands, and clays are found in low gradient streams, rivers, lakes, and ponds.

Sediment is critically important because it is a basic building block of aquatic ecosystems and forms stream channels, banks, shorelines, and floodplains. It provides a medium for plant growth on stream beds, banks, and flood plains, and also provides a medium for aquatic macroinvertebrates and salmonid reproduction (spawning and egg incubation).

Even though sediment in a variety of forms is an essential building block of aquatic ecosystems, excessive amounts of it can degrade aquatic ecosystems and the cold water group. In wildland watersheds, excessive sediment is often the most common pollutant. Sediment is also the primary vehicle for nutrients to enter aquatic ecosystems.

Water Quantity

Flow Regime

Flow regime refers to the timing, duration, frequency, and magnitude of stream flow, and can be described in annual, seasonal, monthly, or daily terms. Other water bodies such as ponds, lakes, and reservoirs are strongly affected by the flow regime because they are most often directly connected to stream networks.

The flow regime in wildland watersheds is critically important to the cold water group for a variety of reasons. The size and shape of streams (morphology) is directly related to the flow regime, sediment supply, and landform. Changes in the flow regime can alter sediment transport characteristics and riparian vegetation, which ultimately affect channel morphology and ultimately the cold water group of aquatic species. In addition, the flow regime directly affects the water temperature regime and associated water chemistry characteristics.

Unique Features

The aquatic ecosystem may include unique biotic and abiotic features which provide specialized habitat for plant and animal species. These features may be small ecosystems within the larger system such as a cave, or may be physical environment that provides certain site characteristics providing a niche for a particular species such as a wet cliff or waterfall. No matter the size or complexity of the unique features, all ecosystem components are interconnected through a constant exchange of matter and energy. Change in any one ecosystem component will cause subsequent changes throughout the system. Unique features identified in the aquatic ecosystem are waterfalls and rock outcrops.

Waterfalls and rock outcrops: The splash zones on rock faces adjacent to cascades and waterfalls are important habitats for a variety of plant species (especially mosses), aquatic invertebrates, and amphibians.

43.13 Range of Variation

Natural disturbance processes primarily affecting freshwater aquatic ecosystems within the planning area include: flood, fire, landslides, debris torrents, and eutrophication. Changes in hydrologic regimes could lead to vegetation succession and changes in the associated water regime and wetland plant communities. Climate change may also affect water bodies and wetlands, whose yearly water budgets are directly tied in large part to annual patterns of precipitation and drying. Human threats to aquatic ecosystems include climate change, loss of water, dams, stream sedimentation, channel modifications, chemical pollution, and introduced species.

Management influences that cause disturbance are discussed by aquatic ecosystem elements.

Water Body Features

Stream Channel Morphology

Listed are the primary land management actions that directly influence stream channel morphology:

Roads can result in changes in channel morphology, especially at road crossing locations. Poorly placed roads can encroach on stream channel and floodplain areas. Many older roads were constructed very close to stream channel areas often in the floodplain. Often streams were straightened to accommodate road routing. Sometimes roads capture flow out of the channel and can result in stream re-routing down the road. Unpaved are the most common source of sediment to streams on National Forest lands. Excessive sediment loading often leads to changes in channel morphology because of pool filling, widening of the channel and making the channel shallower. These types of changes in channel morphology reflect in changes in width to depth ratios, number of pools, pool depth, bank angle and amount of undercut bank.

Grazing near soft bank, 'sensitive' channel areas can result in dramatic changes in channel morphology. Livestock trailing, chiseling and general soil displacement along stream bank areas can result in collapse of undercut bank areas and an overall increase in bank angles, loss of bank cover, and stream widening along the entire stream reach. Over long-periods of time grazing can lead to the entire channel becoming downcut to the point that a gully forms and a new channel is

formed at the bottom of the gully. This type and extent of down-cutting results in an entire channel type change.

Dams can change the natural flow regime substantially, which can ultimately affect water channel morphology. Flow interruption halts downstream movement of stream bedload and suspended sediment. These changes can result in a different stream processes and composition of aquatic biota downstream of a dam.

Diversions result in a loss of riparian vegetation, which can lead to stream channel modifications. These may include changes in riparian vegetation species composition, changes in stream channels substrate composition, and stream narrowing

Harvest and Fire - Riparian vegetation removal influences channel morphology through increased potential sediment delivery to water bodies, reduced large wood recruitment, and subsequent changes in pool depth and complexity.

Recreation use, facilities, and mining – Permanent development and campground facilities in riparian areas can result in sediment increases to nearby streams, loss of stream bank vegetation, and reduced water infiltration. Associated human activities such as off highway vehicle use on trails and stream bank trampling can also decrease ground cover and increased soil disturbances. Direct effects to channel morphology are loss of pool volumes and habitat complexity and stream channel substrate size decreases.

Pool, Pond, Lake and Reservoir Habitat Morphometry

Listed are the primary land management actions that directly influence pool, pond, lake, and reservoir habitat morphometry:

Grazing - Livestock trampling, hoof chiseling along shoreline can increase ground exposure, surface erosion, and increased sedimentation. Concentrated livestock waste can cause eutrophication of lakes and ponds.

Prescribed fire - Fire within along shorelines can result in variable amount and distribution of ground exposure. Moderate to light severity fires generally have little influence on shoreline vegetation and ground litter removal, and subsequent surface erosion. Severe fires may remove virtually all shoreline vegetation and ground cover, and result in significant soil erosion and sedimentation to nearby water bodies and loss of important transitional habitats for aquatic species such as amphibians and insects.

Wetlands (including peatlands, fens, bogs, seeps, and springs)

Listed are the primary land management actions that directly influence wetlands:

Roads can permanently affect wetlands by interrupting natural flow paths and reducing vegetation. Roads can be a source of invasive weed species.

Timber harvest directly adjacent to wetlands can reduce shade, raise water temperatures, and reduce the potential for recruitment of woody material.

Livestock grazing directly in wetlands or immediately adjacent to them can cause soil compaction, hommocking, and loss of vegetation. This ultimately inhibits sub-surface water flow.

Dams and associated reservoirs can inundate wetlands. Dams can also reduce downstream wetland habitats where they are directly associated with streams or rivers.

Diversions can cause wetlands to shrink where they are directly associated with draining wetlands and dewatered stream segments.

Recreation use (primarily ATV use) can cause soil compaction and loss of vegetation in wetlands and/or directly adjacent to them. This can reduce sub-surface water flow and increase surface runoff.

Facilities are similar to roads in terms of potential effects. Facilities can permanently affect wetlands by interrupting natural flow paths and reducing vegetation.

Mining directly adjacent to wetlands, or within streams or floodplains that are connected to wetlands, can reduce water availability/flow, sedimentation, and/or pollution.

Fire suppression (long term) causes forest succession to continue which can increase evapotranspiration and interception, which can result in less water available for wetlands. In many cases lack of fire can lead to the encroachment of woody species (primarily shrubs) into peatland habitats, which could lead to competitive exclusion of herbaceous species.

Prescribed fire can reduce vegetation upstream and around wetlands. This can cause delivery of sediment and nutrients from burned areas, as well as recruitment of woody material. Prescribed fire can also reduce the evapotranspiration demands and make more water available for wetlands.

Water Quality

Water Chemistry

Listed are the primary land management actions that directly influence water chemistry:

Management practices that remove riparian vegetation – Timber harvest, prescribed fire, wildland fire use, livestock grazing, placer mining, and facilities can all result in removal of riparian vegetation. Loss of riparian vegetation can influence the amount of solar radiation and water temperature regimes. These changes can ultimately lead to shifts in dissolved oxygen and pH. In addition, removal of riparian vegetation can increase nitrate levels which can increase the biological production in water.

Roads in RCAs – Roads result in a form of semi-permanent vegetation removal. Loss of riparian vegetation can influence the amount of solar radiation and water temperature regimes. These changes can ultimately lead to shifts in dissolved oxygen and pH. In addition, removal of riparian vegetation can increase nitrate levels which can increase the biological activity in water.

Fire suppression – Suppression of natural fire regimes causes fuel loads to accumulate. When wildfire does occur, the intensity and severity are often higher than they would be with more natural levels of fuel. This can result in higher rates of fuel consumption and availability of ash and nutrients that can be delivered to aquatic environments.

Dams can change the natural flow regime substantially, which can ultimately affect water chemistry. Water released from the bottom of a reservoir is often much colder than natural streams and contains high concentrations of nutrients. These changes can often result in a different composition of aquatic biota downstream of a dam.

Diversions can create changes in water chemistry by altering the temperature regime. Usually, smaller volumes of water tend to heat up faster than larger volumes. Higher water temperatures result in increased biological activity and decreased dissolved oxygen. Diversions can also result in a loss of riparian vegetation, which can exacerbate increased water temperatures.

Water Temperature

Listed are the primary land management actions that directly influence water temperature:

Management practices that remove riparian vegetation – Timber harvest, prescribed fire, wildland fire use, livestock grazing, placer mining, and facilities can all result in removal of riparian vegetation. Loss of riparian vegetation can influence the amount of solar radiation reaching a water body and increase water temperatures. Greater temperature fluctuations (diurnal and seasonal) can also occur when riparian vegetation removed or decreased.

Roads in riparian ecosystems – Roads result in a form of semi-permanent vegetation removal. Loss of riparian vegetation can influence the amount of solar radiation and water temperature regimes. Loss of riparian vegetation can influence the amount of solar radiation reaching a water body and increase water temperatures. Greater temperature fluctuations (diurnal and seasonal) can also occur when riparian vegetation removed or decreased.

Dams can change the natural flow regime substantially, which can ultimately affect water temperature. Water released from the bottom of a reservoir is often much colder than natural streams and contains higher concentrations of nutrients. These changes can often result in a different composition of aquatic biota downstream of a dam.

Diversions can create changes in water temperature by altering the flow regime. Usually, smaller volumes of water tend to heat up faster than larger volumes.

Sediment

Listed are the primary land management actions that directly influence sediment:

Roads have the potential to affect aquatic ecosystems and the cold water group through several direct and indirect pathways. Roads have the potential to modify natural drainage patterns which often lead to accelerated erosion of road surfaces and associated cut and fill slopes. This can lead to increased sediment delivery to streams. Excess fine sediment can fill interstitial spaces in gravels and cobbles, which reduces available habitat for aquatic macroinvertebrates. In addition, this fine sediment reduces the quality of spawning gravels for salmonids and can ultimately reduce reproduction. Excess sediment can also reduce the quantity and quality of pool habitats. Roads can affect stream channels directly if they are located on active floodplains or directly adjacent to stream channels. For example, a road located adjacent to a stream can be a chronic source of sediment. If the road changes the morphological characteristics of the stream, this can set forth a chain reaction of channel adjustments that can result in accelerated bed and bank erosion, which produces excessive sediment.

Placer mining of the stream channel causes direct increases of sediment. As equipment dredges stream channels, water flow immediately transports material downstream. In addition, placer mining can cause bank erosion from equipment use and loss of riparian vegetation.

Timber harvest has the potential to cause accelerated erosion primarily through construction of temporary roads and skid trails.

Fire Suppression – Suppression of natural fire regimes causes fuel loads to accumulate. When wildfire does occur, the intensity and severity are often higher than they would be with more natural levels of fuel. This can result in higher rates of accelerated surface runoff and associated erosion and sediment delivery.

Livestock grazing has the potential to cause increased sediment delivery through trampling of stream banks and by removal of riparian vegetation.

Dams interrupt sediment transport in streams and rivers, and can change availability of sediment in two ways. Immediately downstream of dams, there is a deficiency of sediment which can cause channel degradation and accelerated bank erosion. These effects are variable and can be seen several miles downstream of a dam. Dams also can cause channels to aggrade or “fill with sediment” because they reduce the frequency and magnitude of floods.

Diversions – Removal of water from streams during a substantial part of the year reduces the volume of water (energy) available to transport the sediment load, and this can result of aggradation downstream of the structure.

Water Quantity

Flow Regime

Listed are the primary land management actions that directly influence flow regime:

Roads – Road systems change the hydrologic regime by altering natural flow patterns (particularly on hillslopes), reducing infiltration, and increasing surface runoff. Where a dense road network is well connected to the stream network, it can be an “extension” of the actual stream network. This results in a more rapid delivery of water to the mouth of a watershed during snow melt and storm events, which can increase peak flows.

Fire Suppression – Suppression of natural fire regimes results in forests that have more trees and associated leaf area. This results in higher evapotranspiration and interception levels, which leaves decreased amounts of water available for surface and sub-surface flow. Lower levels of streamflow can affect the cold water group through warmer water temperatures and changes in water chemistry. In addition, fire suppression can cause fuels accumulate above natural levels, which can cause wildfires to burn more severely. This process can change infiltration characteristics of the soil and change hydrologic characteristics.

Fire Management – Wildland fire use and prescribed fire can affect flow regimes by reducing evapotranspiration, interception, and snow accumulation patterns, and by increasing soil moisture and surface runoff.

Timber harvest can affect flow regimes through by reducing evapotranspiration, interception, and snow accumulation patterns, and by increasing soil moisture and surface runoff. .

Dams can change flow regimes substantially. The types of changes are a function of the how a particular dam is operated to achieve power generation and flood control goals. If a dam is operated for power generation, flows often fluctuate on a daily basis (ramping) for peak power demand. Annual floods are often “buffered” by dams and their reservoirs, resulting in smaller annual floods.

Diversions change flow regimes simply by making less water available, particularly during the summer months.

Unique Features

Waterfalls and rock outcrops

The primary land management actions that directly influence flow regime or water quality can change habitat characteristics for species dependent on this environment. Primary disturbances include road and trail construction, reconstruction and maintenance and construction. Mining and recreation use may have direct impact to rock substrate and species presence.

43.15 Plan Components for Aquatic Ecosystem Diversity

Note: This section has been updated with components from the revised forest plans and is found in the main body of “Providing for Ecological Sustainability in the Revised Forest Plans”

Appendix B: Comprehensive Evaluation Report Wildlife, Fish and Plants Species Diversity Idaho Panhandle National Forests¹¹

Introduction

This report documents the process used to assess species diversity for the Idaho Panhandle National Forests. It includes the identification and selection of terrestrial and aquatic wildlife and plant species that are federally listed threatened and endangered species, species of concern (SOC) and species of interest (SOI) designated by the responsible official (Forest Supervisor). This report provides a link to the Forest Plan for species conservation and restoration and is intended to support planning for ‘Ecological Sustainability’ in the revised Idaho Panhandle National Forests Land and Resource Management Plan.

The information and process described in this paper is intended as supporting documentation for the planning record (the project file and proposed forest plan) in the Land and Resource Management Plan revision for the Idaho Panhandle National Forests (the plan area).

This is a working document subject to revision and updating until a Final Forest Plan is complete. Revision and updating will be based on additional knowledge, analysis results, or additional modeling. This report will be revised periodically because of potential changes in the status of federally listed species, NatureServe global ranks, Idaho Species of Greatest Conservation Need and continued refinement of ecological process models.

Area of Consideration

The Area of Analysis is defined as (36 CFR 219.16) the geographic area within which ecosystems, their components, or their processes are evaluated during analysis and development of one or more plans, plan revisions, or plan amendments. The area of analysis may: vary in size depending on the relevant planning issue; may be larger than the “plan area” (i.e. the forest); may be smaller than the “plan area”, and may include multiple ownerships (FR Vol. 73, No. 77, p.21512).

Forest Service handbook 1909.12 section 43.11 (p. 18) further states that the area of analysis for ecosystem diversity includes non-National Forest System lands and is larger than the plan area. Evaluation should generally extend to this larger area of analysis to understand the environmental context and opportunities and limitations for NFS lands to contribute to the sustainability of social, economic, and ecological systems.

¹¹ The majority of this diversity analysis was done while the forests were working under previous planning rules. The appendices contain terminology from the 2008 planning rule directives, which is no longer in effect; however, the concepts are still valid: The forests conducted an analysis that considered the species that occurred on the forests, determined which of those species had conservation needs, narrowed down which species could be affected by management on the forests, screened the risks to species through a coarse filter (ecosystem diversity) and developed additional plan components where necessary through a fine filter approach (species diversity).

The Idaho Panhandle National Forest is located primarily in the northern portion of Idaho. There are over 2.5 million acres of NFS lands and 0.5 million acres of private lands within the forest boundaries. The majority of the forest is located in Bonner and Boundary Counties, Idaho with small portions in Lincoln and Sanders counties in Montana and a portion in Pend Oreille County, Washington. The forest is bordered on the north by British Columbia, Canada; on the east by the Kootenai National Forest, on the west by the Colville National Forest and on the south by the Clearwater National Forest.

Major drainages include the Kootenai, St. Joe, Pend Oreille, Coeur d'Alene and Clark Fork Rivers. The Kootenai River begins in British Columbia, Canada traverses through the KNF into the IPNF in Idaho and back north into BC where it eventually ties into the Columbia River. The Clark Fork River travels through the southern portion of the forest into Lake Pend Oreille in Idaho. Both of these drainages are included in the Interior Columbia River Basin.

For most species and/or their habitats, National Forest System lands within the boundaries of the National Forest were considered for analysis purposes. For more specific habitat components or individual species the area of analysis may include only a portion of the forest, may include all lands within the forest boundaries or may be larger than the forest.

2008 Planning Rule and Associated Directives

The 2008 planning rule (FR Vol. 73, No. 77, 21468-21512) contains requirements for protecting important resources such as soil, water, wildlife habitat and aesthetics. It requires that NFS lands contribute to the sustainability of ecosystems within the capability of the land and requires species specific plan components be developed in situations where broader ecosystem diversity components might not meet the needs of threatened and endangered species, species of concern and species of interest.

The 2008 rule sets forth the goal for the ecological element of sustainability to contribute to sustaining native ecological systems by sustaining ecological systems as well as by providing appropriate ecological conditions to support diversity of native plant and animal species in the plan area. To carry out this goal the rule adopts a hierarchical and iterative approach to sustaining ecological systems, ecosystem diversity and species diversity. The intent of this hierarchical approach is to contribute to ecological conditions appropriate for biological communities and species by developing effective plan components (desired conditions, objectives) for ecosystem diversity and supplementing it with species specific plan components as needed. The rule contains substantive requirements for protecting important resources such as soil, water, wildlife habitat and aesthetics. It requires NFS lands contribute to the sustainability of ecosystems within the capability of the land, and requires species specific plan components be developed in situations where broader ecosystem diversity components might not meet the habitat needs of threatened and endangered species, species of concern and species of interest (2008 rule at 21471).

The final rule and directives are explicitly designed to work together and provide for ecological sustainability through the combination of ecosystem diversity and species diversity approaches.

FSH 1909.12 (Land Management Planning handbook) - chapter 40 (Science and Sustainability)

Section 43 - Ecological sustainability

The initial focus of Ecological Sustainability is to provide for ecosystem diversity (regional coarse filter approach) within the plan area and for diversity of plant and animal species within their ranges in the plan area (36 CFR 219.10 (b)). In an ecosystem approach, the plan provides a framework for maintaining and restoring ecosystem conditions necessary to conserve most species. The primary approach to evaluate ecosystem diversity involves identifying selected ecosystem characteristics and considering their natural variation under historic disturbance regimes (Ecosystem Diversity 43.1). For purposes of discussion throughout this analysis the plan area is defined as the National Forest System lands covered by a plan (FR Vol. 73 No. 77, page 21512).

A complementary and necessary approach focuses on provisions for specific threatened and endangered species, species of concern, and species of interest (36 CFR 219.10 (b)(2)). In these cases a species-specific (fine filter) approach to evaluation and establishment of plan components may be necessary (FSM 1921.7).

The following process was developed to identify species which merit consideration as Species of Concern and Species of Interest, determine which species or groups of species are adequately conserved by plan components for ecosystem diversity and develop plan components for those species or groups of species that are not. One of the criteria used in the selection of species was “will the plan components for ecosystem diversity provide ecological conditions to provide species diversity”. Where it is determined that the ecosystem approach does not provide an adequate framework for maintaining and restoring conditions to support specific federally listed threatened or endangered species, species of concern and species of interest then the plan must include additional provisions for these species.

43.2 - Species Diversity Analysis

Under the 2008 National Forest Systems Land Management Planning Rule (2008 rule) released in April 2008, the USDA Forest Service is directed to “focus evaluation and development of plan components for species diversity (species specific assessments and recovery plans) (Jensen 2005) on those species for which the responsible official determines that provisions in plan components are needed” (36 CFR part 219). Procedures described in FSH 1909.12 section 43.22 are used to identify species to be considered for the Forest.

The process for determining species diversity and its contribution to ecological sustainability includes the following 6 components (FSH 1909.12):

43.21 Ecosystem context for species

43.22 Identification and screening of species

43.23 Information collection

43.24 Grouping species and selecting surrogate species

43.25 Determining plan components for species diversity

43.26 Evaluation of plan components on species diversity

43.21 - Ecosystem Context for Species

43.22 - Identification and Screening of Species

Within the plan area, it is FSM 1921.7 policy that, consistent with the limits of agency authorities, the capability of the plan area, and overall multiple use objectives, that plan components provide for appropriate ecological conditions contributing to: conserving federally listed species, supporting self-sustaining populations of species of concern, and supporting species of interest as deemed appropriate by the Forest Supervisor.

The 2008 planning rule and directives (FSH 1909.12, Chapter 40) contain information and direction for identifying species of concern and species of interest. The identification of species includes the use of information from objective and scientifically credible third parties, including the U.S. Fish and Wildlife Service and NatureServe. Federally listed species, species of concern and species of interest are identified below for the species diversity evaluation.

The directives (FSH1909.12 chapter 40_43.2) emphasize that those species whose range includes the plan area be identified and considered. All federally threatened and endangered species, species of concern, and species of interest whose range includes the plan area (NFS lands covered by the plan) were identified using established criteria (FSH 1909.12 chapter 40). For both vertebrate and invertebrate species identified as species of greatest conservation need the Idaho CWCS provides range maps and/or locations that were used to identify those species whose range includes the Idaho Panhandle National Forests. For all other species data in the NatureServe and Idaho Natural Heritage Program databases, the Columbia River Basin Assessment (Wisdom et al. 2000, Vol. 1-3), and other databases were used as available. In many cases (for invertebrates and plants) information on species ranges is lacking or unknown. The inclusion of invertebrate species is based on observation data from the Idaho Natural Heritage Program databases or forest information. Those species whose ranges are unknown, or have not been delineated in either NatureServe or the Idaho Natural Heritage Program databases, and where no observations have occurred in the plan area, were dropped from further consideration as species of concern and interest.

The State of Idaho in its Comprehensive Wildlife Conservation Strategy (IDCWCS 2005) provides a list of all fish and wildlife species (including both vertebrate and invertebrate) thought to occur in Idaho (Appendix A). In this document they also include a list of all vertebrate and invertebrate species that they consider to be Species of Greatest Conservation Need (Appendix B). This document addresses various ecological sections found throughout the state and provides a list of Species of Greatest Conservation Need for each of those sections. The document provides the best available information on the status, distribution, and abundance of the state's natural communities and species (IDCWCS page i). Those ecological sections that include the IPNFs are: all of the Flathead Basin and Okanogan Highlands, the majority of the Bitterroot Mountains, and a very small portion of the Palouse Prairie (all of which is private land and not included in this report). The state of Washington, in its Comprehensive Wildlife Conservation Strategy

(WACWCS 2005) also discusses that state in terms of Ecoregions, one of which, the Canadian Rockies, includes that portion of the IPNFs situated in Washington. Species lists for each of these ecological sections and ecoregions were reviewed to make certain they were included in the analysis for species of concern and species of interest.

In addition to the various state conservation strategies, the identification of species known or suspected to occur on the Idaho Panhandle National Forests was completed using data collected for the Forest, information from the State of Idaho (Idaho Fish and Game and Idaho Conservation Data Center), recent subbasin reports such as the Kootenai River Subbasin Assessment and Inventory (Kootenai Tribe of Idaho and Montana Fish, Wildlife and Parks 2004) and the Canadian Rocky Mountains Ecoregional Assessment (Rumsey et al. 2003). The forest also worked with representatives of these various agencies, in addition to the Regional Office, and other state and private organizations, as well as incorporating public input in identifying species of concern and species of interest. A complete list of all vertebrate species known or thought to occur on the Idaho Panhandle National Forests is included in the AMS (USDA 2003).

The list of threatened and endangered species, species of concern and species of interest is dynamic and subject to change until a final list of species is determined. The criteria for establishing the species lists are given below, as described in the planning directives.

43.22a – Federally listed species

These are species that are listed by the Department of the Interior, U.S. Fish and Wildlife Service or the National Oceanic and Atmospheric Administration, National Marine Fisheries Service as threatened or endangered. The Forest Service has a legal requirement to maintain or improve habitat conditions for threatened, endangered, and proposed species under the Endangered Species Act (ESA). Species listed under the ESA fall into four categories based on viability concerns: threatened, endangered, proposed, and candidate.

FSH 1909.12 (43.22a) states that species identified as candidate and proposed under the ESA should be considered as species of concern. Species that are candidate or proposed for listing under ESA for the Idaho Panhandle NF’s are included in the discussion of species of concern under section 43.22b. Threatened and endangered species that occur on the forest and their status are described in Table 2.

Table ESA.1. Federally listed wildlife, fish, and plant species for the Idaho Panhandle National Forests (USFWS 2008).

Species common name	Scientific name	Status	
Wildlife			
Canada lynx	<i>Lynx canadensis</i>	Threatened, proposed critical habitat	Known to occur
Grizzly bear	<i>Ursus arctos horribilis</i>	Threatened, proposed critical habitat	Known to occur
Woodland caribou	<i>Tarandus caribou</i>	Endangered	Known to occur
Fish			
Bull trout	<i>Salvelinus confluentus</i>	Threatened	Clark Fork and Kootenai River basins
White sturgeon	<i>Acipenser transmontanus</i>	Endangered	Kootenai River population
Plants			
Water Howellia	<i>Howellia aquatilis</i>	Threatened	Suspected to occur
Spalding’s campion	<i>Silene spaldingii</i>	Threatened	Suspected to occur

43.22b Species of Concern and 43.22c Species of Interest

The criteria established for selection of species of concern and species of interest are a means to identify all species on the forest for which there are conservation concerns. It is assumed that species for which there are no conservation concerns would be adequately conserved through the ecosystem diversity approach (2008 rule at FR 21489). The forest worked with the Regional Office; state wildlife agencies; local tribes, other state and private organizations, additional planning zones, as well as public input to identify species of concern and species of interest.

An initial list of wildlife species and their habitat associations was completed for the Analysis of the Management Situation (2003) and included in the Technical Report (2003). Those lists included all vertebrate species known or suspected to occur on the forest. While conducting analyses for this project these lists have been updated to reflect current information on species occurrences and status on the forest, including invertebrate species, based mainly on information in the NatureServe explorer database and the Idaho Conservation Center databases.

The 2008 planning rule and directives (FSH 1909.12, Chapter 40) contain information and direction for identifying species of concern and species of interest. The identification of species includes the use of information from objective and scientifically credible third parties, including the U.S. Fish and Wildlife Service and NatureServe. All federally threatened and endangered species, species of concern and species of interest whose range includes the plan area were identified. The plan area (as defined in the Federal Register 73. N0. 77, page 21512) includes NFS lands covered by a plan.

The first step in identifying species of concern and interest includes a query of the NatureServe database for all species that meet specific criteria in FSH 1909.12_40. This query provides lists of all species for the state of Idaho that meet the criteria established for species of concern and species of interest (1909.12_40, 43.22b and 43.22c below) (see appendix B1). For most species the NatureServe database identifies if a species could potentially occur within a given state, in this case Idaho. The purpose of the combined criteria for species of concern and species of interest is to identify all species for which there are conservation concerns. Species for which there are no conservation concerns would be adequately conserved through the ecosystem diversity approach (2008 rule at FR 21489). From these lists all species whose ranges include the Idaho Panhandle National Forests were identified and those species whose ranges are known not to include the forest were dropped from consideration as species of concern or interest.

There are many invertebrate wildlife species and plant species whose ranges are unknown and/or have not been identified in the NatureServe or IDCDC databases. For those species the NatureServe database (2009) states “distribution data for U.S. states and Canadian provinces is known to be incomplete or has not been reviewed for this taxon and no range map available”. For those species, additional sources were reviewed, principally the Idaho Conservation Data Center (2009) but also other sources as available. As with the NatureServe database, for most of these species the IDCDC database states that “information for the species is not complete” and no range map or information is provided. In most cases these species have been given a state ranking

of SNR (species not rated) or they are identified as not occurring in the IDCDC database for wildlife or plants. In general these are species reported in Idaho but without a basis for either accepting or rejecting the report, or the report has not yet been reviewed locally. Some of these are very recent discoveries for which the program has not yet received firsthand information while others are old obscure reports. These species were dropped from consideration as species of concern or interest.

For those species whose ranges could not be determined, a review of the IDCDC database was used to identify any species with observations that include the forest. Additional sources were also reviewed including those identified below. Those species whose ranges could not be determined and/or there are no observations for the forest were dropped from consideration as species of concern and interest for the forest.

There are instances where the NatureServe database identifies a species distribution that includes the state of Idaho; however the species is not listed in any of the Idaho databases as occurring in the state. Those species were dropped from consideration as species of concern or interest.

Birds – a list of all bird species known or suspected to occur on the Kootenai and Idaho Panhandle National Forests (KIPZ) was reviewed by the Heritage Program (Casey 2003). The Montana and Idaho Bird Conservation Plans (PIF 2000) prioritize bird species and habitat associations and provides information and management recommendations for associated birds. For all birds on the list a determination was made whether a species was known to occur on the forest or not, and if the species occurred during a particular period of the year (i.e. seasonal, migratory). Birds identified as transient or accidental are dropped from consideration as species of concern or interest. Those species whose range has been identified as migratory only for the forest, there is no record of the species occurring on the forest, and the species is being considered because of concerns on its breeding range are dropped from further consideration as species of concern and interest.

Invertebrates – a review was made of analyses conducted for the ICBEMP for invertebrates (Niwa et al. 2001) and mollusks (Frest and Johannes 1995). The Idaho Comprehensive Wildlife Conservation Strategy contains a list of all invertebrate species considered to be of conservation concern for the state and provides information for those species. Idaho CDC also provides information on all invertebrates and provided locations for those species considered to occur on the IPNFs.

Plants - All of the plant species identified in the query of the NatureServe database for the state and whose range was determined to be unknown, were further reviewed in the Idaho databases. IDCDC (2006) provides a list of all plant species considered to be of concern in the state (Idaho special status plants) and their distribution by county. All of those plant species listed as special status for the state and for the various counties that make up the forest were then reviewed to make certain they were included in this analysis. The lists of plant species were further reviewed by the forest botanists to ensure that all of the plant species of concern and that were either known or suspected to occur on the forest were included in the analysis. All plant species whose range is known and includes the forest and/or all of those whose range is unknown but observation data

suggests they are known or suspected to occur on the forest were included in the analysis for species of concern and species of interest.

After eliminating species based on the discussions above, the forest considered 22 wildlife species and 18 plant species for species of concern and 52 species of wildlife and 93 species of plants for species interest.

In order to identify, screen, and select all of the species considered for species of concern and species of interest for the Idaho Panhandle NFs information was gathered for each species, including species global, national, and state conservation status and the species range and occurrence data on the forest. For those species whose range includes the IPNFs and/or are suspected to occur on the forest, additional review and screening (section 43.22d) was conducted based on information gathered for each species including but not limited to those listed below (FSH 1909.12 section 43.23). All of this information is included in various tables in the appendices.

- current taxonomy,
- distribution (including historic and current trends)
- abundance (including historic and current trends)
- demographics and population trend
- diversity (phenotypic, genetic, and ecological)
- habitat requirements at appropriate spatial scales
- habitat amount, distribution, and trends
- ecological function
- key biological interactions
- limiting factors
- risk factors including various human disturbances (trails, roads, dams)
- population effects resulting from hunting, fishing, and trapping and natural population fluctuations.

43.22b - Species of concern

Species of concern are species for which the Responsible Official determines that management actions may be necessary to prevent listing under the Endangered Species Act (ESA). A glossary is included as an appendix that will describe all of the terms used in this analysis. The 2008 rule (FR 73, No. 77, pg. 21473) states that guidance is included in the FS directives for providing self-sustaining populations of species of concern. A self-sustaining population is one that is sufficiently abundant and has appropriate population characteristics to provide for its persistence over many generations. The following criteria were used in identifying species to be considered for species of concern for the Idaho Panhandle NF's.

1. Candidate and proposed species under the ESA (1973).

See <http://www.NatureServe.org/explorer> for a list of candidate and proposed species for the state of Idaho.

See <http://www.fws.gov/endangered/wildlife.html> for a list of all candidate and proposed species in the U.S. Fish and Wildlife Service database.

2. Species ranked G-1 through G-3 or subspecific taxa ranked T-1 through T-3 in the NatureServe ranking system.

See <http://www.NatureServe.org/explorer> for a list of species for the state of Idaho.

Because of the scientific uncertainty in the status of any particular species or intraspecific taxon, the following guidance (USDA 2006, NatureServe 2007) was used to help in the selection of species of concern for the forest:

- a. Taxa that have not been identified to “named “species (e.g. *Amnicola* sp. 2) but may have been ranked, do not meet the planning rules definition of a species, do not satisfy the G3/T3 criteria, and are dropped from further consideration.
 - b. Species with a Q (questionable taxonomically) in the ranking (e.g. G3Q, T3Q) do not meet the planning rule definition of a species, do not satisfy the G3/T3 criteria, and were dropped from further consideration.
 - c. Species with a ranking of G3G4 (T3T4) or G3G5 (T3T5) do not meet the G3/T3 criteria for species of concern. Species in this category whose range is known to include the forest were considered for identification of species of interest. These include: western sulphur butterfly (*Colias occidentalis*), *Cascadoperla trictura* stonefly, and the sheathed slug, *Lobaria scrobiculata*, *Buxbaumia viridis*, *Epipactis gigantea*.
3. Species petitioned for Federal listing (with positive 90 day finding). (A 90 day finding is a preliminary finding that substantive information was provided indicating that the petition listing may be warranted and a full status review is conducted).

See <http://www.fws.gov/endangered/wildlife.html> for a list of all species proposed for listing.

No species were identified for the Idaho Panhandle NFs.

4. Species that have been recently delisted (these include species delisted within the past five years and other delisted species for which regulatory agency monitoring is still considered necessary).

See <http://www.NatureServe.org/explorer> for a list of species for the state of Idaho.

This includes the bald eagle and the gray wolf which were delisted within the last 5 years (2007 and 2009 respectively). The peregrine falcon was also included although it was delisted more than 5 years ago (2000). The regulatory agencies continue to monitor this species in Idaho.

Table SOC.1 displays wildlife and plant species of concern for the Idaho Panhandle National Forests. Based on the above criteria the list contains twelve wildlife and twenty two plant species whose range includes the forest, are known to occur on the forest, and/or suitable habitat occurs on the forest.

Table SOC.1. Potential Species of Concern for the Idaho Panhandle National Forests

Species common name	Species scientific name	Species common name	Species scientific name
Amphibians		Plants	
Idaho giant salamander	<i>Dicamptodon aterrimus</i>	Fungi/lichen	
Birds			<i>Collema curtisporum</i>
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>		<i>Hypogymnia inactiva</i>
Peregrine falcon	<i>Falco peregrinus</i>		<i>Nodobryoria subdivergens</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>		<i>Pilophorus clavatus</i>
Columbian sharp-tailed grouse	<i>Tympanuchus phasianellus columbianus</i>		<i>Pseydocyphellaria anomala</i>
Fish		Non vascular Mosses	
Westslope cutthroat trout	<i>Oncorhynchus clarkia lewisi</i>		<i>Grimmia brittoniae</i>
Mammals			<i>Tripterocladium leucocladulum</i>
Gray wolf	<i>Canis lupus</i>		<i>Sphaerocarpos hians</i>
Butterflies		Ferns and relatives	
Gillette’s checkerspot	<i>Euphydryas gillettii</i>		<i>Botrychium ascendens</i>
Mayflies			<i>Botrychium crenulatum</i>
A mayfly	<i>Amaletus tolae</i>		<i>Botrychium lineare</i>
Stoneflies			<i>Botrychium montanum</i>
Autumn springfly	<i>Pictitiella expansa</i>		<i>Botrychium paradoxum</i>
Invertebrates - Mollusks			<i>Botrychium pendunculolum</i>
Pygmy slug	<i>Kootenai burkei</i>	Vascular flowering plants	

Humped coin	<i>Polygyrella polygyrella</i>		<i>Calochortus nitidus</i>
Smoky tailedropper	<i>Prophysaon humile</i>		<i>Cardamine constancei</i>
			<i>Cirsium brevifolium</i>
			<i>Corydalis caseana ssp. hastata</i>
			<i>Grindelia howelli</i>
			<i>Tauschia tenuissima</i>
			<i>Trifolium douglasii</i>
			<i>Waldsteinia idahoensis</i>

Screening species of concern for further inclusion in the analysis process

Screening was conducted on all species of concern to identify those that will be carried forward for more detailed consideration in the planning process. Criteria used in the screening process include the following (FSH 1909.12 section 43.22d) and is based in part on the criteria identified in items a thru l above. Further direction associated with the screening process is included in: (USDA 2007) - Identifying and tracking threatened and endangered species, species of concern and species of interest in the NFMA plan revision process.

1. Are there known occurrences or suitable habitat of the species on National Forest Lands on the IPNFs? The initial assessment identified that the species range includes the forest but a more detailed assessment was conducted to show those species and its habitat that are absent from NFS lands (USDA 2007). If suitable habitat occurs but there are no known occurrences an answer of suitable habitat is given, if both the habitat and species occur on the forest an answer of known is given.
2. Is the species secure on National Forest Lands on the IPNFs?
The determination of “secure” is based on knowledge of species occurrence, distribution, availability of habitat, and responses to any management or natural disturbances that might occur (USDA 2007). Where information on species populations or trends on NFS lands on the forest is available, that information was used to answer this question. Where information for species on NFS lands is lacking (which includes most of the species on this list) population or trend data from Idaho Data Conservation Center or other available databases was used; because most of these species are identified as G1-G3/T1-T3 they are considered not to be secure globally. Where no information was available an answer of unknown (unk) was given.
3. Is the species or its habitat affected by management or potential plan components on National Forest Lands on the forest?
Those species which are not affected by any current or potential form of management or lack of management on NFS lands are identified (USDA 2007). Management can have either a positive or negative effect on species or its habitat.
4. Is there adequate knowledge or information available about the species to conduct a credible assessment? Where it was determined that substantive information about the habitat or management needs of a species was considered to be lacking, one of the following were considered (USDA 2007):
 - Treat the species as part of a larger taxonomic group with which it is likely to share habitat requirements and risk factors.
 - Provide appropriate management to known sites of the species in the plan area but do not attempt a detailed evaluation.
 - Do not consider the species further in the planning process. If the species is not further considered collection of information about the species should become a high priority in monitoring programs (FSH 1909.12_40, sec. 43.23).

Table SOC.2 Review of potential species of concern for further consideration in the planning process.

Species common name	Species scientific name	Is there Known Occurrence or Suitable Habitat on NFS lands on the forest	Is the species Secure on NFS lands on the forest	Is the species potentially affected by management or potential plan components on NFS lands on the forest	Is there adequate knowledge or info to conduct a credible assessment	Further Analysis Needed
Amphibians						
Idaho giant salamander	<i>Dicamptodon aterrimus</i>	Yes	No	Unk	Yes	Yes
Birds						
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	No known occurrence/Suitable summer habitat	Not known to occur	Yes	Yes	No
Bald eagle	<i>Haliaeetus leucocephalus</i>	Yes	No	Yes	Yes	Yes
Peregrine falcon	<i>Falco peregrinus</i>	Yes	No	Yes	Yes	Yes
Columbian sharp-tailed grouse	<i>Tympanuchus phasianellus columbianus</i>	Not known to occur/suitable habitat rare on NFS lands	Not known to occur	Not known to occur	Yes	No
Fish						
Westslope cutthroat trout	<i>Oncorhynchus clarkia lewisi</i>	Yes	Unk	Yes	Yes	Yes
Mammals						
Gray wolf	<i>Canis lupus</i>	Yes	Yes	Yes	Yes	Yes
Invertebrates						
Butterflies						
Gillette's checkerspot	<i>Euphydryas gillettii</i>	Yes	Unk	Yes	Yes	Yes
Mayflies						
A mayfly	<i>Ameletus tolae</i>	Yes	Unk	Unk	No	No
Stoneflies						
Autumn springfly	<i>Pictitiella expansa</i>	Yes	Unk	Yes	Yes	Yes
Mollusks						
Pygmy slug	<i>Kootenai burkei</i>	Yes	Unk	Yes	Yes	Yes
Humped coin	<i>Polygyrella polygyrella</i>	Yes	Unk	Yes	Yes	Yes
Smoky tailedropper	<i>Prophysaon humile</i>	Yes	Unk	Yes	Yes	Yes
Plants						
All but the following						
	<i>Sphaerocarpos hians</i>	Not known to occur on NFS lands	Unk	Not known to occur on NFS lands	No	No
	<i>Cirsium brevifolium</i>	Not known to occur on NFS lands	Not known to occur on NFS lands	Not known to occur on NFS lands	No	No
	<i>Trifolium douglasii</i>	Not known to occur on NFS lands	Not known to occur on NFS lands	Not known to occur on NFS lands	No	No

Species eliminated from further review in the analysis process:

Additional analysis will not be conducted for the following species. The remaining species of concern in Table SOC 2 will be grouped, if possible according to habitats and/or risks and threats and analyzed further in this document.

Columbian sharp-tailed grouse – the state of Idaho (IDCWCS) identifies a small portion of the forest north and west of Sandpoint as predicted range for sharp-tailed grouse. The vast majority of this area is situated on private lands in the valley bottom. Although thought to have occurred historically sharp-tailed grouse in Idaho are known only from the south central portion along the Nevada border and in an isolated portion of western Idaho (Connelly et al. 1998 in IDCWCS 2005). Suitable grassland habitat (large tracts) is rare to non-existent on NFS lands.

Hypogymnia inactiva – this species is known to be common on the IPNFs.

Sphaerocarpos hians - listed as occurring in Benewah and Kootenai Counties (IDCDC 2009), but is not listed as occurring on the Idaho Panhandle National Forests.

Cirsium brevifolium - listed as occurring in Benewah and Kootenai Counties (IDCDC 2009), but is not listed as occurring on the Idaho Panhandle National Forests.

Trifolium douglasii – listed as occurring in Kootenai County (IDCDC 2009), but is not listed as occurring on the Idaho Panhandle National Forests.

43.22c - Species of interest

Species of Interest are those species for which the Responsible Official (Forest Supervisor) determines that management actions may be necessary or desirable to achieve ecological or other multiple use objectives. The following sources were used to identify potential species of interest for the Idaho Panhandle NFs. These sources provide a list of potential species on interest which were then screened to identify those to be considered as species of interest.

1. Species with rank of S-1 and S-2, or N-1 and N-2 on the NatureServe ranking system. The NatureServe database @ <http://www.NatureServe.org/explorer> provides a list of all wildlife and plant species that are considered to meet these criteria for the state of Idaho (2009). The table displays species range wide rankings (G ranks) as well as the actual ranking given by the state of Idaho (S rank). For wildlife species see <http://fishandgame.idaho.gov/cms/tech/CDC/cwcs> (Idaho CWCS 2005) and for plant species see <http://fishandgame.idaho.gov/cms/tech/CDC/plants> . Range wide ranks (G ranks) are assigned by NatureServe and statewide ranks (S ranks) are assigned by the Idaho Conservation Data Center (ID CWCS 2005).

In addition to S1/S2 or N1/N2 species, there are several species that were initially considered in the identification for species of concern but were removed because they did not meet the criteria for species of concern based on their ranks (G3G4). These species are known to occur on the forest and/or their range is known to include the forest and they are included here for consideration as species of interest.

2. State listed of threatened and endangered species that are not within the criteria as species of concern. The Idaho Comprehensive Wildlife Conservation Strategy @ <http://fishandgame.idaho.gov/cms/tech/CDC/cwcs> provides a list of all fish and wildlife species found in Idaho and a state classification for each species.

3. Species identified as species of conservation concern in State Comprehensive Wildlife Strategies. See <http://fishandgame.idaho.gov/cms/tech/CDC/cwcs> to access the Idaho Comprehensive Wildlife Conservation Strategy (2005). This includes all vertebrate and invertebrate wildlife species identified as species of greatest conservation need. The Idaho Comprehensive Wildlife Conservation Strategy (ID CWCS 2005) provides a list of species of greatest conservation need by ecological section. All species listed for the ecological sections that make up the forest were included on the list for consideration. For that portion of the Idaho Panhandle National Forests that occur in the state of Washington, the Washington Comprehensive Wildlife Conservation Strategy provides a list of species of greatest conservation need for the Canadian Rocky Mountains Ecoregion which includes that portion of the IPNF in that state. See <http://wdfw.wa.gov/wlm/cwcs/cwcs.htm> for a list of species of greatest conservation need for this ecoregion.
4. Birds on the U.S. Fish and Wildlife Service Birds of Conservation Concern National Priority List (USFWS 2008). See <http://migratorybirds.fws.gov/reports/bcc2008> . The Idaho Panhandle NFs are in Bird Conservation Region (BCR) 10. All bird species in BCR 10 were considered in the initial screening process for potential species of interest.
5. Species on the regional foresters list of sensitive species (2007) for the Idaho Panhandle National Forests not already included as Species of Concern. See <http://www.fs.fed.us/r1/projects/wwfrp> for a complete list of sensitive wildlife and plant species.
6. Plant species identified by the state of Idaho as special status. See <http://fishandgame.idaho.gov/cms/tech/CDC/plants> for a list of special status plants for the entire state or for individual counties in the state. All plants that are listed for those counties that make up the forest were included in the initial consideration for potential species of interest.
7. Additional species where valid, existing information is available that indicates species are of regional or local conservation concern due to factors that may include;
 - a) significant threats to populations or habitat,
 - b) declining trends in populations or habitat,
 - c) rarity
 - d) restricted ranges (for example, narrow endemics, disjunct populations, or species at the edge of their range).

These include species considered to be of concern locally and identified during public scoping (2003-2005) and/or meetings with Idaho Fish and Game (2005).

8. Additional Species that may need plan components established for them. These include species of public interest including hunted, fished, and other species. Species of public concern were identified during public scoping and meetings.

All of the species that meet one or more of the above criteria were included on the list for consideration as species of interest. Of those, 67 species of wildlife and 100 species of plants were identified as potential species of interest (see table SOI.1), whose range is known to include the forest, they are known to occur on the forest, and/or suitable habitat exists on the forest. Each of these species was then analyzed further for inclusion as species of interest for the forest in accordance with 1909.12 FSH 43.22 (a-i).

Table SOI.1 Potential Species of Interest for the Idaho Panhandle National Forests.

Wildlife		Plants	
Species common name	Species scientific name	Species common name	Species scientific name
Amphibians		Fungi/lichen	
Western toad	<i>Bufo boreas</i>		<i>Cetraria sepinicola</i>
Coeur d'Alene salamander	<i>Plethodon idahoensis</i>		<i>Cladonia bellidiflora</i>
Northern leopard frog	<i>Rana pipiens</i>		<i>Cladonia transcendens</i>
Wood frog	<i>Rana sylvatica</i>		<i>Cladonia uicialis</i>
Reptiles			<i>Lobaria hallii</i>
Northern alligator lizard	<i>Elgaria coerulea</i>		<i>Lobaria scrobiculata</i>
Birds			<i>Pilophorus acicularis</i>
Northern goshawk	<i>Accipiter gentilis</i>		<i>Platismatia herrei</i>
Western grebe	<i>Aechmophorus occidentalis</i>		<i>Ramalina pollinaria</i>
Boreal owl	<i>Aegolius funereus</i>		<i>Sphaerophorus globosus</i>
Grasshopper sparrow	<i>Ammodramus savannarum</i>		<i>Thamnolia subuliformis</i>
Northern pintail	<i>Anas acuta</i>	Non vascular mosses	
Northern shoveler	<i>Anas clypeata</i>		<i>Buxbaumia aphylla</i>
Golden eagle	<i>Aquila chrysaetos</i>		<i>Buxbaumia viridis</i>
Great blue heron	<i>Ardea herodias</i>		<i>Rhizomnium nudum</i>
Short-eared owl	<i>Asio flammeus</i>		<i>Sphagnum mendocinum</i>
Lesser scaup	<i>Aythya affinis</i>		<i>Ulota megalospora</i>
Redhead	<i>Aythya americana</i>	Vascular plants	
Canvasback	<i>Aythya valisineria</i>	Conifers and relatives	
Upland sandpiper	<i>Bartramia longicauda</i>	Dwarf birch	<i>Betula pumila (var. glandulifera)</i>
Vaux's swift	<i>Chaetura vauxi</i>	White spruce	<i>Picea gluca</i>
Cassin's finch	<i>Carpodacus cassinii</i>	Whitebark pine	<i>Pinus albicaulis</i>
Black tern	<i>Chilodnius niger</i>	Vascular ferns and relatives	
Olive-sided flycatcher	<i>Contopus cooperi</i>		<i>Asplenium trichomanes (ssp. trichomanes)</i>
Black swift	<i>Cypseloides niger</i>		<i>Dryopteris cristata</i>
Pileated woodpecker	<i>Dryocopus pileatus</i>		<i>Lycopodiella inundata (Lycopodium inundatum)</i>
Willow flycatcher	<i>Empidonax traillii</i>		<i>Lycopodium dendroideum</i>
Merlin	<i>Falco columbarius</i>		<i>Pentagramma triangularis ssp triangularis</i>
Common loon	<i>Gavia immer</i>		<i>Polystichum braunii</i>
Harlequin duck	<i>Histrionicus histrionicus</i>	Vascular flowering plants	
California gull	<i>Larus californicus</i>		<i>Andromoda polifolia</i>
Hooded merganser	<i>Lophodytes cucullatus</i>		<i>Antennaria corymbosa</i>
White-winged crossbill	<i>Loxia leucoptera</i>		<i>Aster junciformis (Symphytotrichium boreale)</i>
Lewis woodpecker	<i>Melanerpes lewis</i>		<i>Astragalus bourgovii</i>
Long-billed curlew	<i>Numerous americanus</i>		<i>Astragalus microcystis</i>
Flammulated owl	<i>Otus flammeolus</i>		<i>Blechnum spicant</i>
Double-crested cormorant	<i>Phalacrocorax auritus</i>		<i>Botrychium lanceolatum (var. lanceolatum)</i>
White-headed woodpecker	<i>Picooides albolarvatus</i>		<i>Botrychium lunaria</i>
Black-backed woodpecker	<i>Picooides arcticus</i>		<i>Botrychium michiganense</i>
American three-toed woodpecker	<i>Picooides dorsalis</i>		<i>Botrychium minganense</i>
Red-necked grebe	<i>Podiceps griseogen</i>		<i>Botrychium pinnatum</i>
American avocet	<i>Recurverostris americanus</i>		<i>Botrychium simplex</i>
Pygmy nuthatch	<i>Sitta pygmaea</i>		<i>Carex buxbaumii</i>
Williamson's sapsucker	<i>Sphyrapicus thryoideus</i>		<i>Carex californica</i>
Calliope hummingbird	<i>Stellula calliope</i>		<i>Carex chordorrhiza</i>
Mammals			<i>Carex comosa</i>
Rocky mountain elk	<i>Cervus Canadensis</i>		<i>Carex flava</i>
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>		<i>Carex hendersonii</i>
North american wolverine	<i>Gulo gulo luxos</i>		<i>Carex leptalea</i>
Fisher	<i>Martes pennanti</i>		<i>Carex lacustris</i>
California myotis	<i>Myotis californicus</i>		<i>Carex livida</i>
Fringed myotis	<i>Myotis thysanodes</i>		<i>Carex magellanica ssp. irrigua</i>
Red-tailed chipmunk	<i>Neotamias ruficaudus</i>		<i>Carex rostrata</i>
American pika	<i>Ochotona princeps</i>		<i>Carex xerantica</i>
Mountain goat	<i>Oreamnus americanus</i>		<i>Cephalanthera austini</i>
American pygmy shrew	<i>Sorex hoyi</i>		<i>Cicuta bulbifera</i>
Merriam's shrew	<i>Sorex merriami</i>		<i>Cypridium fasciculatum</i>
Northern bog lemming	<i>Synaptomis borealis</i>		<i>Cypridium parviflorum (var. pubescens)</i>
American badger	<i>Taxidea taxus</i>		<i>Diphasiastrum sitchense</i>
Fish			<i>Dodecatheon dentatum</i>
Lake chub	<i>Couesis plumbeus</i>		<i>Draba incerta</i>

Wildlife		Plants	
Species common name	Species scientific name	Species common name	Species scientific name
Burbot	<i>Lota lota</i>		<i>Drosera intermedia</i>
Kokanee	<i>Oncorhynchus nerka</i>		<i>Epipactis gigantea</i>
Inland redband trout	<i>Oncorhynchus mykiss gairdneri</i>		<i>Epilobium palustre</i>
Pygmy whitefish	<i>Prosopium coulterii</i>		<i>Eriophorum viridicarinatum</i>
Mollusks			<i>Gaultheria hispidula</i>
Pale jumping slug	<i>Hemphilia camelus</i>		<i>Hypericum majus</i>
Sheathed slug	<i>Zacoleus idahoensis</i>		<i>Iris versicolor</i>
Western pearlshell mussel	<i>Margaritifera falcata</i>		<i>Ivesia tweedyi</i>
Invertebrates -			<i>Juncus bolanderi</i>
A stonefly	<i>Cascadoperna trictura</i>		<i>Lugwigia polycarpa</i>
Butterflies			<i>Mainathemum dilatatum</i>
Western sulphur	<i>Colias occidentalis</i>		<i>Meesia longiseta</i>
Silver-bordered fritillary	<i>Boloria selene atrocotalis</i>		<i>Mimulus alsinoides</i>
			<i>Mimulus clivicola</i>
			<i>Muhlenbergia glomerata</i>
			<i>Nymphaea leibergii</i>
			<i>Ophioglossum pusillum</i>
			<i>Orobancha pinorum</i>
			<i>Oxalis trillifolia</i>
			<i>Petastites sagittatus</i>
			<i>Phegopteris connectilis</i>
			<i>Platanthera oribiculata</i>
			<i>Psilocarphus tenellus</i>
			<i>Rhynchospora alba</i>
			<i>Ribes sanguineum</i>
			<i>Romanzoffia sitchensis</i>
			<i>Rubus spectabilis</i>
			<i>Salix candida</i>
			<i>Salix pedicellaris</i>
			<i>Sanicula marilandica</i>
			<i>Scheuchzeria palustris</i>
			<i>Schoenoplectus subterminalis</i>
			<i>Sisyrinchium montanum</i>
			<i>Streptopus streptopoides</i>
			<i>Tellima grandiflora</i>
			<i>Thalictrum dasycarpum</i>
			<i>Triantha occidentalis ssp. brevistyla</i>
			<i>Trichophorum alpium (Scirpus hudsonianus)</i>
			<i>Trientalis europaea (T. arctica)</i>
			<i>Trientalis latifolia</i>
			<i>Vaccinium oxycoccus</i>
			<i>Vallisneria americana</i>
			<i>Viburnum opulus americanum</i>
			<i>Viola selkirkii</i>

Review of potential species of interest for further analysis in the planning process

FSH 1909.12 (page 27), identifies eight factors that were used in the selection of species of interest from the list of potential species of interest in table SOI1. Seven of the factors (discussed below) provide information for “in the plan area” and are determined only for NFS lands on the forest while the eighth criteria provides information for “throughout its range” which includes all lands that make up the species range.

In the plan area (includes only National Forest System lands on the forest)

(1) Species habitat or population has declined significantly.

Species population - Where information on species populations on National Forest System lands on the forest is available, that information was used for this factor. Where information on species populations on NFS lands is lacking, information for the state of Idaho was also considered.

Species habitat - Information from the vegetation analysis (including the HRV analysis) was used to determine if there have been significant reductions in habitat. Those habitats or ecosystem components that are considered to be well below the desired condition are considered to have declined significantly.

A determination was made for both species and habitat. If both are considered to have declined significantly an answer of yes is given. If neither are considered to have declined significantly an answer of no is given. If a determination could be made for one (i.e., habitat) but the other is unknown (i.e., species) that was identified in the table.

(2) Species and their habitats are well-distributed.

Species distribution - Whether a species is “well distributed” is based on the species natural history and historical distribution and on the potential distribution of its habitat (FSH 1909.12_40). This determination recognizes that habitat and population distribution will be dynamic over time.

Habitat distribution - A well distributed pattern is one that allows interaction within and across species populations, within the constraints of the species natural history, and within the capability of the plan area (USDA 2007). It is not expected that management of NFS lands would provide broadly or evenly distributed habitat for all species.

For purposes of this analysis, distribution is based on both species observations (numbers) and/or suitable habitat on the forest. Although numbers of most species are unknown, based on local observation data, including surveys conducted throughout the forest, a subjective determination of distribution is made. If either habitat or population numbers are known to be low an answer of no is given; if neither of these is known then an answer of unknown is given.

(3) Species population numbers are low.

In general, information is lacking about species population or numbers on National Forest System lands on the forest. In many cases information about the species status in the state were used, in addition to any information about the species in the plan area. Based on past monitoring and observation information, a subjective determination of species population sizes on the forest was made.

It is recognized that some species populations are naturally low. At this point no distinction was made between those populations that are naturally low and those that have been reduced as a result of some associated risk and threat.

(4) Species is dependent on a specialized and/or limited habitat.

A determination was made if a species is dependent on either “specialized” or “limited” habitat, otherwise an answer of no is given.

(5) Species is subject to some imminent threat (for example, invasion of exotic species into habitat or disturbance due to road systems).

Example: If activities on NFS lands would result in impacts to a species during nesting, denning or other life cycle activities, an answer of yes is given. Risks and threats for each species are included in the appendices.

(6) Species is of public interest, including those species identified cooperatively with State fish and wildlife agencies consistent with the Sikes Act. (Column 8)

If a species was identified to be of concern during public scoping, public meetings, meetings with state agencies or with local tribal members, or if a species is currently considered to be of public interest under the Sikes Act, an answer of yes is given.

(7) NFS lands act as an important refuge. (Column 9)

If a species is known to occur principally on NFS lands or if NFS lands provide the majority of the habitat on the forest for a species, an answer of yes is given.

Throughout its range

(8) Species habitat or population is not generally secure within its range. (Column 10).

To answer the question of whether a population is secure within its range, information was gathered for both the plan area (the forest), statewide, as well as throughout their range. If both the habitat and population is considered not to be secure an answer of yes is given

Table SOI.2 displays each of the potential species of interest and the factors used in the selection of wildlife and plant species of interest. Table SOI.3 displays all wildlife and plant species proposed for species of interest for the Idaho Panhandle National Forests. A brief discussion for each potential species of interest not considered further is included.

Table SOI.2 Review of potential species of interest.

Species common Name	On NFS lands – significant Habitat or Pop decline	On NFS lands - species and habitat well distributed	On NFS lands - Population Numbers Low	On NFS lands - Dependent on Limited or Specialized Habitat	On NFS lands - species subject to Imminent Threat	On the IPNF - NFS lands refuge	Species habitat or population is secure throughout its range	Include as SOI?
Vertebrates								
Amphibians								
Western (Boreal) toad <i>Bufo boreas</i>	Not considered to be a significant habitat decline but population unknown.	Yes	Unk; considered fairly common	No	Yes	Unk	Unk	No
Coeur d’Alene salamander <i>Plethodon idahoensis</i>	Not considered to be a significant habitat decline but population unknown.	Yes but very few populations	Unknown but considered low	Yes	Yes	Yes	Unk	Yes
Northern leopard frog <i>Rana pipiens</i>	Not considered to be a significant habitat decline species not known to occur.	Species not known to occur	Maybe extirpated	Yes	No	No	Yes	No
Wood frog <i>Rana sylvatica</i>	Not considered to be a significant habitat decline species not known to occur.	Species not known to occur	Maybe extirpated	No	Unk	No	Unk	No
Reptiles								
Northern alligator lizard <i>Elgaria coerulea</i>	Not considered to be a significant habitat decline but population unknown.	Habitat considered to be well distributed but species distribution unknown	Unk	No	No	Unk	Yes	No
Birds								
Northern goshawk <i>Accipiter gentilis</i>	Not considered to be a significant habitat decline but population unknown.	Habitat considered to be well distributed but species distribution unknown	Unk	No	Yes	Unk	Yes	Yes
Western grebe <i>Aechmophorus occidentalis</i>	No. suitable habitat rare on NFS lands. population trend unknown	No	Yes	Limited	No	No	No	No
Boreal owl <i>Aegolius funereus</i>	Not considered to be a significant habitat decline but population unknown.	Habitat considered to be well distributed but species distribution unknown	Unk	No	No	Yes	Unk	No
Grasshopper sparrow <i>Ammodramus savannarum</i>	No. suitable grassland habitat rare on NFS lands. population trend unknown	No	Unknown but considered low	Limited	No	No	No	No
Northern pintail <i>Anas acuta</i>	No. suitable habitat rare on NFS lands. population trend unknown	No	Yes	Limited	No	No	No	No
Northern shoveler <i>Anas clypeata</i>	No. suitable habitat rare on NFS lands. population trend unknown	No	Yes	Limited	No	No	Yes	No
Golden eagle <i>Aquila chrysaetos</i>	No. suitable habitat rare on NFS lands. population trend unknown	No	Unknown but considered low	Limited	No	No	Yes	No
Great blue heron <i>Ardea herodias</i>	Not considered to be a significant habitat decline but population unknown.	Habitat considered to be well distributed but species distribution unknown	Unk	No	No	No	Yes	No

Species common Name	On NFS lands – significant Habitat or Pop decline	On NFS lands - species and habitat well distributed	On NFS lands - Population Numbers Low	On NFS lands - Dependent on Limited or Specialized Habitat	On NFS lands - species subject to Imminent Threat	On NFS lands - NFS lands refuge	Species habitat or population is secure throughout its range	Include as SOI?
Short-eared owl <i>Asio flammeus</i>	No. suitable habitat rare on NFS lands. population trend unknown	Habitat rare species distribution unknown	Unknown but considered low	Limited	No	No	Unk	No
Lesser scaup <i>Aythya affinis</i>	No. suitable habitat rare on NFS lands. population trend unknown	No	Yes	Limited	No	No	Yes	No
Redhead <i>Aythya americana</i>	No. suitable habitat rare on NFS lands. population trend unknown	No	Yes	Limited	No	No	Yes	No
Canvasback <i>Aythya valisneria</i>	No. suitable habitat rare on NFS lands. population trend unknown	No	Yes	Limited	No	No	Unk	No
Upland sandpiper <i>Chaetura vauxi</i>	No. suitable grassland habitat rare on NFS lands. population trend unknown	No	Yes	Limited	No	No	Yes	No
Vaux's swift <i>Chaetura vauxi</i>	No	Habitat considered to be well distributed but species distribution	Unknown but considered low	No	No	No	unk	No
Cassin's finch <i>Carpodacus cassinii</i>	Not considered to be a significant habitat decline but population unknown.	Habitat considered to be well distributed but species distribution unknown	Unk	No	No	Unk	Yes	No
Black tern <i>Chlidonias niger</i>	No. suitable habitat rare on NFS lands. population trend unknown	No	Yes	Limited	No	No	Unk	No
Olive-sided flycatcher <i>Contopus cooperi</i>	Habitat decline but population trend unknown	Habitat considered to be well distributed but species distribution unknown	Unk	No	No	No	Unk	Yes
Black swift <i>Cypseloides niger</i>	No. suitable habitat rare on NFS lands. population trend unknown	No	Unknown but considered low	Limited/specialized	No	Unk	Unk	Yes
Pileated woodpecker <i>Dryocopus pileatus</i>	Habitat decline but population trend unknown	Habitat considered to be well distributed but species distribution unknown	Unk	No	No	Unk	Yes	Yes
Willow flycatcher <i>Empidonax traillii</i>	Not considered to be a significant habitat decline but population unknown.	Habitat considered to be well distributed but species distribution unknown	Unk	No	No	Unk	Unk	No
Merlin <i>Falco columbarius</i>	No. suitable habitat rare on NFS lands. population trend unknown	No	Unknown but considered low	Limited	No	Unk	Unk	No
Common loon <i>Gavia immer</i>	Unk	No	Yes	No	Yes	Unk	Unk	Yes
Harlequin duck <i>Histrionicus histrionicus</i>	Unk	Habitat considered to be well distributed but species distribution unknown	Yes	No	Yes	Yes	Unk	Yes

Species common Name	On NFS lands – significant Habitat or Pop decline	On NFS lands - species and habitat well distributed	On NFS lands - Population Numbers Low	On NFS lands - Dependent on Limited or Specialized Habitat	On NFS lands - species subject to Imminent Threat	On NFS lands - NFS lands refuge	Species habitat or population is secure throughout its range	Include as SOI?
Hooded merganser <i>Lophodytes cucullatus</i>	Not considered to be a significant habitat decline but population unknown.	Habitat considered to be well distributed but species distribution unknown	Unknown but considered low	No	No	No	No	No
White-winged crossbill <i>Loxia leucoptera</i>	Unk	Habitat considered to be well distributed but species distribution unknown	Unk	No	No	Unk	Unk	No
Lewis's woodpecker <i>Melanerpes lewis</i>	Habitat decline but population trend unknown	Habitat considered to be well distributed but species distribution unknown	Unknown but considered low	Limited	Unk	Yes	Unk	Yes
Long-billed curlew <i>Numerius americanus</i>	No. suitable grassland habitat rare on NFS lands. population trend unknown	No	Yes	Limited	No	No	Unk	No
Flammulated owl <i>Otus flammeolus</i>	Habitat decline but population trend unknown	Habitat considered to be well distributed but species distribution unknown	Unk	Limited	Yes	Yes	Unk	Yes
Double-crested cormorant <i>Phalacrocorax auritus</i>	No. suitable habitat rare on NFS lands. population trend unknown	No	Yes	Limited	No	No	Yes	No
White-headed woodpecker <i>Picoides albolarvatus</i>	Populations are not known to exist on the forest	No	Yes	Limited	No	Unk	No	No
Black-backed woodpecker <i>Picoides arcticus</i>	Habitat decline but population trend unknown	Habitat considered to be well distributed but species distribution unknown	Unk	Limited	Unk	Yes	Yes	Yes
American three-toed woodpecker <i>Picoides dorsalis</i>	Unk	Habitat considered to be well distributed but species distribution unknown	Unk	No	Unk	No	No	Yes
Red-necked grebe <i>Podiceps grisegena</i>	No. suitable habitat rare on NFS lands. population trend unknown	No	Yes	No	No	No	No	No
American avocet <i>Recurverostr americana</i>	No. suitable habitat rare on NFS lands. population trend unknown	No	Yes	Limited	No	No	No	No
Pygmy nuthatch <i>Sitta pygmaea</i>	Habitat decline but population trend unknown	Habitat considered to be well distributed but species distribution unknown	Unknown but considered low	Limited	No	Yes	Yes	Yes
Williamson's sapsucker <i>Sphyrapicus thyoideus</i>	Habitat decline but population trend unknown	Habitat considered to be well distributed but species distribution unknown	Unknown but considered low	No	Unk	Yes	Yes	Yes
Calliope hummingbird <i>Stellula calliope</i>	Not considered to be a significant habitat decline but population unknown.	Habitat considered to be well distributed but species distribution	Unk	No	No	No	Yes	No

Species common Name	On NFS lands – significant Habitat or Pop decline	unknown On NFS lands - species and habitat well distributed	On NFS lands - Population Numbers Low	On NFS lands - Dependent on Limited or Specialized Habitat	On NFS lands - species subject to Imminent Threat	NFS lands refuge	Species habitat or population is secure throughout its range	Include as SOI?
Mammals -								
Rocky mountain elk <i>Cervus canadensis</i>	No	Yes	No	No	No	Yes	Yes	Yes
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	Unk	Yes	Unknown but considered low	Specialized	Yes	Unk	Unk	Yes
North American wolverine <i>Gulo gulo luxos</i>	Not considered to be a significant habitat decline but population unknown.	Yes	Unknown but considered low	Limited denning	Yes	Yes	Unk	Yes
Fisher <i>Martes pennanti</i>	Not considered to be a significant habitat decline but population unknown.	No	Unknown but considered low	No	Yes	Yes	Yes	Yes
California myotis <i>Myotis californicus*</i>	Unk	Unk	Unk	Specialized	Unk	Unk	Unk	Yes
Fringed myotis <i>Myotis thysanodes</i>	Unk	No	Unk	Specialized	Unk	Unk	Unk	Yes
Red-tailed chipmunk <i>Neotamias ruficauda*</i>	Not considered to be a significant habitat decline but population unknown.	Unk	Unk	No	Unk	Unk	Unk	No
American pika <i>Ochotona princeps</i>	Not considered to be a significant habitat decline but population unknown.	Habitat well distributed but species distribution unknown	Unk	No	No	Unk	Yes	No
Mountain goat <i>Oreamnos americanus</i>	Not considered to be a significant habitat decline but population unknown.	No	Yes	Limited	Yes	Yes	Yes	Yes
American pygmy shrew <i>Sorex hoyi</i>	Not considered to be a significant habitat decline but population unknown.	Unk	Unk	No	Unk	Unk	Unk	No
Merriam's shrew <i>Sorex merriami</i>	No. suitable habitat rare on NFS lands. population trend unknown	Unk	Unk	No	No	No	Yes	No
Northern bog lemming <i>Synaptomys borealis</i>	Not considered to be a significant habitat decline but population unknown.	No	Yes	Bogs, fens	Yes	Yes	Unk	Yes
American badger <i>Taxidea taxus</i>	Not considered to be a significant habitat decline but population unknown.	Habitat limited on NFS lands/species distribution unknown	Unknown but considered low	Limited	No	No	Unk	No
Fish								
Burbot <i>Lota lota</i>	No	No	Unk	No	No	No	Unk	No
Inland redband trout <i>Oncorhynchus mykiss gairdneri</i>	Yes	No	Unk	No	Yes	Yes	Yes	Yes
Invertebrates - insects								
Butterflies								
Western sulphur <i>Colias occidentalis</i>	Unk	Unk	Unk	No	No	Unk	Yes	No
Silver-bordered fritillary <i>Boloria selene atrocotalis</i>	Unk	Unk	Unk	No	No	Unk	Yes	No
Stoneflies								

Species common Name	On NFS lands – significant Habitat or Pop decline	On NFS lands - species and habitat well distributed	On NFS lands - Population Numbers Low	On NFS lands - Dependent on Limited or Specialized Habitat	On NFS lands - species subject to Imminent Threat	On NFS lands - NFS lands refuge	Species habitat or population is secure throughout its range	Include as SOI?
A Stonefly <i>Cascadoperla trictura</i>	Unk	Unk	Unk	No	Unk	Unk	Unk	No
Mollusks								
Pale jumping slug <i>Hemphillia camelus</i>	Unk	No	Yes	Unk	Yes	Unk	Yes	Yes
Western pearlshell mussel <i>Margaritifera falcata</i>	Unk	unk	Yes	Unk	Yes	Unk	Yes	Yes
Sheathed slug <i>Zacoleus idahoensis</i>	Unk	No	Yes	Unk	Yes	Unk	No	Yes
Plants								
All plants in table 4.3 with the exception of :	Species distribution is unknown but not considered to be well distributed	Population numbers are unknown but considered to be low	Yes – the majority of the plant species are dependent on specialized habitats	yes	unknown	Unknown – species populations and ranges are generally unknown	Yes	
<i>Antennaria corymbosa</i>	Not known to occur	Not known to occur on	Not known to occur	Not known to occur on	Not known to occur	No	Unk	No
<i>Astragalus microcristis</i>	Not known to occur	Not known to occur	Not known to occur	Not known to occur	Not known to occur	No	Unk	No
<i>Cladonia uncialis</i>	Not known to occur	Not known to occur	Not known to occur	Not known to occur	Not known to occur	No	Unk	No
<i>Carex lacustris</i>	Not known to occur	Not known to occur	Not known to occur	Not known to occur	Not known to occur	No	Unk	No
<i>Carex rostrata</i>	Not known to occur	Not known to occur	Not known to occur	Not known to occur	Not known to occur	No	Unk	No
<i>Carex xerantica</i>	Not known to occur	Not known to occur	Not known to occur	Not known to occur	Not known to occur	No	Unk	No
<i>Draba incerta</i>	Not known to occur	Not known to occur	Not known to occur	Not known to occur	Not known to occur	No	Unk	No
<i>Juncus bolanderi,</i>	Not known to occur	Not known to occur	Not known to occur	Not known to occur	Not known to occur	No	Unk	No
<i>Nymphaea leibergii</i>	Not known to occur	Not known to occur	Not known to occur	Not known to occur	Not known to occur	No	Unk	No
<i>Ophioglossum pusillum</i>	Not known to occur	Not known to occur	Not known to occur	Not known to occur	Not known to occur	No	Unk	No
<i>Ramalina pollinaria</i>	Not known to occur	Not known to occur	Not known to occur	Not known to occur	Not known to occur	No	Unk	No
<i>Sanicula marilandica</i>	Not known to occur	Not known to occur	Not known to occur	Not known to occur	Not known to occur	No	Unk	No
<i>Sisyrinchium montanum</i>	Not known to occur	Not known to occur	Not known to occur	Not known to occur	Not known to occur	No	Unk	No
<i>Tellima grandiflora</i>	Not known to occur	Not known to occur	Not known to occur	Not known to occur	Not known to occur	No	Unk	No
<i>Thalictrum dasycarpum</i>	Not known to occur	Not known to occur	Not known to occur	Not known to occur	Not known to occur	No	Unk	No
<i>Thamnia subuliformis</i>	Not known to occur	Not known to occur	Not known to occur	Not known to occur	Not known to occur	No	Unk	No
<i>Viburnum opulus ssp. americanum</i>	Not known to occur	Not known to occur	Not known to occur	Not known to occur	Not known to occur	No	Unk	No

Potential Species of Interest not considered further in the planning process

Amphibians

Northern leopard frog - this species is not known to occur on the forest at the present time and may have been extirpated throughout the state.

Wood frog – this species is not known to occur on the forest at the present time and may have been extirpated throughout the state.

Reptiles

Northern alligator lizard

This species is rarely encountered and poorly documented (ICCDC 2005). Habitats include coniferous forests, often in clearings or along forest edges. Observations have been on south facing slopes in fine to coarse talus, sometimes in the open but often with some canopy consisting of Douglas-fir, Ponderosa Pine, a variety of shrubby species and a layer of dried leaves and conifer needles. Most often found under logs and rocks. No information is available on population trends, occurrences, or population sizes. No information is available at this time that suggests population declines in Idaho (IDCDC 2005) or on the forest. Observations are generally of individuals only and are widely scattered throughout the state. Areas that support populations are not known at this time. Habitats are considered common and well distributed across the forest. Recommended actions include studies assessing distribution, abundance, and population trend are needed (IDCDC 2005).

Birds

Western grebe

In Idaho this species breeds along the Snake River drainage in the southern and southeastern parts of the state, at Cascade Reservoir and at several locations in the Panhandle. In the U.S. BBS data indicate no changes or potentially slight increases in the U.S. during the period 1966-2004 and 1987-2004 and significant increases during the period 1966-1979 (Sauer et al., 2005 in IDCWCS 2005). BBS data for Idaho however indicate sharp declines during the period 1966-2004 and 1980-2004 (Sauer et al. 2005 in IDCWCS 2005). Western grebes breed in large freshwater lakes and marshes with extensive open water. This species is not known to breed on NFS lands and habitat for this species on NFS lands is rare to non-existent on the forest. Activities on NFS lands would not impact this species.

Boreal owl

Boreal owls inhabit boreal and subalpine forested habitats in the Rocky Mountain states (Hayward et al. cited in IDCDC 2005). In Idaho this species nests in mature, mixed conifer, spruce/fir, Douglas-fir and aspen stands. Population trends are unknown at both the continental and state levels due to the technical difficulty of surveying and censusing this species (IDCDC 2005). Habitats are considered abundant and well distributed across the forest. The primary threat to this species is intensive timber harvest (e.g. clearcutting) while selective tree harvest that retains overall forest composition and structure is compatible (IDCDC 2005). The lack of information on demography, local and regional populations and response to habitat change makes assessment of conservation status difficult (Hayward et al. 1993). The forest conducts few management activities in the subalpine setting and current management emphasizes retention of the large tree component.

Grasshopper sparrow

The species has a large range extending from southern Canada to northern South America. There have been significant population declines in North America and probably elsewhere, due to loss, degradation, and incompatible management of grassland habitat (NatureServe 2009). The species prefers open prairies with intermittent brush, although is not particular to heavy brush cover. In Idaho this species is locally abundant

wherever suitable habitat occurs throughout the Snake River plain and in the Palouse. Open prairie habitat is rare on the forest; most grassland habitat that occurs on the forest is situated on private lands in areas such as the Kootenai Valley. The forest appears to be on the western edge of the species breeding range. The species is considered rare on the forest and there is no direct evidence of breeding on NFS lands. Management for this species includes the protection of large tracts of suitable grassland habitat (ideally 500+ acres) which are not known to occur on NFS lands. Additional threats to the species include cultivation and urban sprawl, which are beyond FS control.

Northern pintail

This species breeds in the Panhandle and winters along the Pacific coast but may also winter on larger bodies of water on the Panhandle. The species is considered secure throughout its breeding range in the state (S5) but is considered at risk (S2) for its non-breeding (winter) portion of the year. It winters on larger bodies of water, which do not occur on NFS lands on the forest. In Idaho, wintering populations are of primary concern, especially as ducks on winter wetlands compete against agricultural and urban users for limited water and space as human populations escalate (Austen and Miller 1995 in IDCWCS 2005). It is one of the most abundant waterfowl species in North America subject to population declines and recoveries. Management activities on NFS lands are not expected to impact this species during the winter period.

Northern shoveler

The northern shoveler is not considered a species of concern in Idaho. It is considered secure throughout its breeding range in the state, but is ranked as S2 (at risk) for the non-breeding portion of the year. It rarely winters in the northern to north central or northeastern U.S. Northern shovelers occur on the larger water bodies in the state, and are generally not to occur on NFS lands on the forest, particularly during the non-breeding season. Population estimates indicate a relatively stable and increasing trend (Dubowy 1996). Management activities on NFS lands are not expected to impact this species during the migration period.

Golden eagle

The golden eagle is considered widespread throughout the northern hemisphere. This species prefers dry, open and semi open areas associated with prairies or tundra, which are rare on the forest. The golden eagle is identified as a species of greatest conservation need for the Canadian Rocky Mountain Ecoregion by the state of Washington. However, it is not considered a species in need of conservation in Idaho and is considered apparently secure throughout the state (S4). Range maps for the state do not include the IPNF (ID digital atlas 2009). There is no information at this time that suggests population declines in Idaho or on the forest.

Great blue heron

Listed as a species of greatest conservation need by the state of Washington for the Rocky Mountains ecoregion. However, this species is considered secure; common, abundant and widespread (S5) by the state of Idaho (IDCDC 2009). Great blue heron populations are considered to be stable or increasing throughout its range (NatureServe 2009). Habitat is considered to be abundant and well distributed throughout the forest. The main stressors for this species, contaminants and illegal shooting, are beyond control of the forest.

Short-eared owl

Considered one of the worlds most widely distributed owls, occurring throughout much of North America, Europe and Asia, the species is a year-round resident of the IPNF. They are typically associated with open landscapes such as grasslands, tundra and agricultural lands. Assessing population status is difficult due to the nomadic lifestyle of the species. Conversion of open habitats to agriculture, grazing, recreation, housing and resort development is the key factors in declines. Habitat for this species is rare to non-existent on the forest. Activities on NFS lands are not likely to impact this species.

Lesser scaup

A year-round resident in the Panhandle, the species is primarily a transient in Idaho, although there are some birds that winter in the Panhandle and south central part of the state (Stephens and Srturts 1997 in IDCWCS 2005). Many threats faced by lesser scaup elsewhere do not apply in Idaho. The loss or degradation of wetlands due to drainage and conversion to agriculture, dredging and filling, and modification of water levels are potential issues that may impact both breeding and wintering habitats for this species. Habitat for this species on NFS lands on the forest is very rare. A diving duck that is not expected to occur on NFS lands on the forest, activities on NFS lands are not expected to impact this species.

Redhead

Listed as a species of greatest conservation need by the state of Washington for the Rocky Mountains ecoregion. The species is considered secure throughout its breeding range in the state (S5) but is considered potentially at risk (S3) for its non-breeding (winter) portion of the year. It winters on larger bodies of water, which do not occur on NFS lands on the forest. Management activities on NFS lands are not expected to impact this species during the winter period.

Canvasback

The canvasback is not considered a species in need of conservation in Idaho. It is considered apparently secure (S4) throughout its breeding range in the state, but is ranked as S2 (at risk) for the non-breeding portion of the year. It rarely winters in the northern U.S. In Idaho canvasbacks use large rivers, lakes and reservoirs and are generally not known to occur on NFS lands on the forest. Management activities on NFS lands are not expected to impact this species during the migration period.

Upland sandpiper

Preferred habitats include a wide variety of croplands, pastures, and native prairie types over relatively smooth topography. Although not seen every year in the state, breeding has been confirmed in the Panhandle (Kootenai county) in the past, although there have been no recent breeding records of the upland sandpiper in Idaho (Sturts in IDCWCS 2005). Loss of habitat to agriculture and urban development and heavy grazing is thought to be the biggest factor in upland sandpiper decline (Houston and Bowen 2001 in IDCWCS 2005). In northern Idaho and eastern Washington grassland habitat in the Rathdrum Prairie and Spokane Valley area has largely been lost to housing and commercial developments (McAllister and Demers 1993 in IDCWCS 2005). Population trend data are not available for Idaho (IDCDC 2005). Grassland habitat for this species is very rare on NFS lands on the forest. Activities on NFS lands are not likely to impact this species. Identified in the Idaho Comprehensive Wildlife Conservation Strategy as a species lacking essential information in the state.

Vaux's swift

Listed as a species of greatest conservation need by the state of Washington for the Rocky Mountains ecoregion. The species is not identified as in need of conservation in Idaho but is considered potentially at risk (S3) throughout its breeding range in the state (S4). No information is available on the species population sizes or trends for the state. Although the species range is known to include the IPNF, it is unknown if the species occurs on the forest or on NFS lands on the forest. Sample sizes in Idaho and Montana are too small for adequate trend analysis (NatureServe).

Cassins finch

The species is found throughout the western U.S. and Canada. Breeding habitats include open coniferous forest; in migration and winter, habitats also include deciduous woodland, second growth, scrub, brushy areas, partly open situations with scattered trees and sometimes suburbs near mountains (NatureServe 2009). The species is considered to be secure throughout its breeding range in the state (S5). No information was available in the NatureServe or state databases on population sizes or trends. In Idaho it was found to respond positively in number to diameter cut logging. Activities on NFS lands are not likely to impact the sustainability of this species.

Black tern

The species is known to nest on the forest but not on NFS lands. In northern Idaho the Kootenai National Wildlife Refuge and Westmond Lake appear to be fairly consistent nesting locations for 30 and 15 pairs respectively (ID CWCS 2005). The greatest threat to black terns in Idaho is the loss of marsh habitat resulting from over-extraction of ground water (Shuford 1999 in ID CWCS 2005). Disturbance is a potential threat in some locations, although black terns appear to be tolerant of nearby human activity, provided the colony itself is not entered (Gerson 1987 in ID CWCS 2005). Activities on NFS lands are not likely to impact this species.

Willow flycatcher

Although identified by the USFWS as a bird of conservation concern for BCR 10 (2008), the species is not considered to be a species of concern in Idaho and is considered to be secure; common, abundant and widespread (S5) throughout its breeding range in the state (MNHP 2009). Habitat is considered to be abundant and well distributed across the forest and the species is considered to be fairly common. The forest conducts very little to no management in riparian areas that may impact this species.

Merlin

The merlin is identified as a common migrant and locally abundant winter resident but rare breeder in Idaho (IDCDC 2005). A total of eight nests have been verified in Idaho and known on the IPNF. Nesting habitat in Idaho has been shrub steppe dominated by sagebrush and nests were placed in juniper trees. Habitat on the IPNF is very limiting. The main risk to the species was identified as an increase in agricultural lands, contaminants and others that are beyond control of the forest. There are too few breeding merlins in Idaho to implement habitat management activities designed specifically to benefit this species (IDCDC 2005).

Hooded merganser

This species is a year-round resident in the Panhandle and Upper Snake regions with additional birds spending the winter scattered throughout the southern part of the state. This species is most closely tied to forested wetland systems throughout its range when nesting (Dugger et al. 1994 in Id CWCS). In Idaho, this species prefers wooded streams and flooded bottomlands during summer, and open bodies of water in winter (Groves et al. 1997). They nest in tree cavities large enough to hold the incubating bird, preferably near water.

White-winged crossbill

Habitat includes conifer forests of white spruce, Engelmann spruce and tamarack. The critical factor influencing crossbill breeding is conifer seed availability, not detailed characteristics of habitat (Benkman 1990 cited in IDCDC 2005). Habitat for this species is abundant and well distributed across the forest. Population trends are variable and none were considered statistically significant (Sauer et al. 2005 cited in IDCDC 2005). No trend information is available for Idaho. The primary conservation actions should be to gather better documentation of current breeding and winter status in Idaho (IDCDC 2005). Global warming may impact the species due to its preference for spruce forests (Ibid). Although management activities may impact habitat for this species, management is considered minor in relation to the amount of habitat available.

Long-billed curlew

Nests in open short grass or mixed prairie habitat with level to slightly rolling topography and generally avoid areas with trees, high density shrubs and tall dense grasses. This species is not known to nest on the forest but in southern Idaho. The species may use the area during its migration to breeding areas further north. Grassland habitats on NFS lands are rare on the forest. Activities on NFS lands are not likely to impact this species.

Double crested cormorant

The cormorant is not considered a species in need of conservation in Idaho. It is however considered at risk (S2) throughout its breeding range in the state. In Idaho cormorants use large rivers, lakes and reservoirs and are generally not known to occur on NFS lands on the forest. Management activities on NFS lands are not expected to impact this species during the migration period.

White-headed woodpecker

Western Idaho is at the extreme edge of the species range. The majority of the observations are from the west central portion of the state. Observations on the forest are rare and include an individual only. Populations of the species do not occur on the forest and the species is not known to breed on the forest. The species has always been rare on the forest and the abundance of the species appears to decrease north of California. Trend data are not available for Idaho. Activities on the forest are not likely to impact this species.

Red-necked grebe

In Idaho red-necked grebes occur in the Panhandle, the Upper Snake region (Henry's Lake area) and isolated wetlands in the vicinity of Lake Cascade (IDCWCS). Population size is unknown although approximately 100 breed in Idaho at 4-6 different locations including Henry's Lake and Hayden Lake (on the forest). The population trend is currently unknown. No statistically significant changes have been detected by BBS data in the U.S., western BBS region or Idaho (Sauer et al. 2005 in IDCWCS 2005). Threats include pollutants such as heavy metals, disturbance by recreationists during nesting, and loss of wetland habitats. This species is not known to breed on NFS lands and activities on NFS lands are not expected to impact the species.

American avocet

Avocets are known to use areas on the forest such as the Boundary National Wildlife Refuge during migration and are known to nest only in the southern half of the state. Avocets are not known to occur on NFS lands on the forest. Management activities on NFS lands are not expected to impact this species during the migration period. The current population size for Idaho is unknown. The main threats to the species are loss of wetlands, wetland contamination, hunting and/or illegal shooting. Activities on NFS lands are not likely to impact the species.

Calliope hummingbird

Although identified by the USFWS as a bird of conservation concern for BCR 10 (2008), the species is not considered to be a species of concern in Idaho and is considered to be secure; common, widespread and abundant (S5) throughout the state (IDCDC 2005). The species habitat is considered to be abundant and well distributed across the forest and the species is considered to be common. Population declines were observed in only 2 locations (Oregon and the coastal mountains of southern California). Casey (2000) considers populations in Montana to be increasing, although monitoring is required to detect population changes over time. No threats were identified for this species in the various databases.

Mammals

Red-tailed chipmunk

The red-tailed chipmunk is endemic to western North America. A large portion of the range is in Idaho, and the species occurs in scattered localities primarily north of the Salmon River. The red-tailed chipmunk inhabits dense, mesic coniferous forests. Engelmann spruce, ponderosa pine, and subalpine fir communities are commonly associated with the species in Idaho. Forest openings and edges sustain the highest population numbers, especially where shrubby undergrowth is prevalent. Individuals use burrows associated with fallen logs, large boulders, and brush piles for nesting and over-wintering. The red-tailed chipmunk is also arboreal, foraging and rearing young in tall live and dead standing trees (Best 1993 cited in IDCDC 2005). No population trends are available for Idaho. Habitat for the species is considered abundant and well distributed across the forest. It is unknown if the species occurs on the forest or on NFS lands on the forest. Surveys are needed to determine the current distribution and status of the red-tailed chipmunk in Idaho. Identified in the Idaho Comprehensive Wildlife Conservation Strategy as a species lacking essential information in the state.

American pygmy shrew

The pygmy shrew occurs in the northern U. S., much of Canada and Alaska. Disjunct populations occur in Colorado and the eastern U. S. In Idaho, the species has been documented in few, scattered localities north of the Clearwater River (Foresman 1986, Groves 1994). Habitat in Idaho includes mesic and subalpine coniferous forests. Dominant tree species include western red-cedar, western hemlock, Engelmann's Spruce, grand fir, and subalpine fir (Groves 1994). An understanding of the status and ecology of this species in Idaho has been limited by sampling effort. The species is considered rare on the forest which may be indicative of small populations or may be an artifact of past sampling effort (IDCDC 2005). There is a lack of information regarding the distribution and habitat requirements of this species and surveys are needed to determine the distribution, current status, and habitat associations of populations in Idaho (IDCDC 2005). Identified in the Idaho Comprehensive Wildlife Conservation Strategy as a species lacking essential information in the state.

Merriam's shrew

The species has a limited distribution and abundance in Idaho. Merriam's shrew occurs in scattered localities in the northern Great Plains, Rocky Mountains, and intermountain west of the U. S. The species is known to occur in scattered localities across Idaho (e.g., Mullican 1986) however it is rarely encountered, and no information is available to suggest a population trend. Populations occur primarily in areas dominated by xeric shrubs and grasses. Habitats include sagebrush steppe and grassy openings in dry coniferous forest habitat. Habitats for this species are very rare on NFS lands on the forest. It is unknown if the species occurs on NFS lands as observations are very rare. The distribution and status of populations are poorly understood. Surveys are needed to determine the distribution, current status, and habitat associations of populations.

American badger

Identified by the state of Washington as a species of greatest conservation need for the Canadian Rocky Mountains Ecoregion portion of the IPNF. The badger is not considered a species of conservation need by the state of Idaho and is considered secure; common, abundant and widespread (S5) in the state (IDCDC 2005). The species is most common in shrub steppe, agricultural lands and open woodland forests, habitats that are rare on NFS lands on the forest. Activities on NFS lands are not likely to impact this species.

Fish

Burbot

In Idaho, burbot are only found in the Kootenai River drainage. The population entering Idaho is primarily a spawning population from Kootenay Lake in British Columbia, which leaves the lake in the late fall and early winter to spawn in the Kootenai River or tributary streams in Idaho. The main issues affecting burbot are related to the hydropower and flood control below Libby Dam on the Kootenai River, as well as the nutrient settling above the dam. Activities on NFS lands are not likely to impact this species.

Butterflies

Western sulphur

This species is listed as occurring in several counties in Idaho, including the IPNFs. No information is available for the species in the state databases on species occurrence, population numbers or trends. It is unknown if this species occurs on NFS lands on the forest. Habitat for the species (e.g. plants of the pear family, lupines, clover) are considered common and well distributed throughout the forest. The species uses open areas including meadows, conifer forest openings and powerline cuts. No management needs were reported for this species (Butterflies and Moths of North America Online 2009). Activities on NFS lands are not likely to impact this species.

Silver-bordered fritillary

The subspecies is listed as a Species of Greatest Conservation Need for the state of Washington (WA F&G 2005) including the Canadian Rocky Mountains ecoregion portion of the IPNF. The species *Boloria selene* is considered secure (common, abundant and well distributed) throughout the state (ID CWCS 2005). No information is available for the subspecies in the state databases. It is unknown if this subspecies occurs on this portion of the

forest or on NFS lands on the forest. Habitats for the species (wet meadows, bogs, marshes) is considered common and well distributed throughout this portion of the forest. Conservation of the species is not usually of concern although isolated populations in the plains and east of the Cascades should be conserved (Butterflies and Moths of NA Online 2009). It is unknown if the species occurs on this portion of the forest or if there are any isolated populations that occur. At this time it is impossible to identify if management of NFS lands would impact the subspecies. Management of NFS lands is not likely to impact the species should it be determined that they occur on the forest.

Stoneflies

Cascadoperna trictura

In Idaho the species has been found only in Shoshone County. Little is known about the life history or general biology of this species. Specific threats to Idaho populations have not been identified.

Species of Interest for the Idaho Panhandle National Forests

Table SOI.3 Proposed wildlife and plant species of interest for the Idaho Panhandle National Forest

Species common name	Species scientific name	Plants	Scientific name
Vertebrates - amphibians		Fungi/lichen	
Western toad	<i>Bufo boreas</i>		<i>Cetraria sepimicola</i>
Coeur d'Alene salamander	<i>Plethodon idahoensis</i>		<i>Cladonia bellidiflora</i>
Birds			<i>Cladonia transcendens</i>
Northern goshawk	<i>Accipiter gentilis</i>		<i>Cladonia uncialis</i>
Olive-sided flycatcher	<i>Contopus cooperi</i>		<i>Lobaria hallii</i>
Black swift	<i>Cypseloides niger</i>		<i>Lobaria scrobiculata</i>
Pileated woodpecker	<i>Dryocopus pileatus</i>		<i>Pilophorus acicularis</i>
Common loon	<i>Gavia immer</i>		<i>Platismatia herrei</i>
Harlequin duck	<i>Histrionicus histrionicus</i>		<i>Ramalina pollinaria</i>
Lewis's woodpecker	<i>Melanerpes lewis</i>		<i>Sphaerophorus globosus</i>
Flammulated owl	<i>Otus flammeolus</i>		<i>Thamnia subuliformis</i>
Black-backed woodpecker	<i>Picoides arcticus</i>	Non vascular mosses	
American three-toed woodpecker	<i>Picoides dorsalis</i>		<i>Buxbaumia aphylla</i>
Pygmy nuthatch	<i>Sitta pygmaea</i>		<i>Buxbaumia viridis</i>
Williamson's sapsucker	<i>Sphyrapicus thryoideus</i>		<i>Rhizomnium nudum</i>
Mammals			<i>Sphagnum mendocinum</i>
Elk	<i>Cervus Canadensis</i>		<i>Ulota megalospora</i>
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	Vascular plants	
Wolverine	<i>Gulo gulo</i>	Dwarf birch	<i>Betula pumila (var. glandulifera)</i>
Fisher	<i>Martes pennanti</i>	White spruce	<i>Picea gluca</i>
California myotis	<i>Myotis californicus</i>	Whitebark pine	<i>Pinus albicaulis</i>
Fringed myotis	<i>Myotis thysanodes</i>	Vascular ferns and relatives	
Mountain goat	<i>Oreammus americanus</i>		<i>Asplenium trichomanes (ssp. trichomanes)</i>
Northern bog lemming	<i>Synaptomys borealis</i>		<i>Dryopteris cristata</i>
Fish			<i>Lycopodiella inundata (Lycopodium inundatum)</i>
Columbia (Inland) redband trout	<i>Oncorhynchus mykiss gairdnerii</i>		<i>Lycopodium dendroideum</i>
Invertebrates - insects			<i>Pentagramma triangularis ssp triangularis</i>
Mollusks			<i>Polystichum braunii</i>
Pale jumping slug	<i>Hemphilia camelus</i>	Vascular flowering plants	
Sheathed slug	<i>Zacoleus idahoensis</i>		<i>Andromoda polifolia</i>
Mussels			<i>Antennaria corymbosa</i>
Western pearlshell	<i>Margaritifera falcata</i>		<i>Aster junciformis (Symphyotrichium boreale)</i>
			<i>Astragalus bourgovii</i>
			<i>Astragalus microcystis</i>
			<i>Blechnum spicant</i>
			<i>Botrychium lanceolatum (var. lanceolatum)</i>
			<i>Botrychium lunaria</i>
			<i>Botrychium michiganense</i>
			<i>Botrychium minganense</i>
			<i>Botrychium pinnatum</i>
			<i>Botrychium simplex</i>

Species common name	Species scientific name	Plants	Scientific name
			<i>Carex buxbaumii</i>
			<i>Carex californica</i>
			<i>Carex chordorrhiza</i>
			<i>Carex comosa</i>
			<i>Carex flava</i>
			<i>Carex hendersonii</i>
			<i>Carex leptalea</i>
			<i>Carex lacustris</i>
			<i>Carex livida</i>
			<i>Carex magellanica ssp. irrigua</i>
			<i>Carex rostrata</i>
			<i>Carex xerantica</i>
			<i>Cephalanthera austiniiae</i>
			<i>Cicuta bulbifera</i>
			<i>Cypripedium fasciculatum</i>
			<i>Cypripedium parviflorum (var. pubescens)</i>
			<i>Diphasiastrum sitchense</i>
			<i>Dodecatheon dentatum</i>
			<i>Draba incerta</i>
			<i>Drosera intermedia</i>
			<i>Epipactis gigantea</i>
			<i>Epilobium palustre</i>
			<i>Eriophorum viridicarinaratum</i>
			<i>Gaultheria hispidula</i>
			<i>Hypericum majus</i>
			<i>Iris versicolor</i>
			<i>Ivesia tweedyi</i>
			<i>Juncus bolanderi</i>
			<i>Lugwigia polycarpa</i>
			<i>Maianthemum dilatatum</i>
			<i>Meesia longiseta</i>
			<i>Mimulus alsinoides</i>
			<i>Mimulus clivicola</i>
			<i>Muhlenbergia glomerata</i>
			<i>Nymphaea leibergii</i>
			<i>Ophioglossum pusillum</i>
			<i>Orobanche pinorum</i>
			<i>Oxalis trillifolia</i>
			<i>Petasites sagittatus</i>
			<i>Phegopteris connectilis</i>
			<i>Platanthera orbiculata</i>
			<i>Psilocarphus tenellus</i>
			<i>Rhynchospora alba</i>
			<i>Ribes sanguineum</i>
			<i>Romanzoffia sitchensis</i>
			<i>Rubus spectabilis</i>
			<i>Salix candida</i>
			<i>Salix pedicellaris</i>
			<i>Sanicula marilandica</i>
			<i>Scheuchzeria palustris</i>
			<i>Schoenoplectus subterminalis</i>
			<i>Sisyrinchium montanum</i>
			<i>Streptopus streptopoides</i>
			<i>Tellima grandiflora</i>
			<i>Thalictrum dasycarpum</i>
			<i>Triantha occidentalis ssp. brevistyla</i>
			<i>Trichophorum alpium (Scirpus hudsonianus)</i>
			<i>Trientalis europaea (T. arctica)</i>
			<i>Trientalis latifolia</i>
			<i>Vaccinium oxycoccus</i>
			<i>Vallisneria americana</i>
			<i>Viburnum opulus americanum</i>
			<i>Viola selkirkii</i>

Screening proposed wildlife species of interest for further consideration in the planning process.

Additional screening was conducted on all species of interest to identify those that will be carried forward for more detailed consideration in the planning process, based on the following criteria. Information included in the tables above was used to complete this screening process.

1. Are there known occurrences or suitable habitat of the species on National Forest System lands on the IPNFs? (initial assessment identified the species range includes the forest but more detailed assessment shows the species and its habitat absent from NFS lands) (USDA 2007). If there are no occurrences on NFS lands the answer to this question is no.
2. Is the species secure on National Forest System lands on the IPNFs? The determination of “secure” is based on knowledge of species occurrence, distribution, availability of habitat, and responses to any management or natural disturbances that might occur (USDA 2007- Identifying and tracking threatened and endangered species, species of concern and species of interest in the NFMA plan revision process.
3. Is the species or its habitat affected by management or potential plan components on National Forest System lands on the IPNFs? (species which are not affected by any current or potential form of management or lack of management) (USDA 2007).
4. Is there adequate knowledge or information available about the species to conduct a credible assessment? (species for which there is too little information known to complete a credible assessment of appropriate management actions). If substantive information about the habitat of management needs of a species is lacking, the responsible official may consider to:
 - Treat the species as part of a larger taxonomic group with which it is likely to share habitat requirements and risk factors.
 - Provide appropriate management to known sites of the species in the plan area but not attempt a detailed evaluation
 - Not consider the species further in the planning process. If the species is not further considered collection of information about the species should become a high priority in monitoring programs (FSH 1909.12_40, sec. 43.23).

Table SOI.4. Screening species of interest for further inclusion in the planning process

Species	Is there Known Occurrence or Suitable Habitat on NFS lands in the plan area	Is the species Secure in the Plan Area	Is the species potentially affected by management or potential plan components	Is there adequate knowledge or info to conduct a credible assessment	Further Analysis Needed
Vertebrates					
Amphibians					
Western (boreal) toad <i>Bufo boreas</i>	Yes	Unk	Yes	Yes	Yes
Coeur d'Alene salamander <i>Plethodon idahoensis</i>	Yes	Unk	Yes	Yes	Yes
Birds					
Northern goshawk <i>Accipiter gentilis</i>	Yes	Yes	Yes	Yes	Yes
Olive-sided flycatcher <i>Contopus cooperi</i>	Yes	Unk	Yes	Yes	Yes
Black swift <i>Cypseloides niger</i>	Yes	Unk	Yes	Yes	Yes
Pileated woodpecker <i>Dryocopus pileatus</i>	Yes	Yes	Yes	Yes	
Common loon <i>Gavia immer</i>	Yes	Unk	Yes	Yes	Yes
Harlequin duck <i>Histrionicus histrionicus</i>	Yes	Unk	Yes	Yes	Yes
Lewis's woodpecker <i>Melanerpes lewis</i>	Yes	Unk	Yes	Yes	Yes
Flammulated owl <i>Otus flammeolus</i>	Yes	Yes	Yes	Yes	Yes
Black-backed woodpecker <i>Picooides arcticus</i>	Yes	Yes	Yes	Yes	Yes
American three-toed woodpecker <i>Picooides dorsalis</i>	Yes	Unk	Yes	Yes	Yes
Pygmy nuthatch <i>Sitta pygmaea</i>	Yes	Unk	Yes	Yes	Yes
Williamson's sapsucker <i>Sphyrapicus thryoides</i>	Yes	Unk	Yes	Yes	Yes
Mammals					
Elk <i>Cervus Canadensis</i>	Yes	Unk	Yes	Yes	Yes
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	Yes	Unk	Yes	Yes	Yes
Wolverine <i>Gulo gulo</i>	Yes	Unk	Yes	Yes	Yes
Fisher <i>Martes pennanti</i>	Yes	Unk	Yes	Yes	Yes
California myotis <i>Myotis californicus</i>	Yes	Unk	Unk	No	No
Fringed myotis <i>Myotis thysanodes</i>	Yes	Unk	Yes	Yes	Yes
Mountain goat <i>Oreamnus americanus</i>	Yes	Unk	Yes	Yes	Yes
Northern bog lemming <i>Synaptomys borealis</i>	Yes	Unk	Yes	No	Yes
Invertebrates					
Fish					
Columbia (Inland) redband trout <i>Oncorhynchus mykiss gairdnerii</i>	Yes	Unk	Yes	Yes	Yes
Invertebrates - insects					
Mollusks					
Pale jumping slug <i>Hemphilia camelus</i>	Yes	Unk	Yes	Yes	Yes
Western pearlshell <i>Margaritifera falcata</i>	Yes	Unk	Yes	Yes	Yes
Sheathed slug <i>Zacoleus idahoensis</i>	Yes	Unk	Yes	Yes	Yes
Plants					
All in table SOI.3					Yes

The following species of interest are not considered further in the analysis process

California myotis

The Idaho Comprehensive Wildlife Conservation Strategy (IDCDC 2005) identifies that, although listed as a species of greatest conservation need, the state is lacking essential information pertaining to the species status. The Idaho distribution is incompletely understood. Most authorities consider the species to occur in the northern and extreme western parts of the state, but scattered records suggest that the species may occur statewide. However, distinguishing this bat from a similar species, the western small-footed myotis, is notoriously difficult, which complicates the interpretation of records based on field identifications (ID CDC 2005). In Idaho the population trend is unknown, it is considered rare or uncommon through much of its range; however, some data indicates stable populations of the species (Miller et al. 2005).

43.24 – Species groups and surrogate species

The process used to address species diversity has, up to this point, identified all listed species, species of concern and species of interest in the plan area and where possible gathered existing information on them. In many cases it is difficult or impossible to try and consider each possible species in detail in the planning process and the ecological understanding and resources needed to manage all species on an individual basis is not available. Therefore, all species were reviewed to determine if grouping of species were possible and/or if a surrogate species could be selected to represent other species in a particular group. Grouping species makes it possible to identify a manageable subset of species or habitat conditions on which to focus species conservation measures and evaluation in the plan revision. Species groups and/or surrogate species may also improve the efficiency of the evaluation of conditions and development of plan components.

No surrogate species were selected because of the diversity of habitat requirements shown between species and because the selection of one species to represent a suite of others would not adequately represent the needs of rare or uncommon species.

A review of Wisdom et al. (2000 a, b) was conducted and used in the process for grouping terrestrial vertebrate wildlife species. The regional vegetation diversity matrix and the HRV analysis conducted for forest plan revision were also reviewed and used in this process. Grouping was conducted using a hierarchical approach: Initial grouping was conducted at a very broad scale and further refined as the process continued. At the broad scale species were identified based on their dependency on either aquatic or terrestrial habitats. Each of these groups were then further subdivided into finer components, based mainly on species habitat needs and additional ecological requirements, for example, need for frequent fire, lack of human disturbance, susceptibility to invasive/exotic species. It is recognized that some species occur in both an aquatic and terrestrial environment, however specific portions of a species life cycle may occur in an aquatic environment (such as boreal toad) and are included in that category.

The forest, in working with the region and other revision forests, identified the following species groups and species that need to be addressed on an individual basis. The Montana Natural Heritage program aided in grouping invertebrate mollusk species into those that are associated with aquatic habitats and those found in more dry environments. Within each of these larger groups some species are considered generalists while others have very specific habitat requirements. Where habitat requirements were common or plan components for a number of species were similar (such as mollusks) species were placed into a group.

Table 5 displays all of the T&E species, species of concern and species of interest for the forest, species groups and/or individual species that were not placed into a group. For all plant species the regional and forest botanists developed a set of seven habitat guilds and placed all plant species into one of those guilds. The forest, also in conjunction with the regional office, conducted brief write-ups for each species group or species identified which include both global information and information that is specific to the forest. These write-ups were then supplemented with information specific to each forest or for the zone. This entire process, from identification of

potential species, to screening and selection of species, placing species into groups, developing plan components for species and/or groups has been an iterative process. Information on the plant species groups is documented in *Plant Species Group*.

Table SOCI.1. Species groups and associated species.

Species group	Species	Category	Habitat
Aquatic			
Amphibian	Idaho giant salamander	SOI	
	Western toad	SOI	
	Coeur d'Alene salamander	SOI	Seeps/springs
Aquatic insects - Caddisflies, mayflies, dragonflies, stoneflies, ¹²			Streams
Mayflies		SOC	
Stoneflies	Pictitiella expansa	SOC	
Aquatic invertebrates - Mussels ¹³	Western pearlshell mussel	SOI	Streams with fish
Fish ¹⁴	Columbia basin redband trout		
	White sturgeon		
	Bull trout		
	Westslope cutthroat trout		
Species not placed into a group	Common loon	SOI	Lakes greater than 22 acres in size for nesting, undisturbed areas for nesting and rearing
	Harlequin duck	SOI	2 nd order streams or larger for nesting, undisturbed areas for nesting and rearing
	Northern bog lemming	SOI	Fens/bogs, moss habitats
	Black swift	SOI	Waterfalls for nesting
	Fisher	SOI	Riparian, old growth
Terrestrial Groups			
Bat	Fringed myotis	SOI	Caves/mines/buildings for hibernacula
	Townsend's big-eared bat	SOI	Caves/mines for hibernacula
Big game	Rocky mountain elk	SOI	General forest/winter range/security
Burned forest/snags	Black-backed woodpecker	SOI	
	Olive-sided flycatcher	SOI	
Terrestrial Mollusks – snails/slugs			
	Humped coin	SOC	Cedar/hemlock/grand fir, spruce-fir,

¹² Included in "Coldwater Group".

¹³ Included in "Coldwater Group".

¹⁴ Included in "Coldwater Group".

Species group	Species	Category	Habitat
			talus rocky ground
	Pygmy slug	SOC	Cedar/hemlock/grand fir
	Sheathed slug	SOI	Cedar/hemlock/grand fir, spruce-fir
	Smokey taildropper	SOC	Cedar/hemlock/grand fir, spruce-fir, talus rocky ground
	Pale jumping slug	SOI	Cedar/hemlock/grand fir, spruce-fir
Old forest/large diameter snag	Flammulated owl	SOI	Low elevation, warm/dry ponderosa pine-Douglas-fir
	Lewis's woodpecker	SOI	Cottonwood, aspen, riparian habitats. Open forests. Large dia snags.
	American three-toed woodpecker	SOI	
	Pygmy nuthatch	SOI	Low elevation, warm/dry ponderosa pine-Douglas-fir. Large dia snags.
	Williamson's sapsucker	SOI	
Species not placed into a group	North American wolverine	SOI	Talus/upper elevation, large undisturbed areas for denning
	Peregrine falcon	SOC	Cliffs, undisturbed areas for nesting
	Mountain goat	SOI	Upper elevation, undisturbed areas for winter
	Bald eagle	SOC	Large diameter trees for nesting and roosting adjacent to rivers/lakes, undisturbed areas for nesting and fledging
	Grizzly bear	T&E	Upper elevation, large undisturbed areas for denning, lower to mid elevation for spring
	Canada lynx	T&E	Spruce-fir, mid to upper elevation, down wood for denning, early successional for snowshoe hare
	Woodland caribou	T&E	Engelmann spruce/subalpine fir, western red cedar/western hemlock
	Gray wolf	SOC	Forest generalist, undisturbed areas for denning, big game for prey
	Gillette's checkerspot butterfly	SOC	Moist open meadows
	Western yellow-billed cuckoo	SOC	Riparian

43.25 Plan Components for Species Diversity

Note: This section has been updated with components from the revised forest plans and is found in the main body of "Providing for Ecological Sustainability in the Revised Forest Plans"

Information Sources Used:

Birds of Conservation Concern. 2008. US Fish & Wildlife Service, Arlington, Virginia; Birds of North America Online - Cornell Lab of Ornithology, Ithaca, NY. <http://bna.birds.cornell.edu/BNA/>;

DRAFT Conservation of Species at Risk in the Northern Region. F. Samson et al. 2004. Unpubl. Report. USFS –Region 1, Missoula, MT.;

Idaho Bird Conservation Plan Version 1.0, 2000, Idaho Partners in Flight; Idaho Bird Inventory and Survey (IBIS) Version 1.0, July 2004, Idaho Department of Fish & Game, Boise, Idaho; Idaho Conservation Data Center, Unpubl. table and species accounts. Idaho Dept. of Fish and Game 2005,

Idaho Species of Special Concern Element State Ranking Reviews. March 7, 2001. Janice C. Engle and Charles E. Harris eds, Idaho Conservation Data Center, Idaho Dept. of Fish and Game, Boise, Idaho;

Partners in Flight North American Landbird Conservation Plan, T.D. Rich et al. 2004. Cornell Lab of Ornithology. Ithaca, NY;

R1 Sensitive Species list (10/28/04 as amended on 3/31/05).

Idaho Species of greatest conservation need, <http://>

Montana species of concern

Washington Species of greatest conservation need for the

U.S. Fish and Wildlife Service. 2002. Birds of Conservation Concern 2002. Division of Migratory Bird Management, Arlington, Virginia. 99pp. <http://migratorybirds.fws.gov/reports/bcc2002>

The Birds of Conservation Concern identifies bird conservation regions (BCR) with lists of birds of conservation concern for each of those BCRs. KIPZ (including all portions in Montana, Idaho, and Washington) are within BCR 10 - the Northern Rockies. A complete of birds in BCR 10 are included in the appendices.

Conservation of Species at Risk in the Northern Region. Samson et al. 2004. <http://>

This document includes of all species at risk for Region 1 and strategies for each of those species. A complete list of Region one species at risk is included in the text above.

Idaho Conservation Data Center, Idaho Department of Fish and Game. Draft – Document Under preparation for CWCS. This document identifies invertebrate species thought or known to occur on National Forests of Idaho.

Hendricks, P. 2003. Status and Conservation Management of Terrestrial Mollusks of Special Concern in Montana. Report to Region 1, U.S. Forest Service. Montana Natural Heritage Program, Helena. 67 pp. + appendices.

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A complete list of species of concern is included in the appendices.

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Montana Natural Heritage Program

Natural HeritageTracker

Montana Species of concern, 2006

Montana Comprehensive Fish and Wildlife Conservation Strategy. 2005.

Montana Field Guide

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Debinski, D. 1993. Butterflies of Glacier National Park, Montana. Occasional Papers of the Museum of Natural History 159:1-13. Jamestown, ND. Northern Prairie Wildlife Research Center Online.

<http://www.npwr.usgs.gov/resource/insects/glacbfly/index.htm> (Version 16JUL97)

Hendricks, P., B.A. Maxell, S. Lenard and C. Currier. 2007. Land Mollusk Surveys on USFS Northern Region Lands: 2006. Report to the USDA Forest Service, Northern Region. Montana Natural Heritage Program, Helena, Montana. 11 pp. plus appendices.

Hendricks, P. 2003. Status and Conservation Management of Terrestrial Mollusks of Special Concern in Montana. Report to Region 1, U.S. Forest Service. Montana Natural Heritage Program, Helena, Montana. 67 pp. plus appendices.

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Maxwell, B.A., J.K. Werner, P. Hendricks, and D.L. Flath. 2003. herpetology in Montana: a historical status summary, checklists, dichotomous keys, accounts for native, potentially native, and exotic species, and indexed bibliography. Northwest Fauna Numbers 5. 138 p.

Maxwell, B.A. 2000. management of Montana's amphibians: a review of factors that may present risk to population viability and accounts on the identification, distribution, taxonomy, habitat use and natural history and the status and conservation of individual species. contract No. 43-0343-0-0. September 20, 2000.

Hendricks, P., K.A. Jurist, D.L. Genter, and J.D Reichel. 1996. Bats of the Kootenai National Forest, Montana. (unpublished report). Montana Natural Heritage Program, Helena, MT. 99 p.

Pierson, E.D. and 14 others. 1999. Species Conservation assessment and strategy for Townsend's big-eared bat (*Corynorhinus townsendii townsendii* and *Corynorhinus townsendii pallescens*). Idaho conservation effort, Idaho Department of Fish and Game, Boise, ID. 68 p.

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Definitions: KNF = Kootenai National Forest, IPNF = Idaho Panhandle National Forests; USFWS C = Candidate Species; ID SCC = Idaho Species of Conservation Concern; R1 FSS = Region 1 Forest Sensitive Species; SAR = Fred Samson DRAFT Conservation of Species At Risk (SAR) in the Northern Region; PIFCP = Partners in Flight North American Landbird Conservation Plan; IDBCP = Idaho Bird Conservation Plan; GA = Geographic Area.

Appendix B1

Global and Idaho species ranking

G	Global status
S	State status
T	Rank for a subspecific taxon (subspecies, variety, or population), appended to the global rank for the full species
G1, T1	Critically imperiled because of extreme rarity or because of some factor making the species especially vulnerable to extinction
G2, T2	Imperiled because of rarity or because of other factors demonstrably making it very vulnerable to extinction
G3, T3	Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range, or vulnerable to extinction throughout its range because of other factors. Vulnerable to extirpation or extinction.
G4	Apparently secure, though it may be quite rare in parts of its range, especially at the periphery.
G5	Demonstrably secure, though it may be quite rare in parts of its range, especially at the periphery. Demonstrably widespread, abundant and secure.
?	Denotes inexact or uncertain numeric rank
S1	At high risk because of extremely limited and/or rapidly declining numbers, range, and/or habitat making it highly vulnerable to global extinction or extirpation in the state.
S2	At risk because of very limited and/or declining numbers, range, and/or habitat, making it vulnerable to global extinction or extirpation in the state.
S3	Potentially at risk because of limited and/or declining numbers, range, and/or habitat even though it may be abundant in some areas.
S4	Uncommon but not rare (although it may be rare in parts of its range) and usually widespread. Apparently not vulnerable in most of its range, but possibly cause for long term concern.
S5	Common, widespread, and abundant (although it may be rare in parts of its range). Not vulnerable in most of its range.
Q	Questionable taxonomy that may reduce conservation priority-distinctiveness of this entity as a taxon at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon in another taxon, with the resulting taxon having a lower priority (numerically higher) conservation status rank.
X	Species believed to be extinct throughout its range. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
H	Species known from historical records. May be extirpated.
U	Species unrankable due to lack of information or due to substantially conflicting information on status or trends.
B	Status refers to the breeding population of the species
N	Status refers to the non-breeding population of the species
SR	Species reported in Montana but without a basis for either accepting or rejecting the report, or the report not yet reviewed locally.
GNA, SNA	A conservation status rank is not applicable because the species is not a suitable target for conservation activities
GNR, SNR	Not yet ranked

Material used in the selection of species of concern and species of interest for the Kootenai National Forest and the Idaho Panhandle National Forests

Glossary

MNHP = Montana Natural Heritage Program
MTCFWCS – Montana Comprehensive Fish and Wildlife Conservation Strategy
IDCDC = Idaho Conservation Data Center
IDCWCS = Idaho Comprehensive Wildlife Conservation Strategy
WADFW – Washington Department of Fish and Wildlife
WACWCS = Washington Comprehensive Wildlife Conservation Strategy
ICBEMP = Interior Columbia Basin Ecosystem Management Project
KNF = Kootenai National Forest
IPNFs = Idaho Panhandle National Forests
USFWS (FWS) = U.S. Fish and Wildlife Service
BCR – Bird Conservation Region
SOI = species of interest
SOC = species of concern

Occurrence/observations

Seasonal – species migrates into Idaho or Montana and is normally present only part of the year.
Yearlong – species is present yearlong (may be inactive or rarely detected during some seasons).
Suspected – species may occur on the Forest but there are no documented sightings.
No record – there are no documented sightings on the Forest, nor are there any expected.
Extirpated – historical species no longer present on the Forest.
Introduced – species is not native to the Forest but has been brought onto the forest and is known to reproduce

Species of greatest conservation need - “In greatest conservation need” is interpreted to mean focus areas, community types, and species that are significantly degraded or declining, federally listed, or where important distribution and occurrence information to assess the status of individuals and/or groups of species is lacking (MNHP 2005).

Montana species of concern - Species of concern are native Montana plants and animals that are at risk or potentially at risk due to rarity, restricted distribution, habitat loss and/or other factors.

Birds of Conservation concern (USFWS 2002)

These include migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent the highest conservation priorities or species and species in need of conservation action.

Regional forester sensitive species – these include species that are currently on the Northern Region (R1) sensitive species list. For a complete list of R1 sensitive species see <http://fs.fed/us>. Sensitive species of native plant and animal species must receive special management emphasis to ensure their viability and to preclude trends toward endangerment that would result in the need for federal listing (FSM 2672.1).

Those plant and animal species identified by the regional forester for which population viability is a concern as evidenced by:

- a. Significant current or predicted downward trends in population numbers or density.
- b. Significant current or predicted downward trends in habitat capability that would reduce a species existing distribution.

Montana Fish, Wildlife and Parks Tier ratings for vertebrate wildlife

Tier 1. Greatest conservation need. Montana Fish, Wildlife and Parks has a clear obligation to use its resources to implement conservation actions that provide direct benefit to these species, communities, and focus areas.

Tier 2. Moderate conservation need. Montana Fish, Wildlife and Parks could use its resources to implement conservation actions that provide direct benefit to these species, communities, and focus areas.

Tier 3. Lower conservation need. Although important to Montana's wildlife diversity, these species, communities, and focus areas are either abundant and widespread or are believed to have adequate conservation already in place.

Tier 4. Species that are non-native, incidental, or on the periphery of their range and are either expanding or very common in adjacent states.

Montana Partners in Flight priority levels (PIF version 1.1, 2000)

I. Conservation action. Generally high overall scores, declining population trends, and/or high importance. These are the species for which Montana has a clear obligation to implement conservation.

II. Monitoring species. Species in need for which we have responsibility, but with lesser threat or stable/increasing populations in the state. As compared to level I, these species have generally lower overall scores, in many cases because they are poorly sampled by BBS. Montana has a high responsibility to monitor the status of these species, and/or to design conservation actions.

III. Local concern. Species of concern (often designated as such by participating agencies) which rank lower, are not in imminent risk, or which are near obligates for high priority habitat. Presence of these species may serve as added criteria in the design and selection of conservation or monitoring strategies.

IV. Non-priority. Formerly suggested for inclusion in the planning effort, but recommended for deletion because of occurrence as rare migrants only, extremely peripheral occurrence, or lack of imminent risk (widespread, generalist, increasing).

Resources used:

NatureServe

Montana Natural Heritage Program

Natural Heritage Tracker

Montana Species of concern, 2006

Montana Comprehensive Fish and Wildlife Conservation Strategy. 2005.

Montana Field Guide

For a complete listing of Montana state conservation ranks see <http://nhp.nris.state.mt.us/speciesofconcern> or http://mtnhp.org/mtnhp_info.asp

For a complete listing of NatureServe conservation status ranks see <http://www.NatureServe.org/explorer/ranking.htm>

For a complete description of species status in Montana see the **Montana Comprehensive Fish and Wildlife Conservation Assessment**.

References: See pages 259-274.

Material used in the selection of species of concern and species of interest for the Kootenai National Forest and the Idaho Panhandle National Forests

For a complete description of species status in Idaho see the Idaho Comprehensive Wildlife Conservation Assessment at <http://>

For a complete listing of Idaho state conservation ranks see <http://nhp.nris.state.mt.us/speciesofconcern> or http://mtnhp.org/mtnhp_info.asp

For a complete listing of NatureServe conservation status ranks see <http://www.NatureServe.org/explorer/ranking.htm>

Regional forester sensitive species – these include species that are currently on the Northern Region (R1) sensitive species list. For a complete list of R1 sensitive species see <http://fs.fed/us>. Sensitive species of native plant and animal species must receive special management emphasis to ensure their viability and to preclude trends toward endangerment that would result in the need for federal listing (FSM 2672.1).

Those plant and animal species identified by the regional forester for which population viability is a concern as evidenced by:

- c. Significant current or predicted downward trends in population numbers or density.
- d. Significant current or predicted downward trends in habitat capability that would reduce a species existing distribution.

Birds of Conservation concern (USFWS 2002)

These include migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent the highest conservation priorities or species and species in need of conservation action.

Idaho Partners in Flight priority levels (PIF version 1.1, 2000)

High priority species - Generally high overall scores, declining population trends, and/or high importance. These are the species for which Idaho has a clear obligation to implement conservation. Species rated high in the PIF prioritization system. A high total score indicates high vulnerability of populations and/or those species of moderately high vulnerability and with declining or uncertain population trend in the physiographic area or state for which there is relatively high responsibility.

Moderate priority species – those that should be considered in habitat management plans or monitoring plans in Idaho but are not considered high priority species, based on the following criteria:

- Species on the national watch list.
- Species for which Idaho and physiographic areas that include Idaho have high responsibility (percent population) for the long term conservation because they reach their greatest abundance in these areas, even if they are not currently threatened.
- Species scoring 18-21 and are specialists (defined as using only one or two habitats).
- Species on the federal list of threatened or endangered species that did not meet any of the other criteria.
- Species that Idaho PIF requested be raised to priority status.

U.S. Fish and Wildlife Service. 2002. Birds of Conservation Concern 2002. Division of Migratory Bird Management, Arlington, Virginia. 99pp. <http://migratorybirds.fws.gov/reports/bcc2002>

The Birds of Conservation Concern identifies bird conservation regions (BCR) with lists of birds of conservation concern for each of those BCRs. KIPZ (including all portions in Montana, Idaho, and Washington) are within BCR 10 - the Northern Rockies. A complete of birds in BCR 10 are included in the appendices.

Conservation of Species at Risk in the Northern Region. Samson et al. 2004. <http://>

This document includes of all species at risk for Region 1 and strategies for each of those species. A complete list of Region one species at risk is included in the text above.

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Hendricks, P. 2003. Status and Conservation Management of Terrestrial Mollusks of Special Concern in Montana. Report to Region 1, U.S. Forest Service. Montana Natural Heritage Program, Helena. 67 pp. + appendices.

Montana animal species of Concern. 2004. Montana Natural Heritage Program. <http://www.fwp.state.mt.us>

A complete list of species of concern is included in the appendices.

The first step in identifying species includes a query of the NatureServe database for all species that meet specific criteria in FSH 1909.12_40. This query provides lists of all species for the state of Idaho that meet the criteria established for species of concern and species of interest (1909.12_40, 43.22b and 43.22c below) (see appendix A). The purpose of the combined criteria for species of concern and species of interest is to identify all species for which there are conservation concerns. Species for which there are no conservation concerns would be adequately conserved through the ecosystem diversity approach (2008 rule at FR 21489). From these lists all species whose ranges include the Idaho Panhandle National Forests were identified. Species whose ranges were displayed in the NatureServe database and do not include the forest are displayed as **“not”** in the tables and dropped from consideration as species of concern or interest.

There are many invertebrate wildlife species and plant species whose ranges are unknown and/or have not been identified in the NatureServe or IDCDC databases. For those species the NatureServe database (2009) states “distribution data for U.S. states and Canadian provinces is known to be incomplete or has not been reviewed for this taxon and No Range map available”. For those species, additional sources were reviewed, principally the Idaho Conservation Data Center (2009) but also other sources as available. As with the NatureServe database, for most of these species the IDCDC database states that “information for the species is not complete” and no range map or information is provided. In most cases these species have been given a state ranking of SNR (species not rated) or they are not identified as not occurring in the IDCDC database for wildlife or plants. In general these are species reported in Idaho but without a basis for either accepting or rejecting the report, or the report has not yet been reviewed locally. Some of these are very recent discoveries for which the program has not yet received firsthand information while others are old obscure reports.

For those species whose ranges could not be determined, a review of the IDCDC database was used to identify any species with observations that include the forest. Additional sources were also reviewed including those identified below. Those species whose ranges could not be determined and/or there are no observations for the forest, are identified in the tables as **“range unknown/no info”** and are dropped from consideration as species of concern and interest for the forest.

There are instances where the NatureServe database identifies a species distribution that includes the state of Idaho, however the species is not listed in any of the Idaho databases as occurring in the state. Those species are displayed as **“not in Idaho”** and are dropped from consideration as species of concern or interest.

Birds – a list of all bird species known or suspected to occur on the Kootenai and Idaho Panhandle National Forests (KIPZ) was reviewed by the Heritage Program (Casey 2003). The Idaho Bird Conservation Plan (PIF 2000) prioritizes bird species and habitat associations and provides information and management recommendations for associated birds. For all birds on the list a determination was made whether a species was known to occur on the forest or not, and if the species occurred during a particular period of the year (i.e. seasonal, migratory). Birds identified as transient or accidental were dropped from consideration as species of concern or interest. Those species whose range has been identified as migratory only for the forest, and there is no record of the species occurring on the forest, and the species is being considered because of concerns on its breeding range only (which does not include the forest) were dropped from further consideration as species of concern and interest.

Invertebrates – a review was made of analyses conducted for the ICBEMP for invertebrates (Niwa et al. 2001) and mollusks (Frest and Johannes 1995) and the Idaho Conservation Data Center (Dixon et al. 2005). The region and the forest worked with the Heritage Program (personal communication, Hendricks and Maxell 2005) in the identification of and potential management strategies for terrestrial mollusks. The Heritage Program provided habitat associations and distribution by forest for land mollusks in the region (MNHP 2005, Hendricks et al. 2006, 2007) and for aquatic invertebrates (Stagliano et al. 2007).

Plants - All of the plant species identified in the query of the NatureServe database for the state and whose range was determined to be unknown, were further reviewed in the Idaho databases. IDCDC (2006) provides a list of all plant species considered to be of concern in the state (Idaho special status plants) and their distribution by county. All of those plant species listed as special status for the state and for the various counties that make up the forest were then reviewed to make certain they were included in this analysis. The lists of plant species were further reviewed by the forest botanists to ensure that all of the plant species that were either known or suspected to occur on the forest were included in the analysis. All plant species whose range is known and includes the forest and/or all of those whose range is unknown but observation data suggests they are known or suspected to occur on the forest were included in the analysis for species of concern and species of interest.

Table 3.1 (wildlife) and 3.2 (plant) display all species for the state of Idaho considered for inclusion as species of concern for the forest, whether the species range includes the forest, and if the species is known or suspected to occur on the forest. For this initial list the forest includes both NFS and other lands.

Part of the process in identifying species of concern is also displaying and recording the rationale for eliminating species from further evaluation (FSH 1909.12 section 43.22d). Table 3.3 identifies all of those species that meet the criteria for species of concern for the Idaho Panhandle National Forest's.

As with species of concern, all species whose range is known “not” to overlap the forest as well as those whose range is “unknown and no information” is available to determine if a species range overlaps the forest, were dropped from further consideration. There are a number of bird species whose migratory range includes the forest. Those species state rankings were reviewed to determine why they were considered to be of conservation concern in the state and/or if there were any observations of the species on the forest. All of those species whose range on the forest is identified only as migratory, and they were only ranked in the state for their breeding range (which does not include the forest) were dropped from further consideration as species of interest.

There are a number of species identified in the NatureServe database as meeting the criteria of S1 or S2 for the state of Idaho. However, these species are not ranked as S1 or S2 but are ranked as either SNR (unranked, conservation status not yet assessed), SNA (not applicable: a conservation status rank is not applicable because the species is not a suitable target for conservation activities), or SU (unrankable: currently unrankable due to lack of information or due to substantially conflicting information about status or trends) and they are not listed for any of the other criteria discussed above. Species given a rank of SNA or SU by the state (ID CDC 2005) were dropped from consideration as species of interest. The majority of these species are known to be migratory only

for the state. Species given a rank of SNR were included in this initial list for consideration as species of interest. Although not ranked at this time several of these species are identified as species of greatest conservation need by the state (ID CWCS 2005). The list of species from NatureServe also identifies several species as S1 or S2 for the state of Idaho but their actual ranking is S3, S4 or S5 and they are not included for any of the other criteria listed above. These species were dropped from further consideration.

All of the species that meet one or more of the above criteria were included on the list for consideration as species of interest. Based on the criteria discussed previously all species given an answer of yes in the last column are considered potential species of interest. A total of 183 species of wildlife and 491 species of plants were initially included for consideration as species of interest based on the eight criteria listed above. Of those, 63 species of wildlife and 78 species of plants were identified as potential species of interest (see table SOI.3) and considered further for inclusion as species of interest for the forest.

Table 1. Wildlife species that meet the criteria for species of concern for the State of Idaho and/or the Rocky Mountain Ecoregion, if the species ranges overlap the forests and if the species is included as a species of concern for the IPNFs.

Species common Name	Species scientific name	NatureServe Ranking	Proposed or Candidate	Petitioned	Delisted	Species Range Encompasses the Forest	Include as SOC?
Vertebrates							
Amphibians							
Columbia spotted frog – great basin DPS	<i>Rana luteiventris pop. 3 (south of Snake R.)</i>	G4T2T3Q	C			Not	No
Idaho giant salamander	<i>Dicamptodon aterrimus</i>	G3				Known	Yes
Birds							
Greater sage grouse	<i>Centrocercus urophasianus</i>		C			Not	No
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	G5T3Q	C			Not	No
Peregrine falcon	<i>Falco peregrinus</i>	G4			Yes	Summer	Yes
Bald eagle	<i>Haliaeetus leucocephalus</i>	G5			Yes	Yearlong	Yes
American white pelican	<i>Pelecanus erythrorhynchos</i>	G3				Not	No
Columbian sharp-tailed grouse	<i>Tympanuchus phasianellus columbianus</i>	G4T3				Yes	No
Mammals							
Townsend's western big-eared bat	<i>Corynorhinus townsendii townsendii</i>	G4T3T4				Not	No
Southern Idaho ground squirrel	<i>Spermophilus brunneus endemicus</i>	G2T2	C			Not	No
Bighorn sheep (pops. South of Snake R.)	<i>Ovis Canadensis</i>	G4T1				Not	No
Fish							
Bear lake sculpin	<i>Cottus extensus</i>	G1				Not	No
Shoshone sculpin	<i>Cottus greeniei</i>	G2				Not	No
Wood river sculpin	<i>Cottus leiopomus</i>	G2				Not	No
Northern leatherside chub	<i>Lepidomeda copei</i>	G1G2				Not	No
Yellowstone cutthroat trout	<i>Oncorhynchus clarkia bowvieri</i>	G4T2				Known	Yes
Westslope cutthroat trout	<i>Oncorhynchus clarki lewisi</i>	G4T3				Known	Yes
Snake river fine-spotted cutthroat trout	<i>Oncorhynchus clarki ssp. 2</i>	G4T1T2Q				Not	No
California golden trout	<i>Oncorhynchus mykiss aquabonita</i>	G5T1				Not	No non native
Bear lake whitefish	<i>Prosopium abyscicola</i>	G1				Not	No
Bonneville cisco	<i>Prosopium gemmifer</i>	G3				Not	No
Spotted whitefish	<i>Prosopium sp. 1</i>	G1Q				Not	No
Bonneville whitefish	<i>Prosopium spilonotus</i>	G3				Not	No
Landlocked arctic char	<i>Salvelinus alpinus oquassa</i>	G5T2Q				Not	No non native
Invertebrates - Crustaceans							
Raptor fairy shrimp	<i>Branchinecta raptor</i>	G1G2				Not	No
Idaho amphipod	<i>Stygobromus idahoensis</i>	G1G2				Not	No
Invertebrates - insects							
Insects - Beetles							
Idaho dunes tiger beetle	<i>Cicindela arenicola</i>	G1G2				Not	No
Columbia river tiger beetle	<i>Cicindela columbica</i>	G2				Not	No
Hairy-necked tiger beetle	<i>Cicindela hirticollis couleensis</i>	G5T3				Not	No
Alpine tiger beetle	<i>Cicindela plutonica</i>	G3				Not	No
Alpine tiger beetle	<i>Cicindela plutonica plutonica</i>	G3T3				Not	No
Oblique lined tiger beetle	<i>Cicindela tranquebarica vibex</i>	G5T3Q				Not	No
Bruneau tiger beetle	<i>Cicindela waynei</i>	G1				Not	No
Blind cave leiodid beetle	<i>Glacivicolia bathyscioides</i>	G1G3				Not	No
Insects - Butterflies							
Relict fritillary	<i>Boloria kriemhild</i>	G3G4				Not	No
Western sulphur	<i>Colias occidentalis</i>	G3G4				Known	No/consider for SOI

Species common Name	Species scientific name	NatureServe Ranking	Proposed or Candidate	Petitioned	Delisted	Species Range Encompasses the Forest	Include as SOC?
Western sulphur	<i>Colias occidentalis pseudochristina</i>	G3G4T2T4				Not	No
California marble	<i>Euchloe hyantis</i>	G3G4				Not	No
Edith's checkerspot	<i>Euphydryas editha owyheensis</i>	G5T2T3				Range unknown/no info	No
Gillette's checkerspot	<i>Euphydryas gillettii</i>	G2G3				Known	Yes
Insects - Caddisflies							
A Agapetus caddisfly	<i>Agapetus montanus</i>	G2				Not	No
A caddisfly	<i>Apatania comosa</i>	G2G3				Not	No
A caddisfly	<i>Arctopora salmon</i>	G1G3				Unk	No
A caddisfly	<i>Ceraclea coph</i>	G3G4				Not	No
A caddisfly	<i>Glossosoma idaho</i>	G2G3				Range unknown/No info	No
A caddisfly	<i>Goereilla baumanni</i>	G2G3				Not	No
A caddisfly	<i>Homophylax auricularis</i>	G1G3				Not	No
A caddisfly	<i>Limnephilus chalisa</i>	G1G2				Not	No
A caddisfly	<i>Limnephilus rhea</i>	G1G3				Not	No
A caddisfly	<i>Manophylax annulatus</i>	G1G3				Not	No
A caddisfly	<i>Nectopsyche minuta</i>	G3G4				Range unknown/No info	No
A caddisfly	<i>Ochrotrichia buccata</i>	G1G3				Range unknown/No info	No
A caddisfly	<i>Philocasca antennata</i>	G1G3				Not	No
A caddisfly	<i>Philocasca banksi</i>	G1G3				Range unknown/No info	No
A caddisfly	<i>Polycentropus denningi</i>	G3G4				Not	No
A caddisfly	<i>Psychoglypha prita</i>	G3G4				Not	No
A caddisfly	<i>Psychoglypha smithi</i>	G1G3				Not	No
A caddisfly	<i>Rhyacophila belona</i>	G2G4				Range unknown/No info	No
A caddisfly	<i>Rhyacophila coloradensis idahoensis</i>	G5T3T4				Not	No
A caddisfly	<i>Rhyacophila oreia</i>	G1G3				Range unknown/No info	No
A caddisfly	<i>Rhyacophila potteri</i>	G1G2				Not	No
A caddisfly	<i>Sericostriata surdickae</i>	G2G3				Not	No
Insects - Grasshoppers							
Idaho point headed grasshopper	<i>Acrolophitus pulchellus</i>	G1G3				Not	No
A grasshopper	<i>Arigiocris amissuli</i>	G1G3				Not	No
A grasshopper	<i>Arigiocris keithi</i>	G1G3				Not	No
A grasshopper	<i>Arigiocris militaris</i>	G3G4				Not	No
A grasshopper	<i>Barricris petraea</i>	G3?				Not	No
a spur throat grasshopper	<i>Melanoplus artemisiae</i>	G1G3				Not	No
a spur throat grasshopper	<i>Melanoplus daemon</i>	G1G2				Not	No
a spur throat grasshopper	<i>Melanoplus digitifer</i>	G2G3				Not	No
a spur throat grasshopper	<i>Melanoplus idaho</i>	G1G2				Not	No
a spur throat grasshopper	<i>Melanoplus lemhiensis</i>	G1G2				Not	No
a spur throat grasshopper	<i>Melanoplus papyraedus</i>	G1G2				Not	No
a spur throat grasshopper	<i>Melanoplus payettei</i>	G2G4				Not	No
a spur throat grasshopper	<i>Melanoplus salmonis</i>	G1G3				Not	No
Sagebrush spur throat grasshopper	<i>Melanoplus trigeminus</i>	G1G2				Not	No
	<i>Melanoplus sp. 3</i>	G1G2				Not	No
	<i>Melanoplus sp. 4</i>	G1G3				Not	No
	<i>Melanoplus sp. 15</i>	G2G3				Not	No
	<i>Melanoplus sp. 20</i>	G1G2				Not	No
	<i>Melanoplus sp. 24</i>	G1G2				Not	No
	<i>Melanoplus sp. 25</i>	G1G2				Not	No

Species common Name	Species scientific name	NatureServe Ranking	Proposed or Candidate	Petitioned	Delisted	Species Range Encompasses the Forest	Include as SOC?
	<i>Melanoplus sp.28</i>	G1G2				Not	No
	<i>Melanoplus sp. 30</i>	G1G3				Not	No
	<i>Melanoplus sp. 33</i>	G1G2				Not	No
	<i>Melanoplus sp. 34</i>	G1G2				Not	No
	<i>Melanoplus sp. 50</i>	G1G2				Not	No
	<i>Melanoplus sp. 53</i>	G1G2				Not	No
	<i>Melanoplus sp. 57</i>	G1G2				Not	No
	<i>Melanoplus sp. 60</i>	G1G3				Not	No
	<i>Melanoplus sp. 63</i>	G1G2				Not	No
Insects - Mayflies							
A mayfly	<i>Ameletus sparsatus</i>	G3G4				Not	No
A mayfly	<i>Ameletus suffusus</i>	G2G4				Not	No
A mayfly	<i>Ameletus tolae</i>	G1G3				Known	Yes
A mayfly	<i>Ammotropus ammophilus</i>	G3G4				Not	No
A mayfly	<i>Asioplax edmundsi</i>	G3				Not	No
A mayfly	<i>Baetisca columbiana</i>	G2G4				Range unknown/No info	No
A mayfly	<i>Caudatella edmundsi</i>	G2G3				Range unknown/No info	No
Lolo mayfly	<i>Caurinella idahoensis</i>	G3				Not	No
A mayfly	<i>Centropilum selanderorum</i>	G1				Not	No
A mayfly	<i>Cinygma dimicki</i>	G1G3				Not	No
A mayfly	<i>Cinygmula uniformis</i>	G3G4				Range unknown/No info	No
A mayfly	<i>Paraleptophlebia jenseni</i>	G2G4				Not	No
A mayfly	<i>Paraleptophlebia vaciva</i>	G3G4				Not	No
A mayfly	<i>Parameletus columbiae</i>	G2				Not	No
Insects - Stoneflies							
Glacier snowfly	<i>Bolshecapnia milami</i>	G3				Not	No
Straight snowfly	<i>Capnia lineata</i>	G3				Not	No
Boise snowfly	<i>Capnia nedia (Utacapnia nedia)</i>	G3				Not	No
Idaho snowfly	<i>Capnia zukeli</i>	G2				Not	No
Cascades stripetail	<i>Cascadoperla trictura</i>	G3G4				Known	No/consider for SOI
Forked stripetail	<i>Isoperla bifurcata</i>	G3				Not	No
Notched stripetail	<i>Isoperla sordida</i>	G3				Range unknown/No info	No
Tiny forestfly	<i>Malenka iina</i>	G3				Not	No
Cascade needlefly	<i>Megaleuctra kincaidi</i>	G2				Not	No
Black needlefly	<i>Perlomyia collaris</i>	G3				Not	No
Autumn springfly	<i>Pictetiella expansa</i>	G3				Known	Yes
Alberta springfly	<i>Setvena bradleyi</i>	G3				Range unknown/No info	No
Clearwater roachfly	<i>Soliperla salish</i>	G2				Not	No
Idaho forestfly	<i>Soyedina potteri</i>	G3				Not	No
Utah sallfly	<i>Sweltsa gaufini</i>	G3				Not	No
Umatilla willowfly	<i>Taenionema umatilla</i>	G3				Not	No
Cordilleran forestfly	<i>Zapada cordillera</i>	G3				Not	No
Invertebrates -Millipedes and centipedes							
A cave obligate millipede	<i>Idagona westcottii</i>	G1G2				Range unknown/No info	No
Invertebrates - Mollusks							
Selway forestsnail	<i>Allogona lombardii</i>	G1				Not	No
Dry land forestsnail	<i>Allogona ptychophora solida</i>	G5T2T3				Not	No
Washington duskysnail	<i>Ammicola sp. 2</i>	G1				Not	No

Species common Name	Species scientific name	NatureServe Ranking	Proposed or Candidate	Petitioned	Delisted	Species Range Encompasses the Forest	Include as SOC?
Nimapuna tigersnail	<i>Anguispira nimapuna</i>	G1				Not	No
California floater	<i>Anodonta californiensis</i>	G3Q				Not	No
Western thorn	<i>Carychium occidentale</i>	G3G4				Not	No
Riblet ambersnail	<i>Catinella gabbi</i>	G1G2				Not	No
Chrome ambersnail	<i>Catinella rehderi</i>	G3Q				Not	No
Salmon Oregonian	<i>Cryptomastix harfordiana</i>	G3G4				Range unknown/No info	No
Columbia Oregonian	<i>Cryptomastix hendersoni</i>	G1G2				Not	No
Mission Creek Oregonian	<i>Cryptomastix magnidentata</i>	G1				Range unknown/No info	No
Oregonian	<i>Cryptomastix mullani blandi</i>	G4T1				Range unknown/No info	No
River of no return Oregonian	<i>Cryptomastix mullani clappi</i>	G4T1				Range unknown/No info	No
A land snail (lower salmon river)	<i>Cryptomastix mullani latilabris</i>	G4T1				Range unknown/No info	No
A land snail (lower Clearwater river)	<i>Cryptomastix mullani tuckeri</i>	G4T1				Range unknown/No info	No
A land snail (hells canyon)	<i>Cryptomastix populi</i>	G2				Range unknown/No info	No
Kingston Oregonian	<i>Cryptomastix sanburni</i>	G1				Range unknown/No info	No
Disc Oregonian	<i>Cryptomastix sp.3</i>	G2				Not	No
Locha Oregonian	<i>Cryptomastix sp.4</i>	G1				Not	No
Lucille Oregonian	<i>Cryptomastix sp.5</i>	G1				Not	No
White bird oregonian	<i>Cryptomastix sp.6</i>	G1				Not	No
Hells canyon oregonian	<i>Cryptomastix sp.7</i>	G2				Not	No
Marbled disc	<i>Discus marmorensis</i>	G1G2				Not	No
Shortface lanx	<i>Fisherola nuttalli</i>	G2				Not	No
Green river pebblesnail	<i>Flumicola coloradoensis</i>	G2G3				Not	No
Pixie pebblesnail	<i>Flumicola minutissimus</i>	G1				Not	No
Ashy pebblesnail	<i>Flumicola fuscus</i>	G2				Not	No
A freshwater snail	<i>Fossaria cockerelli</i>	G3G4Q				Not	No
Western ridged mussel	<i>Gonidea angulata</i>	G3				Not	No
Great basin rams horn	<i>Helisoma newberryi</i>	G1Q				Not	No
Salmon coil	<i>Helicodiscus salmonaceus</i>	G2				Not	No
Marbled jumping slug	<i>Hemphillia danielsi</i>	G2G3				Not	No
Pygmy slug	<i>Kootenaia burkei</i>	G2				Known	Yes
Banbury springs limpet	<i>Lanx sp.1</i>	G1				Not	No
Masked or Washington duskysnail	<i>Lyogyrus sp. 2</i>	G1G2				Not	No
Snake duskysnail	<i>Lyogyrus sp. 6</i>	G1				Not	No
Magnum mantleslug (spotted slug)	<i>Mangipelta mycophaga</i>	G3				Not	No
Southern tightcoil	<i>Ogaridiscus subrupicola</i>	G1				Not	No
Seven devils mountainsnail	<i>Oreohelix hammeri</i>	G1				Not	No
Lyrate mountainsnail	<i>Oreohelix haydeni</i>	G2G3				Not	No
A land snail (lower salmon river)	<i>Oreohelix haydeni hesperia</i>	G2G3T1T3				Not	No
A land snail (lower salmon river)	<i>Oreohelix haydeni perplexa</i>	G2G3T1T3				Not	No
Whitepine mountainsnail	<i>Oreohelix hemphilli</i>	G1G3				Not	No
Costate mountainsnail	<i>Oreohelix idahoensis</i>	G1G2				Not	No
A land snail (hells canyon)	<i>Oreohelix idahoensis baileyi</i>	G1G2T1				Not	No
Costate mountainsnail	<i>Oreohelix idahoensis idahoensis</i>	G1G2T1T2				Not	No
Deep slide mountainsnail	<i>Oreohelix intersum</i>	G1				Not	No
Boulder pile mountainsnail	<i>Oreohelix jugalis</i>	G1G2				Not	No
Deseret mountainsnail	<i>Oreohelix peripherica</i>	G2				Not	No
A land snail (eastern central idaho)	<i>Oreohelix strigosa capax</i>	G5T2Q				Not	No
Striate mountainsnail	<i>Oreohelix strigosa goniogyra</i>	G5T1Q				Not	No

Species common Name	Species scientific name	NatureServe Ranking	Proposed or Candidate	Petitioned	Delisted	Species Range Encompasses the Forest	Include as SOC?
	<i>Oreohelix tenuistrata</i>	G1				Not	No
Whorled mountainsnail	<i>Oreohelix vortex</i>	G1G2				Not	No
Lava rock mountainsnail	<i>Oreohelix waltoni</i>	G1G2				Not	No
Squaw creek mountainsnail	<i>Oreohelix sp. 8</i>	G1				Not	No
Bluebird canyon mountainsnail	<i>Oreohelix sp. 9</i>	G1				Not	No
Hackberry mountainsnail	<i>Oreohelix sp.12</i>	G1G2				Not	No
Rapid river mountainsnail	<i>Oreohelix sp. 13</i>	G1G2				Not	No
Limestone mountainsnail	<i>Oreohelix sp. 14</i>	G1G2				Not	No
Speckled mountainsnail	<i>Oreohelix sp. 15</i>	G1G2				Not	No
Rugose mountainsnail	<i>Oreohelix sp. 16</i>	G1				Not	No
Bicarinate mountainsnail	<i>Oreohelix sp. 17</i>	G1				Not	No
Limestone point mountainsnail	<i>Oreohelix sp. 18</i>	G1				Not	No
Single creek mountainsnail	<i>Oreohelix sp. 19</i>	G1G2				Not	No
Sheep gulch mountainsnail	<i>Oreohelix sp. 20</i>	G1G2				Not	No
Box canyon mountainsnail	<i>Oreohelix sp. 21</i>	G1G2				Not	No
Slate creek mountainsnail	<i>Oreohelix sp. 22</i>	G1G2				Not	No
Lucile mountainsnail	<i>Oreohelix sp. 23</i>	G1G2				Not	No
Wet gulch mountainsnail	<i>Oreohelix sp. 24</i>	G1				Not	No
Stites mountainsnail	<i>Oreohelix sp. 25</i>	G2				Not	No
Pass creek mountainsnail	<i>Oreohelix sp. 27</i>	G1G2				Not	No
Quartzite mountainsnail	<i>Oreohelix sp. 28</i>	G1G2				Not	No
Hells canyon mountainsnail	<i>Oreohelix sp. 29</i>	G2				Not	No
Skookumchuck mountainsnail	<i>Oreohelix sp. 30</i>	G2				Not	No
Boundary ambersnail	<i>Oxyloma hawkinsi</i>	G3G4				Range unknown/No info	No
Oblique ambersnail	<i>Oxyloma nuttallianum</i>	G2G4				Range unknown/No info	No
Large-mantle physa (Cloaked physa)	<i>Physa megalochlamys</i>	G3				Not	No
Snake river physa	<i>Physa natricina</i>	G1				Not	No
Olive physa	<i>Physella cooperi</i>	G3				Not	No
Humped coin	<i>Polygyrella polygyrella</i>	G3				Known	Yes
Northern tightcoil	<i>Pristiloma arcticum</i>	G3G4				Range unknown/No info	No
Black-footed tightcoil	<i>Pristiloma chersinella</i>	G3G4				Range unknown/No info	No
Thinlip tightcoil	<i>Pristiloma idahoense</i>	G2G3				Range unknown/No info	No
Shiny tightcoil	<i>Pristiloma wascoense</i>	G3				Range unknown/No info	No
Pristine pyrg	<i>Pristinicola hemphilli</i>	G3				Not	No
Blue-gray tailedropper	<i>Prophysaon coeruleum</i>	G3G4				Not	No
Smoky tailedropper	<i>Prophysaon humile</i>	G3				Known	Yes
Bruneau hot springsnail	<i>Pyrgulopsis bruneauensis</i>	G1				Not	No
Bear Lake springsnail	<i>Pyrgulopsis pilsbryana</i>	G2				Not	No
Teton river springsnail	<i>Pyrgulopsis sp. 14</i>	G1				Not	No
Blackfoot springsnail	<i>Pyrgulopsis sp. 15</i>	G1				Not	No
Warm springs springsnail	<i>Pyrgulopsis sp. 16</i>	G1				Not	No
Wilson flat springsnail	<i>Pyrgulopsis sp. 17</i>	G1				Not	No
Jim sage springsnail	<i>Pyrgulopsis sp. 18</i>	G1				Not	No
Benson springsnail	<i>Pyrgulopsis sp. 20</i>	G1				Not	No
Indian hot springsnail	<i>Pyrgulopsis sp. 21</i>	G1				Not	No
Birch creek springsnail	<i>Pyrgulopsis sp. 22</i>	G2				Not	No
Rock creek springsnail	<i>Pyrgulopsis sp. 23</i>	G1				Not	No
Pauline springsnail	<i>Pyrgulopsis sp. 24</i>	G1				Not	No

Species common Name	Species scientific name	NatureServe Ranking	Proposed or Candidate	Petitioned	Delisted	Species Range Encompasses the Forest	Include as SOC?
Bannock springsnail	<i>Pyrgulopsis sp. 25</i>	G1				Not	No
Brush creek springsnail	<i>Pyrgulopsis sp. 26</i>	G1				Not	No
Rustic pondsnaill	<i>Stagnicola hinkleyi</i>	G2				Not	No
Shortspire pondsnaill	<i>Stagnicola idahoensis</i>	G1				Not	No
Mountain marshnaill	<i>Stagnicola montanensis</i>	G3				Not	No
Widelip pondsnaill	<i>Stagnicola traski</i>	G3				Not	No
Oregon ambersnaill	<i>Succinea oregonensis</i>	G2G4				Not	No
Rustic ambersnaill	<i>Succinea rusticana</i>	G2G3				Not	No
A freshwater snail	<i>Taylorconcha insperata</i>	G1				Not	No
Lyre mantleslug	<i>Udosarx lyrata</i>	G2				Not	No
Lyre mantleslug	<i>Udosarx lyrata lyrata</i>	G2T2				Not	No
Desert valvata	<i>Valvata utahensis</i>	G1				Not	No
Salmon valvata	<i>Valvata sp. 1</i>	G1G2				Not	No
Idaho vertigo	<i>Vertigo idahoensis</i>	G1G2				Range unknown/No info	No
Artemesian rams horn	<i>Vorticifex effusa</i>	G3				Not	No
Sheathed slug	<i>Zacoleus idahoensis</i>	G3G4				Known	No/consider for SOI
Invertebrate - other							
A cave obligate mite	<i>Flabellorhagidia pecki</i>	G1G2				Not	No
A cave obligate harvestman	<i>Speleomaster lexi</i>	G1G2				Not	No
A cave obligate harvestman	<i>Speleomaster pecki</i>	G1G2				Not	No

Table 2. Plant species that meet the criteria for species of concern for the State of Idaho and/or the Rocky Mountain Ecoregion, if the species ranges overlap the forest and if the species is included as a species of concern for the IPNFs.

Species common name	<i>species scientific name</i>	NatureServe Ranking	Proposed or Candidate	Petitioned	Delisted	Species Range Encompasses the Forest	Include as SOC?
Fungi/lichens							
A lichen	<i>Agrestia hispida</i>	G3				Not	No
Vagrant aspicilia	<i>Aspicilia fruticulosa</i>	G3				Not	No
	<i>Cladonia andereggii</i>	G1				Not	No
	<i>Cladonia imbricaria</i>	G2G3				Not	No
	<i>Cladonia luteoalba</i>	G2				Not	No
	<i>Cladonia verruculosa</i>	G3				Not	No
	<i>Collema curtisporum</i>	G3				Known	Yes
	<i>Dermatocarpon lorenzianum</i>	G2				Not	No
	<i>Hypogmia inactiva</i>	G3				Not	No
	<i>Lobaria scrobiculata</i>	G3G4				Suspected	See SOI
	<i>Nodobryoria subdivergens</i>	G2				Known	Yes
	<i>Peltigera pacifica</i>	G3				Not	No
	<i>Physcia magnussonii</i>	G3G4				Not	No
	<i>Pilophorus clavatus</i>	G2G4				Known	Yes
	<i>Platismatia stenophylla</i>	G2G4				Not	No
	<i>Pseudocyphellaria anomala</i>	G2G4				Known	Yes
	<i>Ramalina thrausta</i>	G3G4				Not	No
	<i>Texosporium sancti-jacobi</i>	G3				Not	No
	<i>Umbilicaria polyrhiza</i>	G2G3				Not	No
	<i>Xanthoparmelia idahoensis</i>	G1				Not	No
	<i>Xanthoparmelia norchlorochroa</i>	G1G2				Not	No
Liverworts							
	<i>Hygrobiella laxifolia</i>	G3G4				Not	No
	<i>Jungermannia rubra</i>	G2G4				Not	No
	<i>Sphaerocarpos hians</i>	G1				Not	No
Non-vascular mosses							
	<i>Barbula eustegia</i>	G3?				Range unknown/No info	No
	<i>Brachythecium calcareum</i>	G3G4				Not	No
	<i>Bryum calobryoides</i>	G3				Range unknown/No info	No
	<i>Bryum meesioides</i>	G3G4				Not	No
	<i>Buxbaumia viridis</i>	G3G4				Known	See SOI
	<i>Grimmia brittoniae</i>	G2				Known	Yes
	<i>Orthotrichum holzingeri</i>	G2				No	No
	<i>Pohlia drummondii</i>	G3G4				Range unknown/No info	No
Luminous moss	<i>Schistostega pennata</i>	G3G4				Range unknown/No info	No
	<i>Sphaerocarpos hians</i>	G1				Known	Yes
	<i>Tayloria acuminata</i>	G3G4				Range unknown/No info	No
	<i>Tripterocladium leucocladulum</i>	G3				Known	Yes
Vascular ferns and relatives							
Upward lobed moonwort	<i>Botrychium ascendens</i>	G2G3				Known	Yes
Crenulate moonwort	<i>Botrychium crenulatum</i>	G3				Known	Yes
Narrow leaf grape fern	<i>Botrychium lineare</i>	G2?				Known	Yes
Mountain moonwort	<i>Botrychium montanum</i>	G3				Known	Yes

Species common name	species scientific name	NatureServe Ranking	Proposed or Candidate	Petitioned	Delisted	Species Range Encompasses the Forest	Include as SOC?
Peculiar moonwort	<i>Botrychium paradoxum</i>	G2				Known	Yes
Stalked moonwort	<i>Botrychium pendunculatum</i>	G2G3				Known	Yes
Vascular flowering plants							
Cusick's giant hyssop	<i>Agastache cusickii</i>	G3G4				Not	No
	<i>Allium aseae</i>	G3				Not	No
Columbia onion	<i>Allium columbianum</i>	G3				Not	No
	<i>Allium madidum</i>	G3				Not	No
	<i>Allium tolmiei</i> var. <i>persimile</i>	G4G5T3				Not	No
	<i>Allium tolmiei</i> var. <i>platyphyllum</i>	G4G5T3Q				Not	No
Dense leaved antennaria	<i>Antennaria arcuata</i>	G2				Not	No
Sapphire rockcress	<i>Arabis lyallii</i> var. <i>nubigena</i>	G5T2T4				Not	No
Elegant rockcress	<i>Arabis sparsiflora</i> var. <i>atrorubens</i>	G5T3				Not	No
	<i>Arabis suffrutescens</i> var. <i>suffrutescens</i>	G5T3T4				Not	No
Wind river rockcress	<i>Arabis williamsii</i>	G3Q				Not	No
Williams rockcress	<i>Arabis williamsii</i> var. <i>saximontana</i>	G3QT2T3Q				Not	No
	<i>Arenaria congesta</i> var. <i>glandulifera</i>	G5T2?				Not	No
	<i>Artemisia arbuscula</i> ssp. <i>thermopola</i>	G5T3Q				Not	No
	<i>Artemisia packardiae</i>	G3				Not	No
Spiked big sagebrush	<i>Artemisia tridentata</i> ssp. <i>spiciformis</i>	G5T3T4				Not	No
	<i>Artemisia tridentata</i> ssp. <i>xericensis</i>	G5T1T3				Not	No
	<i>Aster jessicae</i>	G2				Not	No
	<i>Astragalus adanus</i>	G3G4				Not	No
	<i>Astragalus amblytropis</i>	G3				Not	No
	<i>Astragalus amnis-amissi</i>	G3				Not	No
	<i>Astragalus anserinus</i>	G2				Not	No
	<i>Astragalus aquilonius</i>	G3				Not	No
	<i>Astragalus arrectus</i>	G2G4				Not	No
	<i>Astragalus asotinensis</i>	G2				Not	No
	<i>Astragalus atratus</i> var. <i>inseptus</i>	G4G5T3				Not	No
	<i>Astragalus atratus</i> var. <i>owyheensis</i>	G4G5T3				Not	No
Barrs milkvetch	<i>Astragalus beckwithii</i> var. <i>sulcatus</i>	G5T3				Not	No
	<i>Astragalus camptopus</i>	G3				Not	No
	<i>Astragalus caricinus</i>	G3G4				Not	No
Painted milkvetch	<i>Astragalus ceramicus</i> var. <i>apus</i>	G4T3				Not	No
	<i>Astragalus curvicarpus</i> var. <i>curvicarpus</i>	G5T3T4				Not	No
	<i>Astragalus cusickii</i> var. <i>packardiae</i>	G5T1				Not	No
	<i>Astragalus cusickii</i> var. <i>sterilis</i>	G5T2				Not	No
	<i>Astragalus diversifolius</i>	G2				Not	No
	<i>Astragalus jejunos</i>	G3				Not	No
	<i>Astragalus jejunos</i> var. <i>jejunus</i>	G3T3				Not	No
Lackschewitz milkvetch	<i>Astragalus lentiginosus</i> var. <i>chartaceus</i>	GG5T3T4Q				Not	No
Timber milkvetch	<i>Astragalus miser</i> var. <i>crispatus</i>	G5T3?				Not	No
	<i>Astragalus miser</i> var. <i>tenuifolius</i>	G5T3				Not	No
	<i>Astragalus mulfordiae</i>	G2				Not	No
	<i>Astragalus oniciformis</i>	G3				Not	No
	<i>Astragalus paysonii</i>	G3				Not	No
Purshs milkvetch	<i>Astragalus purshii</i> var. <i>concinus</i>	G5T3T4				Not	No

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	<i>Astragalus purshii</i> var. <i>ophiogenes</i>	G5T3				Not	No
	<i>Astragalus riparius</i>	G1G2				Not	No
	<i>Astragalus salmonis</i>	G3G4				Not	No
Bitterroot milkvetch	<i>Astragalus scaphoides</i>	G3				Not	No
	<i>Astragalus spaldingii</i>	G3G4				Not	No
	<i>Astragalus sterilis</i>	G5T2				Not	No
Railhead milkvetch	<i>Astragalus terminalis</i>	G3				Not	No
	<i>Astragalus vexilliflexus</i> var. <i>nubilus</i>	G4T2				Not	No
	<i>Astragalus yoder-williamsii</i>	G3				Not	No
	<i>Balsamorhiza hookeri</i> var. <i>idahoensis</i>	G5T3?				Not	No
	<i>Boisduvalia macrantha</i>	G3G4				Not	No
	<i>Bolandra oregana</i>	G3				Not	No
	<i>Boykinia intermedia</i>	G2G4				Not	No
Cascade reedgrass	<i>Calamagrostis tweedyi</i>	G3				Unk	No
	<i>Callitriche trochlearis</i>	G3?				Not	No
Elegant mariposa lily	<i>Calochortus elegans</i>	G3G4				Not	No
	<i>Calochortus elegans</i> var. <i>elegans</i>	G3G4T3				Not	No
Elegant mariposa lily	<i>Calochortus elegans</i> var. <i>selwayensis</i>	G3G4T2T3				Not	No
	<i>Calochortus macrocarpus</i> var. <i>maculosus</i>	G5T2				Not	No
	<i>Calochortus nitidus</i>	G3				Known	Yes
Slender sepaled marsh marigold	<i>Caltha leptosepala</i> var. <i>sulfurea</i>	G5T2T3				Not	No
	<i>Camissonia claviformis</i> ssp. <i>integrator</i>	G5T2T4				Not	No
	<i>Camissonia pusilla</i>	G3G4				Not	No
	<i>Camissonia pygmaea</i>	G3				Not	No
Colorado bitter cress	<i>Cardamine breweri</i> var. <i>leibergii</i>	G5T2T4				Range unknown/No info	No
Cliff toothwort	<i>Cardamine constancei</i>	G3				Known	Yes
	<i>Carex aboriginum</i>	G1				Not	No
	<i>Carex cordillerana</i>	G3G4				Not	No
Idaho sedge	<i>Carex idaho</i>	G2G3				Not	No
Woodrush sedge	<i>Carex luzulina</i> var. <i>atropurpurea</i>	G5T3				Not	No
	<i>Carex parryana</i> var. <i>brevisquama</i>	G4T1T3				Not	No
Saw-leaved sedge	<i>Carex scopulorum</i> var. <i>prionophylla</i>	G5T3?				Range unknown/No info	No
	<i>Castilleja christii</i>	G1				Not	No
Covilles Indian paintbrush	<i>Castilleja covilleana</i>	G3G4				Not	No
Rustic paintbrush	<i>Castilleja flava</i> var. <i>rustica</i>	G4G5T3T4				Range unknown/No info	No
Harsh Indian paintbrush	<i>Castilleja hispida</i> ssp. <i>acuta</i>	G5T3T4				Not	No
Snow Indian paintbrush	<i>Castilleja oresbia</i>	G3G4				Not	No
Showy Indian paintbrush	<i>Castilleja pulchella</i>	G3G4				Range unknown/No info	No
	<i>Chaenactis cusickii</i>	G3				Not	No
	<i>Chaenactis leucopsis</i>	G3G4Q				Not	No
	<i>Chenopodium incanum</i> var. <i>occidentale</i>	G5T2T4				Not	No
Smooth goosefoot	<i>Chenopodium subglabrum</i>	G3G4				Not	No
	<i>Chlorocrambe hastata</i>	G3?				Not	No
	<i>Chorizanthe brevicornu</i> var. <i>spathulata</i>	G5T2T4				Not	No
	<i>Chrysothamnus parryi</i> ssp. <i>montanus</i>	G5T1				Not	No
Long styled thistle	<i>Cirsium brevifolium</i>	G3				Known	Yes
	<i>Cleomella parviflora</i>	G3G4				Not	No

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Flexible alpine collomia	<i>Collomia debilis</i> var. <i>camporum</i>	G5T2				Range unknown/No info	No
	<i>Collomia macrocalyx</i>	G3G4				Not	No
Williams conimitella	<i>Conimitella williamsii</i>	G3?				Range unknown/No info	No
	<i>Corispermum pacificum</i>	G2G4				Not	No
	<i>Corydalis caseana</i> ssp. <i>cusickii</i>	G5T3?				Not	No
	<i>Corydalis caseana</i> ssp. <i>hastata</i>	G5T3				Known	Yes
	<i>Crassula viridis</i>	G1G3				Not	No
O'Kennons hawthorn	<i>Crataegus okennonii</i>	G2G4				Not	No
	<i>Crepis bakeri</i> ssp. <i>idahoensis</i>	G4T2				Not	No
	<i>Crepis nana</i> ssp. <i>ramosa</i>	G5T2T4				Not	No
	<i>Cryptantha rugulosa</i>	G3G4				Not	No
	<i>Cryptantha salmonensis</i>	G3				Not	No
	<i>Cymopterus acaulis</i> var. <i>greeleyorum</i>	G5T2				Not	No
	<i>Cymopterus davisii</i>	G3				Not	No
	<i>Cymopterus douglassii</i>	G3				Not	No
	<i>Dasynotus daubenmirei</i>	G3				Not	No
Electric peak larkspur	<i>Delphinium glaucescens</i>	G3?				Range unknown/No info	No
	<i>Descurainia pinnata</i> ssp. <i>paysonii</i>	G5T3?				Not	No
	<i>Douglasia idahoensis</i>	G3				Not	No
	<i>Douglasia laevigata</i>	G3				Not	No
	<i>Downingia bicornuta</i>	G3G4				Not	No
	<i>Downingia bicornuta</i> var. <i>bicornuta</i>	G3G4T3T4				Not	No
	<i>Downingia elegans</i> var. <i>brachypetala</i>	G5T2T4				Not	No
	<i>Draba argyrea</i>	G3				Not	No
Brewers whitlow grass	<i>Draba breweri</i>	G3?				Not	No
Rockcress draba	<i>Draba globosa</i>	G3				Not	No
Macouns whitlow grass	<i>Draba hitchcockii</i>	G3				Not	No
	<i>Draba trichocarpa</i>	G2				Not	No
	<i>Epipactis gigantea</i>	G3G4				Known	See SOI
Parrys rabbit rush	<i>Ericameria parryi</i> var. <i>montana</i>	G5T1				Not	No
	<i>Ericameria parryi</i> var. <i>salmonensis</i>	G5T3				Not	No
	<i>Erigeron concinnus</i> var. <i>condensatus</i>	G4G5T3T4				Not	No
	<i>Erigeron eatonii</i> var. <i>lavandulus</i>	G5T3				Not	No
	<i>Erigeron engelmannii</i> var. <i>davisii</i>	G5T3				Not	No
Fanleaf fleabane	<i>Erigeron flabellifolius</i>	G3				Range unknown/No info	No
	<i>Erigeron jonesii</i>	G3G4				Not	No
Woolly fleabane	<i>Erigeron latus</i>	G3				Range unknown/No info	No
Taprooted fleabane	<i>Erigeron radicans</i>	G3				Range unknown/No info	No
	<i>Erigeron salmonensis</i>	G3				Not	No
	<i>Erigeron uintahensis</i>	G3G4				Not	No
	<i>Erigeron watsonii</i>	G3G4				Not	No
	<i>Eriogonum capistratum</i> var. <i>capistratum</i>	G4T1T2				Not	No
Welshes buckwheat	<i>Eriogonum capistratum</i> var. <i>welshii</i>	G4T2Q				Range unknown/No info	No
	<i>Eriogonum compositum</i> var. <i>leianthum</i>	G5T2T4				Not	No
	<i>Eriogonum crosbyae</i>	G3				Not	No
	<i>Eriogonum heracleoides</i> var. <i>leucophaeum</i>	G5T2T3				Not	No

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	<i>Eriogonum inerme</i>	G3?				Not	No
	<i>Eriogonum meledonum</i>	G2				Not	No
	<i>Eriogonum microthecum</i> var. <i>microthecum</i>	G5T2T3				Not	No
Rabbit buckwheat	<i>Eriogonum ochrocephalum</i> var. <i>calcareum</i>	G5T3				Not	No
Oval leaf buckwheat	<i>Eriogonum ovalifolium</i> var. <i>ochroleucum</i>	G5T2T4Q				Not	No
Oval leaf buckwheat	<i>Eriogonum ovalifolium</i> var. <i>pansum</i>	G5T1				Not	No
	<i>Eriogonum prociduum</i>	G3				Not	No
	<i>Eriogonum prociduum</i> var. <i>1*</i>	G3TNR				Not	No
	<i>Eriogonum salicornioides</i>	G3G4				Not	No
	<i>Eriogonum scopulorum</i>	G3				Not	No
	<i>Eriogonum shockleyi</i> var. <i>packardiae</i>	G5T2Q				Not	No
Railroad canyon wild buckwheat	<i>Eriogonum soliceps</i>	G2S1				Not	No
	<i>Eriogonum spergulinum</i> var. <i>reddingianum</i>	G4T3T4				Not	No
	<i>Eriogonum spaerocephalum</i> var. <i>fasciculifolium</i>	G5T1				Not	No
	<i>Eriogonum strictum</i> ssp. <i>strictum</i>	G5T1T3				Not	No
	<i>Eriogonum umbellatum</i> var. <i>devestivum</i>	G5T1T3				Not	No
Dakota wild buckwheat	<i>Eriogonum verrucosum</i>	G3G1G3				Not	No
	<i>Erysimum occidentale</i>	G3G4				Not	No
White glacierlily	<i>Erythronium grandiflorum</i> ssp. <i>candidum</i>	G5T3T4				Range unknown/No info	No
	<i>Fraseria albicaulis</i> var. <i>cusickii</i>	G5T3T4				Not	No
	<i>Fraseria albicaulis</i> var. <i>idahoensis</i>	G5T3Q				Not	No
	<i>Gnaphalium exilifolium</i>	G3G4Q				Not	No
	<i>Grindelia columbiana</i>	G3?				Not	No
Howells gumweed	<i>Grindelia howelli</i>	G3				Known	Yes
	<i>Hackelia cronquistii</i>	G3				Not	No
	<i>Hackelia davisii</i>	G3				Not	No
	<i>Hackelia diffusa</i> var. <i>diffusa</i>	G4T3				Not	No
	<i>Hackelia ophiobia</i>	G3				Not	No
	<i>Halimolobos perplexa</i> var. <i>perplexa</i>	G4T3				Not	No
	<i>Haplopappus hirtus</i> var. <i>Sonchifolius*</i>	G4G5T3				Not	No
	<i>Haplopappus insecticruris*</i>	G3				Not	No
	<i>Haplopappus lia</i> triformis*	G2				Not	No
	<i>Haplopappus radiatus*</i>	G3				Not	No
	<i>Haplopappus uniflorus</i> var. <i>howellii*</i>	G5T2T4Q				Not	No
	<i>Hemizonia pungens</i>	G3G4				Not	No
Hairy false goldenaster	<i>Heterotheca villosa</i> var. <i>depressa</i>	G5T3				Not	No
	<i>Heterotheca zionensis</i>	G2G3Q				Not	No
	<i>Heuchera grossularifolia</i> var. <i>tenuifolia</i>	G4T3T4				Not	No
	<i>Heuchera rubescens</i> var. <i>truncata</i>	G5T1T3				Not	No
	<i>Howellia aquatilis</i>	G3				Not	No
Fineleaf woolly white	<i>Hymenopappus filifolius</i> var. <i>idahoensis</i>	G5T3				Range unknown/No info	No
Spurless touch me not	<i>Impatiens ecalcarata</i>	G3G4				Range unknown/No info	No
Compact gila	<i>Ipomopsis aggregata</i> ssp. <i>weberi</i>	G5T2				Not	No
Spiked standing cypress	<i>Ipomopsis spicata</i> var. <i>orchidacea</i>	G5T2T3				Not	No
	<i>Juncus phaeocephalus</i>	G3G4				Not	No
Tweedys rush	<i>Juncos tweedyi</i>	G3Q				Range unknown/No info	No

Species common name	species scientific name	NatureServe Ranking	Proposed or Candidate	Petitioned	Delisted	Species Range Encompasses the Forest	Include as SOC?
	<i>Lathyrus lanszwertii</i> var. <i>aridus</i>	G4G5T3T4				Not	No
	<i>Lathyrus nevadensis</i> ssp. <i>cusickii</i>	G5T3T4				Not	No
	<i>Lathyrus nevadensis</i> var. <i>parkeri</i>	G5T2T3				Not	No
	<i>Lepidium davisii</i>	G3				Not	No
	<i>Lepidium papilliferum</i>	G2				Not	No
	<i>Lepidium paysonii</i>	G3?				Not	No
	<i>Leptodactylon glabrum</i>	G2				Not	No
	<i>Leptodactylon pungens</i> ssp. <i>hazelize</i> *	G5T2Q				Not	No
Keeled bladderpod	<i>Lesquerella carinata</i>	G3G4				Range unknown/No info	No
	<i>Lesquerella carinata</i> var. <i>carinata</i>	G3G4T3T4				Not	No
Keeled bladderpod	<i>Lesquerella kingii</i> ssp. <i>diversifolia</i>	G5T3				Not	No
Few seeded bladderpod	<i>Lesquerella kingii</i> var. <i>cobrensis</i>	G5T3T4				Not	No
Klaus bladderpod	<i>Lesquerella multiceps</i>	G3				Not	No
Pryor mountains bladderpod	<i>Lesquerella paysonii</i>	G3				Not	No
	<i>Lesquerella prostrata</i>	G2G3				Not	No
Beautiful bladderpod	<i>Lesquerella pulchella</i>	G2				Not	No
Giant wild rye	<i>Leymus salinus</i> ssp. <i>salmonis</i>	G5T3?				Not	No
Porters lovage	<i>Ligusticum porteri</i>	G3G4				Not	No
	<i>Linanthus liniflorus</i>	G3?				Not	No
Taper tip desert parsley	<i>Linum lewisii</i> var. <i>alpicola</i>	G4G5T2T4				Nott	No
Bicolor biscuitroot	<i>Lomatium bicolor</i> var. <i>bicolor</i>	G4T3T4				Range unknown/No info	No
	<i>Lomatium bicolor</i> var. <i>leptocarpum</i>	G4T3T4				Not	No
Nuttalls desert parsley	<i>Lomatium nuttallii</i>	G3				Not	No
	<i>Lomatium packardiae</i>	G2				Not	No
	<i>Lomatium rollinsii</i>	G3				Not	No
	<i>Lomatium roseanum</i>	G2G3				Not	No
	<i>Lomatium salmoniflorum</i>	G3				Not	No
	<i>Lupinus arbustus</i> ssp. <i>arbustus</i>	G5T2T4				Not	No
	<i>Lupinus arbustus</i> ssp. <i>calcaratus</i>	G5T2T4				Not	No
	<i>Lupinus arbustus</i> ssp. <i>neolaxiflorus</i>	G5T1T3				Not	No
Long spur lupine	<i>Lupinus arbustus</i> ssp. <i>pseudoparviflorus</i>	G5T2T3				Not	No
	<i>Lupinus aridus</i> ssp. <i>lenorensis</i>	G5T1T3Q				Not	No
	<i>Lupinus aridus</i> ssp. <i>loloensis</i>	G5T1T3Q				Not	No
	<i>Lupinus cusickii</i>	G1				Not	No
	<i>Lupinus leucophyllus</i> ssp. <i>erectus</i>	G5T1T3				Not	No
	<i>Lupinus lyallii</i> ssp. <i>alcis-temporis</i>	G5T1?				Not	No
Lyalls lupine	<i>Lupinus lyalli</i> ssp. <i>subpendens</i>	G5T2				Not	No
Kettle falls lupine	<i>Lupinus minimus</i>	G3G4				Not	No
Mountain lupine	<i>Lupinus monticola</i>	G2G4Q				Not	No
	<i>Lupinus ornatus</i>	G3?Q				Not	No
	<i>Lupinus sellulus</i> ssp. <i>sellulus</i>	G4T3T4				Not	No
	<i>Lupinus sellulus</i> var. <i>sellulus</i>	G4T2				Not	No
Silky lupine	<i>Lupinus sericeus</i> var. <i>egglestonianus</i>	G5T2T4Q				Not	No
	<i>Lygodesmia dianthopsis</i>	G3G4				Not	No
	<i>Machaeranthera canescens</i> var. <i>sessiliflora</i>	G5T3?				Not	No
	<i>Machaeranthera canescens</i> var. <i>shastensis</i>	G5T3T4				Not	No
	<i>Melica subulata</i> var. <i>pammelii</i>	G5T1T2Q				Not	No

Species common name	species scientific name	NatureServe Ranking	Proposed or Candidate	Petitioned	Delisted	Species Range Encompasses the Forest	Include as SOC?
	<i>Mentzelia mollis</i>	G2				Not	No
	<i>Mentzelia torreyi</i> var. <i>acerosa</i>	G4T3				Not	No
	<i>Mentzelia torreyi</i> var. <i>torreyi</i>	G4T3T4				Not	No
Tall bluebells	<i>Mertensia paniculata</i> var. <i>borealis</i>	G5T3T4				Not	No
	<i>Mertensia platyphylla</i>	G3?				Not	No
	<i>Mimulus ampliatus</i> *	G1				Not	No
	<i>Mimulus evanescens</i>	G2				Not	No
	<i>Mimulus hymenophyllus</i>	G1				Not	No
	<i>Mimulus patulus</i> *	G2Q				Not	No
	<i>Mirabilis macfarlanei</i>	G2				Not	No
Rydbergs parsley	<i>Musineon lineare</i>	G2				Range unknown/No info	No
	<i>Oenothera psammophila</i>	G3S3				Not	No
	<i>Olsynium douglasii</i> var. <i>inflatum</i>	G4G5T3T4				Not	No
	<i>Orobancha californica</i> ssp. <i>grayana</i>	G4T3T4				Not	No
	<i>Othocarpus tolmei</i> ssp. <i>holmgreniorum</i>	G4T3?				Not	No
Besseys locoweed	<i>Oxytropis besseyi</i> var. <i>salmonensis</i>	G5T3				Not	No
Hares foot point vetch	<i>Oxytropis lagopus</i> var. <i>lagopus</i>	G4G5T3T4				Range unknown/No info	No
Northwestern groundsel	<i>Packera pseudaurea</i> var. <i>flavula</i>	G5T2T4				Not	No
Alpine poppy	<i>Papaver radicum</i> ssp. <i>kluanense</i>	G5T3T4				Not	No
	<i>Parnassia fimbriata</i> var. <i>intermedia</i>	G5T2T3				Not	No
Towering lousewort	<i>Pedicularis bracteosa</i> var. <i>canbyi</i>	G5T1T3				Not	No
Towering lousewort	<i>Pedicularis bracteosa</i> var. <i>siifolia</i>	G5T1T3				Not	No
Coilbeaked loosewort	<i>Pedicularis contorta</i> var. <i>ctenophora</i>	G5T3				Range unknown/No info	No
Coil beaked lousewort	<i>Pedicularis contorta</i> var. <i>rubincunda</i>	G5T3				Range unknown/No info	No
Parrys lousewort	<i>Pedicularis parryi</i> ssp. <i>purpurea</i>	G5T2T4				Not	No
Simpsons hedgehog cactus	<i>Pediocactus simpsonii</i> var. <i>simpsonii</i>	G4T3T4				Not	No
Taper leaf beardtongue	<i>Penstemon attenuatus</i> var. <i>pseudoprocerus</i>	G4T3?				Range unknown/No info	No
Cary beardtongue	<i>Penstemon compactus</i>	G2				Not	No
	<i>Penstemon cyananthus</i> var. <i>subglaber</i>	G4T3?				Range unknown/No info	No
Crested tongue beardtongue	<i>Penstemon eriantherus</i> var. <i>redactus</i>	G4T1T3				Not	No
Pennell beardtongue	<i>Penstemon flavescens</i>	G3				Range unknown/No info	No
	<i>Penstemon idahoensis</i>	G2S2				Not	No
	<i>Penstemon laxus</i>	G2				Not	No
Lemhi penstemon	<i>Penstemon lemhiensis</i>	G3				Not	No
	<i>Penstemon miser</i>	G3?				Not	No
Cordroot beardtongue	<i>Penstemon montanus</i> var. <i>idahoensis</i>	G4G4T2T3				Not	No
Wax leaf beardtongue	<i>Penstemon nitidus</i> var. <i>polyphyllus</i>	G5T2T3				Not	No
	<i>Penstemon perpulcher</i>	G2G3				Not	No
	<i>Penstemon subglaber</i>	G3G4				Not	No
Western phacelia	<i>Phacelia incana</i>	G3G4				Not	No
	<i>Phacelia inconspicua</i>	G2				Not	No
	<i>Phacelia lutea</i> var. <i>calva</i>	G4T3				Not	No
Lyalls phacelia	<i>Phacelia lyallii</i>	G3				Range unknown/No info	No
	<i>Phacelia minutissima</i>	G3				Not	No
Hot spring phacelia	<i>Phacelia thermalis</i>	G3G4				Not	No
Missoula phlox	<i>Phlox idahonis</i>	G1				Not	No
	<i>Phlox kelseyi</i> ssp. <i>glandulosa</i>	G4T1T3Q				Not	No

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	<i>Phlox kelseyi</i> ssp <i>salina</i>	G4T3?Q				Not	No
	<i>Phlox mollis</i>	G2G4Q				Not	No
Variegated phlox	<i>Phlox variabilis</i>	G3G4Q				Range unknown/No info	No
	<i>Phlox variabilis</i> ssp. <i>variabilis</i>	G3G4QT3T4				Not	No
Double twinpod	<i>Physaria didymocarpa</i> var. <i>lyrata</i>	G5T1				Not	No
Snake river twinpod	<i>Physaria integrifolia</i>	G3G4				Not	No
Snake river twinpod	<i>Physaria integrifolia</i> var. <i>monticola</i>	G3G4T2T3Q				Not	No
Fremont county twinpod	<i>Physocarpus alternans</i> ssp <i>alternans</i>	G4T3T4				Not	No
Mountain twinpod	<i>Poa abbreviata</i> ssp. <i>marshii</i>	G5T2				Not	No
Mt. Washington bluegrass	<i>Poa pringlei</i>	G3?				Not	No
	<i>Pogogyne floribunda</i>	G3				Not	No
Thin fruited knotweed	<i>Polygonum heterosepalum</i>	G2G4				Range unknown/No info	No
Dense flower knotweed	<i>Polygonum polygaloides</i> ssp. <i>confertiflorum</i>	G4G5T3T4				Range unknown/No info	No
	<i>Potamogeton foliosus</i> ssp. <i>fibrillosus</i>	G5T2T4				Not	No
	<i>Potentilla glandulosa</i> ssp. <i>micropetala</i>	G5T2T3				Not	No
Macouns cinquefoil	<i>Potentilla macounii</i>	G3G4Q				Range unknown/No info	No
Arrow leaf rattlesnake root	<i>Prenanthes sagittata</i>	G3G4				Range unknown/No info	No
Alkali primrose	<i>Primula alcalina</i>	G2				Not	No
	<i>Psilostrophe bakeri</i>	G2G4				Not	No
Large flower goldenweed	<i>Pyrrocoma carthamoides</i> var. <i>cusickii</i>	G4G5T3T4				Not	No
	<i>Pyrrocoma hirta</i> var. <i>hirta</i>	G4G5T3				Not	No
	<i>Pyrrocoma hirta</i> var. <i>sonchifolia</i>	G4G5T3				Not	No
	<i>Pyrrocoma insecticuriis</i>	G3				Not	No
Entire leaf goldenweed	<i>Pyrrocoma integrifolia</i>	G3?				Range unknown/No info	No
	<i>Pyrrocoma liatriformis</i>	G2				Not	No
	<i>Pyrrocoma radiata</i>	G3				Not	No
	<i>Ranunculus eschscholtzii</i> var. <i>trisectus</i>	G5T3?				Not	No
	<i>Ranunculus glaberrimus</i> var. <i>reconditus</i>	G5T2				Not	No
	<i>Ribes cereum</i> var. <i>columbrinum</i>	G5T3				Not	No
	<i>Ribes niveum</i>	G3?				Not	No
Idaho gooseberry	<i>Ribes oxyacanthoides</i> ssp. <i>irriguum</i>	G5T3T4				Range unknown/No info	No
Persistent sepal yellowcress	<i>Rorippa calycina</i>	G3				Not	No
	<i>Rubus bartonianus</i>	G2				Not	No
Webers sawwort	<i>Saussurea weberi</i>	G2G3				Not	No
Swamp saxifrage	<i>Saxifrage bryophera</i> var. <i>tobiasiae</i>	G3T2				Not	No
Yellowstone saxifrage	<i>Saxifraga subapetala</i>	G3G4Q				Range unknown/No info	No
Northern blue eyed grass	<i>Sisyrinchium septentrionale</i>	G3G4				Not	No
Nuttalls false sagebrush	<i>Sphaeromeria argentea</i>	G3G4				Not	No
	<i>Stanleya confertiflora</i>	G1				Not	No
	<i>Stanleya tomentosa</i> var. <i>runcinata</i>	G4T3?SNR				Not	No
American stitchwort	<i>Stellaria oxyphylla</i>	G1G2				Range unknown/No info	No
Purpus sullivantia	<i>Sullivantia hapemanii</i>	G3				Not	No
Purpus sullivantia	<i>Sullivantia hapemanii</i> var. <i>hapemanii</i>	G3T3				Not	No
Missouri kittentail	<i>Symphotrichum jessicae</i>	G2				Not	No
Cut leaf kittentail	<i>Synthyris pinnatifida</i> var. <i>pinnatifida</i>	G4T2T4				Not	No
	<i>Synthyris platycarpa</i>	G3				Not	No
	<i>Tauschia tenuissima</i>	G3				Known	Yes

Species common name	species scientific name	NatureServe Ranking	Proposed or Candidate	Petitioned	Delisted	Species Range Encompasses the Forest	Include as SOC?
Northwestern thelypody	<i>Thelypodium paniculatum</i>	G2				Not	No
	<i>Thelypodium repandum</i>	G3				Not	No
Slender false lupine	<i>Thermopsis gracilis</i> var. <i>ovata</i>	G4T3T4				Not	No
Idaho pennycress	<i>Thlaspi idahoense</i>	G3G4				Not	No
	<i>Thlaspi idahoense</i> var. <i>alleeniae</i>	G3G4T3				Not	No
Idaho pennycress	<i>Thlaspi idahoense</i> var. <i>idahoense</i>	G3G4T2T4				Not	No
Small flowered pennycress	<i>Thlaspi parviflorum</i>	G3				Not	No
Idaho goldenweed	<i>Tonestus aberrans</i> (<i>Haplopappus aberrans</i>)	G3				Not	No
	<i>Trichophorum pumilum</i> *	G3Q				Not	No
	<i>Trifolium andersonii</i> ssp. <i>andersonii</i>	G4T3				Not	No
	<i>Trifolium douglasii</i>	G2				Known	Yes
Woolly head clover	<i>Trifolium eriocephalum</i> ssp. <i>arcuatum</i>	G5T3?				Range unknown/No info	No
	<i>Trifolium eriocephalum</i> ssp. <i>martini</i>	G5T2T4Q				Not	No
	<i>Trifolium eriocephalum</i> ssp. <i>villiferum</i>	G5T2?				Not	No
Haydens clover	<i>Trifolium haydenii</i>	G3G4				Range unknown/No info	No
	<i>Trifolium kingii</i> ssp. <i>macilentum</i>	G5T2T4				Not	No
	<i>Trifolium longipes</i> ssp. <i>multipedunculatum</i>	G5T3T4				Not	No
	<i>Trifolium longipes</i> ssp. <i>pedunculatum</i>	G5T3T4				Not	No
	<i>Trifolium owyheense</i>	G2				Not	No
	<i>Trifolium plumosum</i> ssp. <i>amplifolium</i>	G4T2				Not	No
	<i>Viola lithion</i>	G1G2				Not	No
Upland yellow violet	<i>Viola praemorsa</i> ssp. <i>flavovirens</i>	G5T2T4				Not	No
Idaho strawberry	<i>Waldsteinia idahoensis</i>	G3				Known	Yes
	<i>Wyethia invenusta</i>	G3G4				Not	No

Table 3. Wildlife species that meet the criteria for potential species of interest for Idaho and/or the Rocky Mountain Ecoregion, if the species ranges overlap the IPNFs, and if the species is a potential species of interest for the IPNFs.

Species common Name	Species scientific name	Global ranking	Idaho ranking	NatureServe S1S2 or N1N2	State Conservation Concern	State listed as threatened or endangered	Priority USFWS Bird	RF – ID Sensitive Species	Local Conservation Concern	Public Interest Species	Range Encompasses the Forest	Species Qualifies as PotentialSOI
Vertebrates												
Amphibians												
Western toad	<i>Bufo boreas</i>	G4	S3		X (WA)			X			Known	Yes
Woodhouse's toad	<i>Bufo woodhousii</i>	G5	S2		X						Not	No
Coeur d'Alene salamander	<i>Plethodon idahoensis</i>	G4	S2		X			X			Known	Yes
Northern leopard frog	<i>Rana pipiens</i>	G5	S2		X (ID & WA)						Known	Yes
Wood frog*	<i>Rana sylvatica</i>	G5	SH		X						Historical	Yes
Reptiles												
Great basin collared lizard	<i>Crotaphytus bicinctores</i>	G5	S1	X	X						Not	No
Ring-necked snake	<i>Diadophis punctatus</i>	G5	S2	X	X						Not	No
Northern alligator lizard	<i>Elgaria coerulea</i>	G5	S2	X	X						Known	Yes
Long-nosed snake	<i>Rhinocheilus lecontei</i>	G5	S2		X						Not	No
Ground snake	<i>Sonora semiannulata</i>	G5	S2		X						Not	No
Birds												
Northern goshawk	<i>Accipiter gentilis</i>	G5	S3		X (WA)						Known	Yes
Clark's grebe	<i>Aechmophorus clarkii</i>	G5	S2B	X	X						Not	No
Western grebe	<i>Aechmophorus occidentalis</i>	G5	S2B		X						Known	Yes
Boreal owl	<i>Aegolius funereus</i>	G5	S2	X	X						Known	Yes
Wood duck	<i>Aix sponsa</i>	G5	S4B,S3N	X							Known	No
Leconte's sparrow	<i>Ammodramus leconteii</i>	G4	SNA								Migratory	No
Grasshopper sparrow	<i>Ammodramus savannarum</i>	G5	S2B		X						Known	Yes
Sage sparrow	<i>Amphispiza belli</i>	G5	S3B				X				Not	No
Black-throated sparrow	<i>Amphispiza bilineata</i>	G5	S2B	X							Not	No
Northern pintail	<i>Anas acuta</i>	G5	S5B,S2N		X (ID & WA)						Known	Yes
Northern shoveler	<i>Anas clypeata</i>	G5	S5B,S2N	X							Known	Yes
Eurasian wigeon	<i>Anas penelope</i>	G5	S1N	X							Not	No
Western scrub jay	<i>Aphelocoma californica</i>	G5	S4	X							Not	No
Golden eagle	<i>Aquila chrysaetos</i>	G5	S4BS4N		X (WA)		X				Known	Yes
Great egret	<i>Ardea alba</i>	G5	S1B	X	X						Not	No
Great blue heron	<i>Ardea herodias</i>	G5	S5B,S5N		X (WA)						Known	Yes
Short-eared owl	<i>Asio flammeus</i>	G5	S4		X						Known	Yes
Burrowing owl	<i>Athene cucularia</i>	G4	S2B		X						Not	No
Lesser scaup	<i>Aythya affinis</i>	G5	S3		X (ID & WA)						Migrant	Yes
Redhead	<i>Aythya americana</i>	G5	S5B,S3N		X (WA)						Migrant	Yes
Canvasback	<i>Aythya valisineria</i>	G5	S4BS2N	X							Migrant	Yes
Juniper titmouse	<i>Baeolophys ridgwayi</i>	G5	S2		X						Not	No
Upland sandpiper	<i>Bartramia longicauda</i>	G5	S1B	X	X		X				Known	Yes
Bohemian waxwing	<i>Bombucilla garrulus</i>	G5	S1B,S3N	X							Not	No
Cattle egret	<i>Bubulcus ibis</i>	G5	S2B	X	X						Not	No
Ferruginous hawk	<i>Buteo regalis</i>	G4	S3B		X		X				Not	No
Swainson's hawk	<i>Buteo swainsoni</i>	G5	S3B		X		X				Not	No
Vaux's swift	<i>Chaetura vauxi</i>	G5	S3B		X (WA)						Known	Yes
Lark bunting	<i>Calamospiza melanocorys</i>	G5	S2B	X							Not	No

Species common Name	Species scientific name	Global ranking	Idaho ranking	NatureServe S1S2 or N1N2	State Conservation Concern	State listed as threatened or endangered	Priority USFWS Bird	RF – ID Sensitive Species	Local Conservation Concern	Public Interest Species	Range Encompasses the Forest	Species Qualifies as PotentialSOI
McCown's longspur	<i>Calcarius mccownii</i>	G4	SNA				X				Not	No
Baird's sandpiper	<i>Calidris bairdii</i>	G5	SNA	X							Migratory	No
Western sandpiper	<i>Calidris mauri</i>	G5	SNA	X							Migratory	No
Least sandpiper	<i>Calidris minutilla</i>	G5	SNA	X							Migratory	No
Semipalmated sandpiper	<i>Calidris pusilla</i>	G5	SNA	X							Migratory	No
Common redpoll	<i>Carduelis flammea</i>	G5	S4N	X							Known	No
Lesser goldfinch	<i>Carduelis psaltria</i>	G5	S2B	X	X						Not	No
Cassins finch	<i>Carpodacus cassinii</i>	G5	S5				X				Known	Yes
Semipalmated plover	<i>Charadrius semipalmatus</i>	G5	SNA	X							Not	No
Snow goose	<i>Chen caerulescens</i>	G5	SNA	X							Not	No
Black tern	<i>Chlidonias niger</i>	G4	S1B	X	X						Known	Yes
Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>	G5	SNA	X							Not	No
Olive-sided flycatcher	<i>Contopus cooperi</i>	G4	S3B				X				Known	Yes
Blue jay	<i>Cyanocitta cristata</i>	G5	S5N	X							Not	No
Trumpeter swan	<i>Cygnus buccinator</i>	G4	S1BS2N	X	X						Not	No
Tundra swan	<i>Cygnus columbianus</i>	G5	S3N	X							Migratory	No
Black swift	<i>Cypseloides niger</i>	G4	S1B	X	X		X	X			Summer	Yes
Pileated woodpecker	<i>Dryocopus pileatus</i>	G5	S4		X (WA)						Known	Yes
Snowy egret	<i>Egretta thula</i>	G5	S2B		X						Not	No
Willow flycatcher	<i>Empidonax traillii</i>	G5	S5B				X				Known	Yes
Gray flycatcher	<i>Empidonax wrightii</i>	G5	S3B	X							Not	No
Merlin	<i>Falco columbarius</i>	G5	S2BS2N	X	X						Known	Yes
Common loon	<i>Gavia immer</i>	G5	S1B,S2N	X	X (ID & WA)			X			Known	Yes
Sandhill crane	<i>Grus canadensis</i>	G5	S3B		X						Migratory	No
Pinyon jay	<i>Gymnorhinus cyanocephalus</i>	G5	S1	X	X						Not	No
Black-necked stilt	<i>Himantopus mexicanus</i>	G5	S3B		X						Not	No
Harlequin duck	<i>Histrionicus histrionicus</i>	G4	S1B	X	X			X			Known	Yes
Caspian tern	<i>Hydroprogne caspia</i>	G5	S2B	X							Not	No
Scott's oriole	<i>Icterus parisorum</i>	G5	S1B	X							Not	No
Loggerhead shrike	<i>Lanius ludovicianus</i>	G4	S3				X				Not	No
Herring gull	<i>Larus argentatus</i>	G5	S4N	X							Not	No
California gull	<i>Larus californicus</i>	G5	S2BS3N	X	X						Not	Yes
Ring-billed gull	<i>Larus delawarensis</i>	G5	S3BS3N	X							Known	No
Franklin's gull	<i>Larus pipixcan</i>	G4G5	S2B	X	X						Not	No
Black rosy finch	<i>Leucosticte atrata</i>	G4	S3		X		X				Not	No
Long-billed dowitcher	<i>Limnodromus scolopaceus</i>	G5	SNA	X							Not	No
Hooded merganser	<i>Lophodytes cucullatus</i>	G5	S2BS3N	X	X						Known	Yes
White-winged crossbill	<i>Loxia leucoptera</i>	G5	S1	X	X						Known	Yes
South Hills crossbill	<i>Loxia spp. (undescribed)</i>	GNR	S1		X						Not	No
Lewis's woodpecker	<i>Melanerpes lewis</i>	G4	S3B		X (ID & WA)		X				Yearlong	Yes
Northern mockingbird	<i>Mimus polyglottos</i>	G5	S1B	X							Not	No
Long-billed curlew	<i>Numenius americanus</i>	G5	S2B		X		X				Summer	Yes
Black-crowned night heron	<i>Nycticorax nycticorax</i>	G5	S2B		X						Not	No
Mountain quail	<i>Oreortyx pictus</i>	G5	S1	X	X						Not	No
Sage thrasher	<i>Oreoscoptes montanus</i>	G5	S3B				X				Not	No
Flammulated owl	<i>Otus flammeolus</i>	G4	S3B		X (ID & WA)		X	X			Summer	Yes
Blue grosbeak	<i>Passerina caerulea</i>	G5	S1B	X	X						Not	No

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Double-crested cormorant	<i>Phalacrocorax auritus</i>	G5	S2B	X							Known	Yes
Red-necked phalarope	<i>Phalaropus lobatus</i>	G4G5	SNA	X							Migratory	No
Wilson's phalarope	<i>Phalaropus tricolor</i>	G5	S3B		X						Migratory	No
White-headed woodpecker	<i>Picoides albolarvatus</i>	G5	S2	X	X		X				Known	Yes
Black-backed woodpecker	<i>Picoides arcticus</i>	G5	S3		X (WA)			X			Known	Yes
American three-toed woodpecker	<i>Picoides dorsalis</i>	G5	S2		X						Known	Yes
White-faced ibis	<i>Plegadis chihi</i>	G5	S2B	X	X						Not	No
Black-bellied plover	<i>Pluvialis squatarola</i>	G5	SNA	X							Not	No
Horned grebe	<i>Podiceps auritus</i>	G5	SNA	X							Migratory	No
Red-necked grebe	<i>Podiceps grisegena</i>	G5	S2B		X						Known	Yes
Boreal chickadee	<i>Poecile hudsonica</i>	G5	S4	X							Known	No
Purple martin	<i>Progne subis</i>	G5	SNA	X							Not	No
Common crackle	<i>Quiscalus quiscula</i>	G5	S3B	X							Not	No
American avocet	<i>Recurveroastris americana</i>	G5	S5B		X						Known	Yes
Pygmy nuthatch	<i>Sitta pygmaea</i>	G5	S1	X	X (ID & WA)		X				Known	Yes
Brewer's sparrow	<i>Spizella breweri</i>	G5	S3B		X		X				Not	No
Williamson's sapsucker	<i>Sphyrapicus thryoideus</i>	G5	S4B				X				Known	Yes
Calliope hummingbird	<i>Stellula calliope</i>	G5	S5B				X				Known	Yes
Caspian tern	<i>Sterna caspia</i>	G5	S2B		X						Migratory	No
Forster's tern	<i>Sterna forsteri</i>	G5	S1B	X	X						Known	Yes
Common tern	<i>Sterna hirundo</i>	G5	S1B	X							Migratory	No
Lesser yellowlegs	<i>Tringa flavipes</i>	G5	SNA	X							Migratory	No
Greater yellowlegs	<i>Tringa melanoleuca</i>	G5	SNA	X							Migratory	No
Plumbeous vireo	<i>Vireo plumbeus</i>	G5	S4	X							Known	No
Virginia's warbler	<i>Vermivora virginiae</i>	G5	S1B	X	X						Not	No
Mammals												
Pallid bat	<i>Antrozous pallidus</i>	G5	S3	X							Not	No
American bison	<i>Bison bison</i>	G4	S1	X							Not	No
Pygmy rabbit	<i>Brachylagus idahoensis</i>	G4	S2		X						Not	No
Rocky mountain elk	<i>Cervus canadensis</i>	G5	S5						G5		Known	Yes
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	G4	S3	X	X (ID & WA)			X			Known	Yes
Pale lumped-nosed bat	<i>Corynorhinus townsendii pallascens</i>	G4	Unknown	X							Not	No
Townsend's western big-eared bat	<i>Corynorhinus townsendii townsendii</i>	G4T3T4	Unknown	X							Not	No
Spotted bat	<i>Euderma maculatum</i>	G4	S3	X	X						Not	No
North American wolverine	<i>Gulo gulo luxos</i>	G4T4	S2	X	X (ID & WA)			X			Known	Yes
Fisher	<i>Martes pennanti</i>	G5	S1	X	X (ID & WA)			X			Known	Yes
Dark kangaroo mouse*	<i>Microdipodops megacephalus</i>	G5	S1	X	X						Not	No
California myotis*	<i>Myotis californicus</i>	G5	S2	X	X						Known	Yes
Fringed myotis	<i>Myotis thysanodes</i>	G4G5	S2	X	X			X			Known	Yes
Cliff chipmunk	<i>Neotamias dorsalis</i>	G5	S1	X	X						Not	No
Red-tailed chipmunk*	<i>Neotamias ruficaudus</i>	G5	S3		X						Known	Yes
Uinta chipmunk*	<i>Neotamias umbrinus</i>	G5	S1	X	X						Not	No
American pika	<i>Ochotona princeps</i>	G5	S4							X	Known	Yes
Mountain goat	<i>Oreamnos americanus</i>	G5	S2		X						Known	Yes

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Little pocket mouse*	<i>Perognathus longimembris</i>	G5	S1	X	X						Not	No
Pinon deer mouse	<i>Peromyscus truei</i>	G5	S1	X	X						Not	No
Western pipistrelle	<i>Pipistrellus hesperus</i>	G5	S3	X							Not	No
Coast mole	<i>Scapanus orarius</i>	G5	S2	X	X						Not	No
American pygmy shrew*	<i>Sorex hoyi</i>	G5	S1	X	X						Known	No
Merriam's shrew	<i>Sorex merriami</i>	G5	S2	X	X						Known	No
Dwarf shrew*	<i>Sorex nanus</i>	G4	S2	X	X						Not	No
Columbia plateau ground squirrel*	<i>Spermophilus canus</i>	G4										
Wyoming ground squirrel*	<i>Spermophilus elegans nevadensis</i>	G5	S1		X						Not	No
Great basin ground squirrel	<i>Spermophilus mollis</i>	G5	S2	X	X						Not	No
Rock squirrel	<i>Spermophilus variegatus</i>	G5	S1	X	X						Not	No
Northern bog lemming*	<i>Synaptomys borealis</i>	G4	S1	X	X			X			Known	Yes
American badger	<i>Taxidea taxus</i>	G5	S5		X (WA)							
Idaho pocket gopher*	<i>Thomomys idahoensis</i>	G4	S3		X						Not	No
Townsend's pocket gopher	<i>Thomomys townsendii</i>	G4G5	S2		X						Not	No
Kit fox*	<i>Vulpes macrotus</i>	G4	S1	X	X						Not	No
Fish												
Lake chub*	<i>Couesius plumbeus</i>	G5	SNR	X	X						Known	No
Bluehead sucker*	<i>Catostomus discobolus</i>	G4	SNR		X						Not	No
Pacific lamprey	<i>Lampetra tridentata</i>	G5	S1	X	X						Not	No
Burbot	<i>Lota lota</i>	G5	S1	X	X						Known	Yes
Bonneville cutthroat trout	<i>Oncorhynchus clarki utah</i>	G4T4	S3	X	X						Not	No
Inland redband trout	<i>Oncorhynchus mykiss gairdneri</i>	G5T4	S4	X	X (ID & WA)			X			Known	Yes
Kokanee (sockeye salmon)	<i>Oncorhynchus nerka</i>	G5	S2	X	X						Known	Yes
Sand roller*	<i>Percopsis transmontana</i>	G4	SH	X	X						Not	No
Pygmy whitefish*	<i>Prosopium coulterii</i>	G5	SNR	X	X (ID & WA)						Known	Yes
Leopard dace*	<i>Rhinichthys falcatus</i>	G4	SNR		X						Not	No
Umatilla dace*	<i>Rhinichthys umatilla</i>	G4	SNR		X						Not	No
Invertebrates - Insects												
Butterflies												
Western sulphur butterfly	<i>Colias occidentalis</i>	G3G4	SNR								Known	Yes
Silver-bordered fritillary	<i>Boloria selene atrocotalis</i>	G5	SNR								Known	Yes
Invertebrates - Mollusks												
Pale jumping slug	<i>Hemphilia camelus</i>	G3G4	S2		X						Known	Yes
Jackson Lake springsnail	<i>Pyrgulopsis robusta</i>	G2G3	S1									
Sheathed slug	<i>Zacoleus idahoensis</i>	G3G4	S2		X						Known	Yes
Mussels												
Western pearlshell	<i>Margaritifera falcata</i>	G4	S3		X						Known	Yes
Stoneflies												
A spring stonefly*	<i>Cascadoperna trictura</i>	G3G4	S1								Known	Yes

Table 4. Plant species that meet the criteria for potential species of interest for Idaho and/or the Rocky Mountain Ecoregion, if the species ranges overlap the IPNFs and if the species is a potential species of interest for the IPNFs.

Species common Name	Species scientific name	NatureServe Ranking	Idaho ranking	NatureServe S1S2 or N1N2	State conservation concern	State listed as threatened or endangered	RF Sensitive Species	Local Conservation Concern	Range Encompasses the Forest	Species qualifies as a potential SOI
Fungi/lichens										
	<i>Bryoria tortuosa</i>	G5	S2	X	X				Not	No
	<i>Catapyrenium congestum</i>	G4	S2	X	X				Not	No
	<i>Cetraria sepincola</i>	G5	S2		X				Known	Yes
	<i>Cladonia bellidiflora</i>	G5	S1	X	X				Not	No
	<i>Cladonia transcendens</i>	G5	S3		X				Known	Yes
Thorn cladonia	<i>Cladonia uncialis</i>	G4G5	S1	X	X				Known	Yes
	<i>Lobaria limita</i>	G4G5	S1	X	X				Not	No
A lichen	<i>Lobaria scrobiculata</i>	G3G4	S1	X	X				Suspected	No
	<i>Pilophorus acicularis</i>	G4	S2	X	X				Known	Yes
	<i>Platismatia herrei</i>	G3G5	S2	X	X				Known	Yes
Powdery twig lichen	<i>Ramalina pollinaria</i>	G4	S2	X	X				Known	Yes
	<i>Sphaerophorus globosus</i>	G4G5	S1	X	X				Not	No
	<i>Thamnomia subuliformis</i>	G3G5	S1	X	X				Known	Yes
	<i>Tuckermannopsis sepincola</i>	G5	S2	X					Not	No
Iceland moss	<i>Tuckermannopsis subalpina</i> (<i>Cetraria subalpina</i>)	G4	S2	X	X				Known	Yes
Non vascular mosses										
	<i>Andreaea heinemannii</i>	G3G5	S1	X					Not	No
Bug on a stick	<i>Buxbaumia aphylla</i>	G4G5	S1	X	X		X		Suspected	Yes
Green bug on a stick	<i>Buxbaumia viridis</i>	G3G4	S3		X		X		Known	No
	<i>Helodium blandowii</i>	G5	S2	X	X				Not	No
	<i>Hookeria lucens</i>	G5	S1	X	X				Historical	No
	<i>Meesia longiseta</i>	G4?	S1	X	X		X		Not	No
	<i>Orthotrichum hallii</i>	G4	S1	X	X				Not	No
	<i>Schistostega pennata</i>	G3G5	S1		X				Not	No
	<i>Rhizomnium nudum</i>	G4	S1	X	X		X		Known	Yes
Mendocino peatmoss	<i>Sphagnum mendocinum</i>	G4	S1	X	X		X		Known	Yes
	<i>Sphagnum platyphyllum</i>	G5	S1		X				Not	No
	<i>Tayloria serrata</i>	G4	S1	X					Not	No
Warnstorfia moss	<i>Ulota megalospora</i>	G3G5	S1	X	X				Known	Yes
Vascular										
Conifers and relatives										
Dwarf birch	<i>Betula pumila</i> (v. <i>glandulifera</i>)				X		X		Known	
White spruce	<i>Picea glauca</i>	G5	S1	X					Not	No
Whitebark pine	<i>Pinus albicaulis</i>	G4								
Ferns and relatives										
	<i>Asplenium septentrionale</i>	G4G5	S1	X	X				Not	No
Maidenhair spleenwort	<i>Asplenium trichomanes</i> (ssp. <i>trichomanes</i>)	G5	S1	X	X		X		Known	Yes
	<i>Asplenium trichomanes-ramosum</i>	G4	S1	X	X				Not	No
	<i>Botrychium lanceolatum</i> var. <i>lanceolatum</i>	G5T4	S3		X		X		Known	Yes

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	<i>Botrychium lunaria</i>	G5	S1	X					Not	Yes
	<i>Botrychium minganense</i>	G4	S3		X		X		Known	Yes
	<i>Botrychium pinnatum</i>	G4?	S2	X	X		X		Known	Yes
	<i>Botrychium simplex</i>	G5	S2	X	X		X		Known	Yes
Crested shieldfern	<i>Dryopteris cristata</i>	G5	S2	X			X		Known	Yes
Bog clubmoss	<i>Lycopodiella inundata</i> (<i>Lycopodium inundatum</i>)	G5	S1	X	X		X		Known	Yes
Treelike clubmoss	<i>Lycopodium dendroideum</i>	G5	S1	X					Known	Yes
One cone ground pine	<i>Lycopodium sitchense</i>	G5	S1	X					Known	Yes
	<i>Pentagramma triangularis</i>	G5	S1	X					Not	No
	<i>Pentagramma triangularis</i> <i>ssp. triangularis</i>	G5T5	S1	X					Not	No
	<i>Phegopteris connectilis</i> (<i>Thelypteris phegopteris</i>)	G5	S2	X					Not	No
	<i>Polypodium glycyrrhiza</i>	G5	S1	X					Not	No
	<i>Polystichum braunii</i>	G5	S1	X					Not	No
Kruckeberg's swordfern	<i>Polystichum kruckebergii</i>	G4	S1	X					Known	Yes
Northern beechfern	<i>Thelypteris nevadensis</i>	G4	S2	X			X		Known	Yes
Flowering plants										
Lettermans needlegrass	<i>Achnatherum pinetorum</i>	G4	S2	X					Not	No
Western joepeye weed	<i>Agoseris lackschewitzii</i>	G4	S2	X	X				Not	Yes
Taper tip onion	<i>Allenrolfea occidentalis</i>	G4	S1	X	X				Not	No
	<i>Allium anceps</i>	G4	S2	X	X				Not	No
	<i>Allium validum</i>	G4	S3		X				Not	No
	<i>Allotropa virgata</i>	G4	S3		X				Not	No
Dwarf onion	<i>Ancistrocarphus filageneus</i>	G5	S2	X					Not	No
Simil onion	<i>Andromeda polifolia</i>	G5	S1	X	X		X		Not	No
Red alder	<i>Anemone cylindrica</i>	G5	S1	X					Not	No
California amaranth	<i>Angelica kingii</i>	G4	S1	X	X				Not	No
	<i>Antennaria corymbosa</i>	G5								
	<i>Antirrhinum kingii</i>		S1		X				Suspected	Yes
Round leaved orchis	<i>Argemone munita</i>	G4	S2S3	X					Not	No
Scarlet ammannia	<i>Artemisia campestris</i>	G5SH	S1	X					Not	No
Lead plant	<i>Artemisia campestris ssp. borealis</i>	G5T5SH	S1	X					Not	No
	<i>Artemisia campestris ssp. borealis var. purshii</i>	G5T5	S1		X				Not	No
Swamp milkweed	<i>Asclepias incarnata</i>	G5	S2?	X					Not	No
	<i>Aster junciformis</i> (<i>Symphyotrichum boreale</i>)	G5	S2		X		X		Known	Yes
Silverleaf milkvetch	<i>Astragalus bisulcatus</i>	G5	S1	X					Not	No
Timber milkvetch	<i>Astragalus bisulcatus var. bisulcatus</i>	G5T5	S2	X	X				Not	No
Lesser rushy milkvetch	<i>Astragalus bourgovii</i>	G5	S1	X	X				Not	No
Geyers milkvetch	<i>Astragalus conjunctus</i>	G4	S2	X	X				Not	No

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Geyers milkvetch	<i>Astragalus drummondii</i>	G5	S2	X					Not	No
Grays milkvetch	<i>Astragalus givviflorus</i>	G5	S2	X	X				Not	No
	<i>Astragalus leptaleus</i>	G4	S3		X				Not	No
	<i>Astragalus microcystis</i>	G5	SH		X		X		Known	Yes
Wind river milkvetch	<i>Astragalus newberryi</i>	G5	S2	X					Not	No
Racemose milkvetch	<i>Astragalus newberryi</i> var. <i>castoreus</i>	G5T5	S2	X	X				Not	No
Racemose milkvetch	<i>Astragalus tetrapterus</i>	G4G5	S1	X	X				Not	No
	<i>Astragalus vexilliflexus</i>	G4	S2	X					Not	No
	<i>Astragalus vexilliflexus</i> var. <i>vexilliflexus</i>	G4T4	S1	X	X				Not	No
Roundleaf water hyslop	<i>Bacopa rotundifolia</i>	G5	S1	X					Not	No
Deerfern	<i>Blechnum spicant</i>	G5	S3		X		X		Known	Yes
	<i>Blepharidachne kingii</i>	G4	S1	X	X				Not	No
Watershield	<i>Bouteloua gracilis</i>	G5	S2	X	X				Not	No
	<i>Calandrinia ciliata</i>	G4	S1	X					Not	No
Sagebrush mariposa lily	<i>Camassia cusickii</i>	G4	S2	X	X				Not	No
Blackfoot river suncup	<i>Camissonia boothii</i> ssp. <i>boothii</i>	G5T4	S2	X					Not	No
Lewis river suncup	<i>Camissonia pterosperma</i>	G4	S2	X	X				Not	No
Bigleaf sedge	<i>Carex abrupta</i>	G5	S1	X					Not	No
Brownish sedge	<i>Carex backii</i>	G4	S2	X					Not	No
	<i>Carex buxbaumii</i>	G5	S3		X		X		Known	No
	<i>Carex californica</i>	G5	S3		X				Not	No
Creeping sedge	<i>Carex chordorrhiza</i>	G5	S2	X	X		X		Known	Yes
Bristly sedge	<i>Carex comosa</i>	G5	S1	X	X		X		Known	Yes
Crawes sedge	<i>Carex crawei</i>	G5	S1	X					Not	No
Heavy fruited sedge	<i>Carex engelmannii</i>	G4G5	S2	X	X				Not	No
	<i>Carex flava</i>	G5	S3		X		X		Known	Yes
	<i>Carex hendersonii</i>	G5	S3		X				Known	Yes
Seaside sedge	<i>Carex incurviformis</i>	G4G5	S1	X	X				Not	No
Seaside sedge	<i>Carex incurviformis</i> var. <i>incurviformis</i>	G4G5T4T5	S1	X					Not	No
Lake bank sedge	<i>Carex lacustris</i>	G5	S1	X	X				Known	Yes
	<i>Carex leptalea</i>	G5	S2	X	X		X		Known	Yes
Pale sedge	<i>Carex livida</i>	G5	S2	X	X		X		Known	Yes
Many ribbed sedge	<i>Carex magellanica</i> ssp. <i>irrigua</i>	G5T5	S2	X	X				Known	Yes
	<i>Carex paupercula</i>	G5	S2				X			
Beaked sedge	<i>Carex rostrata</i>	G5	S2	X	X				Known	Yes
Broom sedge	<i>Carex sheldonii</i>	G4	S2	X					Not	No
Many headed sedge	<i>Carex straminiformis</i>	G5	S2	X	X				Not	No
	<i>Carex sychnocephala</i>	G4	S1		X				Not	No
Sparse flower sedge	<i>Carex tumulicola</i>	G4	S1	X					Not	No
Tinged sedge	<i>Cassiope mertensiana</i> var. <i>mertensiana</i>	G5T5	S1	X					Not	No
Deer Indian paintbrush	<i>Castilleja angustifolia</i> var.	G5T4	S1	X					Not	No

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	<i>flavescens</i>									
New jersey tea	<i>Ceanothus prostratus</i>	G5?	S1	X	X				Not	No
	<i>Cephalanthera austiniiae</i>	G4	S3		X				Known	Yes
Colorado birchleaf mountain mahogany	<i>Cercocarpus montanus</i>			X	X				Not	No
	<i>Chaenactis stevioides</i>	G5	S2	X	X				Not	No
	<i>Chrysosplenium tetrandrum</i>	G5	S1	X	X				Not	No
	<i>Chrysothamnus nauseosus ssp. nanus</i>	G5T4	S3		X				Not	No
	<i>Cicuta bulbifera</i>	G5	S2	X	X		x		Known	Yes
Sand springbeauty	<i>Claytonia lanceolata var. multiscapa</i>	G5T4	SNR	X					Not	No
	<i>Claytonia multiscapa</i>	G4?	S1		X				Not	No
	<i>Cleomella plocasperma</i>	G4	SH		X				Not	No
Mertens coralroot	<i>Corallorhiza wisteriana</i>	G5	S2	X					Not	No
Pale corydalis	<i>Cornus nuttallii</i>	G5	S1	X	X		X		Not	No
	<i>Coryphantha vivipara</i>	G5	S2		X				Not	No
	<i>Crassula aquatica</i>	G5	S1	X					Not	No
	<i>Crepis bakeri</i>	G4	S2	X					Not	No
Fendlers catseye	<i>Cryptantha breviflora</i>	G4		X					Not	No
Round headed cryptantha	<i>Cryptantha caespitosa</i>	G4	S1	X					Not	No
Desert cryptantha	<i>Cryptantha propria</i>	G4	S2	X					Not	No
	<i>Cryptantha sericea</i>	G4	SNA		X				Not	No
	<i>Cuscuta denticulata</i>	G4G5	S1	X	X				Not	No
	<i>Cymopterus ibapensis</i>	G4	S2	X					Not	No
Short point flatsedge	<i>Cyperus bipartitus</i>	G5	S2	X	X				Not	No
Red foot flatsedge	<i>Cyperus odoratus</i>	G5	S1	X					Not	No
	<i>Cypripedium fasciculatum</i>	G4	S3		X		X		Known	Yes
Yellow lady's slipper	<i>Cypripedium parviflorum</i>	G5	S3	X					Not	No
	<i>Cypripedium parviflorum var. pubescens</i>	G4T5	S1	X	X		X		Known	Yes
Sparrows egg ladys slipper	<i>Damasonium californicum</i>	G4	S2		X				Not	No
	<i>Dimeresia howellii</i>	G4?	S2	X	X				Not	No
	<i>Diphasiastrum sitchense</i>	G5	S2		X				Known	Yes
	<i>Dodecatheon dentatum</i>	G4	S3		X				Known	Yes
Great basin downingia	<i>Downingia bacigalupii</i>	G4	S2	X	X				Not	No
Denseleaf whitlow grass	<i>Downingia insignis</i>	G4	S1	X	X				Not	No
White arctic whitlow grass	<i>Draba fladnizensis</i>	G4	S1	X	X				Not	No
White arctic whitlow grass	<i>Draba incerta</i>	G5	S2	X	X				Known	Yes
English sundew	<i>Drosera intermedia</i>	G5	S1	X	X		X		Known	Yes
	<i>Dryopteris cristata</i>	G5	S2		X		X		Known	Yes
	<i>Eatonella nivea</i>	G4G5	S3		X				Not	No
Slender spikerush	<i>Eleocharis elliptica</i>	G5	S1	X	X				Not	No
	<i>Epilobium canum ssp. garrettii</i>	G5T4	S1	X					Not	No
	<i>Epilobium palustre</i>	G5	S3		X		X		Known	Yes
	<i>Epipactis gigantea</i>	G3G4	S3		X				Not	No

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Discoid goldenweed	<i>Ericameria bloomeri</i>	G4	S1	X					Not	No
	<i>Ericameria nauseosa</i> var. <i>glabrata</i>	G5T5	S2?	X					Not	No
Parrys rabbitbrush	<i>Ericameria resinosa</i>	G4	S2	X					Unk	No
Idaho fleabane	<i>Erigeron humilis</i>	G4	S2	X	X				Not	No
Eatons daisy	<i>Erigeron rydbergii</i>	G4	S2	X					Unk	No
Matted wild buckwheat	<i>Eriogonum capistratum</i>	G4	S2	X					Not	No
Smooth buckwheat	<i>Eriogonum douglasii</i>	G5	S1	X					Not	No
Sheathed cottongrass	<i>Eriogonum douglasii</i> var. <i>douglasii</i>	G5T4	S1	X					Not	No
Sheathed cotton grass	<i>Eriogonum hookeri</i>	G5	S1	X	X				Not	No
Green keeled cotton grass	<i>Eriogonum mancum</i>	G4	S2	X					Not	No
	<i>Eriogonum palmerianum</i>	G4	S1	X	X				Not	No
	<i>Eriogonum shockleyi</i> var. <i>shockleyi</i>	G5T4?	S2	X	X				Not	No
	<i>Eriophorum viridicarinatum</i>	G5	S2	X	X		X		Known	Yes
Green keeled cotton grass	<i>Eryngium alismifolium</i>	G4	S2	X	X				Not	No
	<i>Eryngium articulatum</i>	G5	SNR		X				Not	No
	<i>Escobaris vivipara</i>	G5	S2	X					Not	No
Spotted joe pyeweed	<i>Eupatorium maculatum</i>	G5	S1	X					Not	No
	<i>Eupatorium maculatum</i> var. <i>brumeri</i>	G4T4T5	SNR		X				Not	No
	<i>Gaultheria hispidula</i>	G5	S2	X	X		X		Known	Yes
Glaucous gentian	<i>Gentianella propinqua</i>	G5	S2	X	X				Not	No
Macouns gentian	<i>Gentianella tenella</i>	G4G5	S2	X	X				Not	No
	<i>Glyptopleura marginata</i>	G4G5	S3		X				Not	No
	<i>Hierochloa odorata</i>	G4G5	S1		X				Not	No
	<i>Hookeria lucens</i>	G5	S1				X			
	<i>Hymenoxys cooperi</i> var. <i>canescens</i>	G4G5T4	S?		X				Not	No
	<i>Hypericum majus</i>	G5	G5S3		X		X		Known	Yes
Small flower standing cypress	<i>Ipomopsis polycladon</i>	G4	S2	X	X				Not	No
	<i>Iris versicolor</i>	G5	S2	X	X		X		Known	Yes
	<i>Ivesia tweedyi</i>	G4	S2	X	X				Known	Yes
	<i>Juncus bolanderi</i>	G5	SNR		X				Known	Yes
Sharp fruit rush	<i>Juncus bryoides</i>	G4	S1	X					Not	No
Halls rush	<i>Juncus hallii</i>	G4G5	S2	X					Not	No
	<i>Juncus hemiendytus</i> var. <i>abjectus</i>	G5T4	S2	X					Not	No
	<i>Juncus tiehmii</i>	G4	S2	X					Not	No
Simple kobresia	<i>Kobresia simpliciuscula</i>	G5	S2	X	X				Not	No
Columbian bitterroot	<i>Lewisia kelloggii</i>	G4	SNR	X					Not	No
	<i>Lewisia sacajaweanana</i>	GNR	S2		X				Not	No
	<i>Limosella acaulis</i>	G5	S2	X	X				Not	No
Marsh felwort	<i>Lomatogonium rotatum</i>	G5	S1	X	X				Not	No
	<i>Ludwigia polycarpa</i>	G4	S1	X	X				Known	Yes

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	<i>Lupinus uncialis</i>	G4	S2	X	X				Not	No
	<i>Lycopodiella inundata</i>	G5	S2		X		X		Not	No
	<i>Lycopodium dendroideum</i>	G5	S2		X		X		Known	Yes
	<i>Machaerocarpus californicus</i>	G4	S2	X					Unk	Yes
Wild lily of the valley	<i>Maianthemum dilatatum</i>	G5	S1	X	X				Known	Yes
Torreys malacothrix	<i>Malacothrix torreyi</i>	G4	S2	X					Not	No
Golden stickleaf	<i>Mentzelia congesta</i>	G5	S1	X					Not	No
	<i>Mertensia bella</i>	G4	S3		X				Not	No
	<i>Mimulus alsinoides</i>	G5	S1	X	X		X		Known	Yes
Short flower monkeyflower	<i>Mimulus breviflorus</i>	G4	S1S2	X					Not	No
	<i>Mimulus clivicola</i>	G4	S3		X				Known	Yes
Square stem monkeyflower	<i>Mimulus ringens</i>	G5	S1	X					Not	No
Pullup muhly	<i>Muhlenbergia glomerata</i>	G5	S2	X					Unk	No
	<i>Muhlenbergia racemosa</i>	G5	S2	X					Not	No
	<i>Nassella viridula</i>	G5	S2	X					Not	No
	<i>Nemacladus rigidus</i>	G4	S2	X	X				Not	No
	<i>Nymphaea leibergii</i>	G5	SH		X				Known	Yes
	<i>Ophioglossum pusillum</i>	G5							Suspected	Yes
	<i>Orobanche pinorum</i>	G4	S2	X	X				Known	Yes
California Indian potato	<i>Orogenia fusiformis</i>	G5	S2	X					Not	No
	<i>Oxalis trillifolia</i>	G5	S1	X	X				Known	Yes
	<i>Parnassia kotzebuei</i>	G5	S2	X					Not	No
	<i>Parnassia kotzebuei</i> var. <i>kotzebuei</i>	G4T4	S2		X				Not	No
	<i>Pediocactus simpsonii</i>	G4	S3		X				Not	No
Narrowleaf beardtongue	<i>Penstemon janishiae</i>	G4	S2	X	X				Not	No
Taper leaved beardtongue	<i>Penstemon seorsus</i>	G4?	S2	X					Not	No
	<i>Pentagramma traingularis</i> ssp. <i>traingularis</i>	G5T5	S1		X		X		Suspected	No
	<i>Peraphyllum ramosissimum</i>	G4	S2	X	X				Not	No
Arctic butter bur	<i>Petasites frigidus</i>	G5	S1	X					Unk	No
Arctic butter bur	<i>Petasites frigidus</i> var. <i>palmatus</i>	G5T5	S1	X	X		X		Not	No
	<i>Petasites sagittatus</i>	G5	S3		X				Known	Yes
	<i>Peteria thompsoniae</i>	G4	S2	X	X				Not	No
	<i>Phegopteris connectilis</i>	G5	S2		X		X		Known	Yes
	<i>Piptatherum micranthum</i>	G5	S1	X	X				Not	No
	<i>Plantago tweedyi</i>	G4G5	S2	X					Not	No
Small northern bog orchid	<i>Platanthera obtusata</i>	G5	S1	X					Unk	No
Arctic bluegrass	<i>Poa abbreviata</i>	G5	S1	X					Unk	No
	<i>Polypodium glycyrrhiza</i>	G5	S1		X		X		Not	No
	<i>Polystichum braunii</i>	G5	S1		X		X		Known	Yes
	<i>Polystichum kruckebergii</i>	G4	S2		X				Not	No
Short leaved bluegrass	<i>Porterella carnosula</i>	G4	S2	X					Not	No
Blunt leaf pondweed	<i>Potamogeton diversifolius</i>	G5	S1	X					Not	No
Shortleaf cinquefoil	<i>Potentilla bipinnatifida</i>	G5?	S1	X					Not	No

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Arctic cinquefoil	<i>Potentilla paradoxa</i>	G5	S1	X					Not	No
	<i>Prenanthes exigua</i>	G5	S1		X				Not	No
Jones primrose	<i>Primula incana</i>	G4G5	S1	X	X				Not	No
	<i>Psathyrotes annua</i>	G5	S2	X	X				Not	No
Round woolly heads	<i>Psilocaraphus brevissimus</i>	G4	S2	X					Known	Yes
Dwarf woolly heads	<i>Psilocaraphus brevissimus</i> var. <i>brevissimus</i>	G4T4?	S1	X					Not	No
	<i>Psilocaraphus tenellus</i>	G4	S2	X	X				Known	Yes
	<i>Pteryxia hendersonii</i>	G5	S2	X					Not	No
	<i>Pyrocoma racemosa</i>	G5	S1	X					Not	No
	<i>Pyrocoma racemosa</i> var. <i>painculata</i>	G5T4	S1	X					Not	No
Tall buttercup	<i>Ranunculus acris</i>	G5	SNR	X					No-exotic	No
	<i>Ranunculus gelidus</i>	G4	S1		X				Not	No
Straight beak buttercup	<i>Ranunculus orthorhynchus</i> var. <i>orthorhynchus</i>	G5T5	SNR	X					Not in MNHP	No
Northern buttercup	<i>Ranunculus pygmaeus</i>	G5	S1	X	X				Not	No
	<i>Rhynchospora alba</i>	G5	S2	X	X		X		Known	Yes
	<i>Ribes acerifolium</i>	G4	S2	X					Not	No
Trailing black currant	<i>Ribes sanguineum</i>	G5	S1	X	X				Known	Yes
Swamp red currant	<i>Ribes wolfii</i>	G4	S2	X	X				Not	No
	<i>Romanzoffia sitchensis</i>	G4	S2	X	X				Known	Yes
Watercress	<i>Rorippa nasturtium-aquaticum</i>	GNR	SNA	X					No-exotic	No
	<i>Rubus pubescens</i>	G5	S1	X					Not	No
	<i>Rubus spectabilis</i>	G5	S2	X	X				Known	Yes
	<i>Rupertia physodes</i>	G4	S1	X	X				Not	No
	<i>Sagittaria rigida</i>	G5	S1	X					Not	No
	<i>Sairocarpus kingii</i>	G4	S1	X					Not	No
	<i>Salicornia rubra</i>	G5	S2	X	X				Not	No
Barretts willow	<i>Salix candida</i>	G5	S2	X	X		X		Known	Yes
Cascade willow	<i>Salix farriae</i>	G4	S1	X	X				Not	No
Pussy willow	<i>Salix glauca</i>	G5	S2	X	X				Not	No
Autumn willow	<i>Salix pedicellaris</i>	G5	S2	X	X		X		Known	Yes
	<i>Salix pseudomonticola</i>	G4G5	S1	X	X				Not	No
	<i>Sanicula graveolens</i>	G4G5	S1	X	X				Not	No
	<i>Sanicula marilandica</i>	G5	S3		X				Known	Yes
	<i>Saxifraga adscendens</i>	G5	S2	X					Not	No
	<i>Saxifraga adscendens</i> ssp. <i>oregonensis</i>	G5T4T5	S2	X	X				Not	No
	<i>Saxifraga bryophora</i>	G5	S1	X					Not	No
	<i>Saxifraga cernua</i>	G4	S2	X	X				Not	No
Pod grass	<i>Scheuchzeria palustris</i>	G5	S2	X	X		X		Known	Yes
	<i>Schoenoplectus subterminalis</i> (<i>Scirpus subterminalis</i>)	G4G5	S3		X		X		Known	Yes
	<i>Scirpus hudsonianus</i>	G5	S1				X			

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	<i>Sedum borschii</i>	G4?	S2		X				Not	No
	<i>Sedum leibergii</i>	G4?	S2	X					Not	No
	<i>Sedum rupicola</i>	G4	S2	X					Not	No
	<i>Silene hitchguirei</i>	G4TNR	S1		X				Not	No
	<i>Silene scaposa</i>	G4	S3		X				Not	No
	<i>Silene suksdorfii</i>	G4	S1	X					Not	No
	<i>Silene uralensis ssp. montana</i>	GRTNR	S1	X					Not	No
	<i>Sisyrinchium montanum</i>	G5				*X (WA)			Suspected	Yes
	<i>Solanum heterodoxum</i>	G4G5	S1	X					Not	No
	<i>Sphaeromeria potentilloides</i>	G5	S1		X				Not	No
	<i>Spiranthes porrifolia</i>	G4	S1	X	X				Not	No
Longleaf dropseed	<i>Sporobolus compositus var. compositus</i>	G5T5	S1	X	X				Not	No
	<i>Streptopus streptopoides</i>	G5	S2	X	X		X		Known	Yes
	<i>Streptopus streptopoides var. brevipes</i>	G5T4	S2	X					Not	No
	<i>Symphyotrichum boreale</i>	G5	S2	X					Not	No
	<i>Telesonix jamesii</i>	G4	S1		X				Not	No
	<i>Tellima grandiflora</i>	G5	S3		X				Known	Yes
	<i>Teucrium canadense</i>	G5	S2	X					Not	No
	<i>Teucrium canadense var. occidentale</i>	G5T5?	S2	X	X				Not	No
Alpine meadowrue	<i>Thalictrum dasycarpum</i>	G5	S2	X	X				Known	Yes
Slender thelypody	<i>Thelypodium flexuosum</i>	G5	S2	X					Not	No
	<i>Thelypodium laciniatum var. streptanthoides</i>	G4T4Q	S2		X				Not	No
	<i>Thelypteris nevadensis</i>	G4	S1		X		X		Suspected	No
Cushion townsend daisy	<i>Townsendia scapigera</i>	G4G5	S1	X	X				Not	No
	<i>Triantha occidentalis ssp. brevistyla</i>	G5T4	S1	X	X		X		Known	Yes
	<i>Trichophorum alpinum</i>	G5	S1	X	X				Known	Yes
	<i>Trichophorum pumilum</i>	G5	S1	X					Not	No
	<i>Trientalis arctica</i>	G5	S3		X		X		Known	Yes
	<i>Trientalis latifolia</i>	G5	S3		X				Known	Yes
Bowl clover	<i>Trifolium plumosum</i>	G4	S2	X					Not	No
Velvetleaf blueberry	<i>Vaccinium oxycoccos</i>	G5	S2	X	X		X		Known	Yes
	<i>Vallisneria americana</i>	G5	S1	X	X				Known	Yes
	<i>Vesicarpa potentilloides</i>	G5	S1	X					Not	No
	<i>Viburnum opulus var. americanum</i>	G5T5	SX		X				Known	Yes
Great spurred violet	<i>Viola selkirkii</i>	G5?	S1	X	X				Known	Yes

*State rankings for Washington (WA)

Table 5. Species of concern – Information on range and forest status for wildlife species considered for species of concern for the IPNF

Species	Species Range	Reference	Observations on the forest
Vertebrates-amphibians			
Idaho giant salamander <i>Dicamptodon aterrimus</i>	Outside of species range. Southern half of the Idaho Panhandle with a slight extension into western Montana, a small area in the northwest part of southern Idaho and possibly in Mineral county in western MT, based on two unverified sightings. Present distribution known only from southwest MT.	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No record
Birds			
Greater sage grouse <i>Centrocercus urophasianus</i>	Outside of species range.	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	
Mountain plover <i>Charadrius montanus</i>	Outside species range, eastern MT. Shortgrass prairie/ prairie dog towns. A rare migrant west of the continental divide (MT field guide 2007).	NatureServe explorer species report, page 4. MT CFWCS	No record
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	Very limited data for the area west of the continental divide in Montana. Three specimens of the cuckoo have been collected since the early 1960s, and there are few recorded sightings of the cuckoo since the early 1900s. A few records indicate that yellow billed cuckoos do occur in the Flathead River area but no confirmed breeding information exists (Lenard 2001 in MT CFWCS, USFWS 2008). May be seen locally in the southern portion of the state along the larger stream corridors. Little to no information for MT. West of the crest of the Rocky Mtns. (USFWS 2008)	NatureServe explorer species report, USFWS species assessment and listing priority assignment form (2008). Montana field guide (2009).	No record
Peregrine falcon <i>Falco peregrinus</i>	Yes.		Yes
Bald eagle <i>Haliaeetus leucophalus</i>	Yes.		Yes – nesting on both NFS and private lands
American white pelican <i>Pelecanus erythrorhynchos</i>	Outside species primary range. Migratory. MT breeding colonies are in the eastern prairie regions. 4 breeding colonies in MT, Medicine Lake, Bowdoin, Arod Lakes and Canyon Ferry.	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No record
Columbian sharp-tailed grouse <i>Tympanuchus phasianellus columbianus</i>	Yes, southern edge of populations in Canada. Possibly extirpated. One recent breeding lek on the forest on private lands. No birds on the lek the last several years.	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	Yes – but occurrence on NFS lands rare
Fish			
Blue sucker <i>Cycleptus elongates</i>	Outside of species range. Eastern MT. (MT field guide)	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No record
Burbot- lower Kootenai R. population <i>Lota lota</i>	Yes.	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	Known
Sturgeon chub <i>Macrhybopsis gelida</i>	Outside of species range. Found in the large eastern MT prairie river drainages. (MT field guide)	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No record
Sicklefin chub <i>Macrhybopsis meeki</i>	Outside of species range. Found in the plains region of MT. (MT field guide)	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No record
Yellowstone cutthroat trout <i>Oncorhynchus clarki bouvieri</i>	Outside of species primary range. Native to the Yellowstone R. Species has been introduced into the area. (MT field guide)	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No
Westslope cutthroat trout <i>Oncorhynchus clarki lewisi</i>	Yes	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	Known
California golden trout <i>Oncorhynchus mykiss aquabonita</i>	Outside of species range. Exotic non-native. (MT field guide)	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No
Arctic grayling- upper Missouri R. fluvial population <i>Thymallus arcticus pop. 2</i>	Outside of species range. (MT field guide)	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No
Mammals			
Black-footed ferret	Outside species range, eastern MT.	NatureServe Explorer species report 2008, MNHP field guide	No record

Species	Species Range	Reference	Observations on the forest
<i>Mustela nigripes</i>		2008, MNHP TRACKER 2008	
Swift fox <i>Vulpes velox</i>	Outside species range.	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No record
Invertebrates - insects			
Beetles			
Ghost tiger beetle <i>Cincindela lepida</i>	Outside known range. Species unknown for MT. No information in MNHP or NatureServe for MT. (MT field guide.)	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No record. SNR
Oblique-lined tiger beetle <i>Cincindela tranquebarica vibex</i>	Outside species range. No information available in NatureServe for MT or in MNHP. Southern MT. 1 observation in Beaverhead county. (MT field guide.)	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No record. SNR
Brown's microcylloepus riffle beetle <i>Microcylloepus browni</i>	Outside species range. Single occurrence, eastern MT. Endemic to 4 warm water seep areas downstream of Bridger Creek, MT. (MT field guide.)	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No record
Warm spring Zaitzevian riffle beetle <i>Zaitzevia thermae</i>	Outside known range. Single occurrence eastern MT. Endemic to warm spring area at mouth of Bridger Canyon. Present on less than one mile of stream length (MT field guide.)	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No record
Butterflies			
Arogos skipper <i>Atrytone arogos</i>	Outside species range, eastern U.S. southeastern MT. (MT field guide.) Not listed for either Lincoln or Sanders counties (Butterflies and moths of NA 2007).	NatureServe explorer species report. MNHP field guide 2008. (Butterflies and moths of NA 2007).	No record. SNR
Iowa skipper <i>Atrytone arogos iowa</i>	Outside species range. Native prairie. No information in MNHP. (MT field guide.) Not listed for either Lincoln or Sanders counties (Butterflies and moths of NA 2007).	NatureServe explorer species report, (Butterflies and moths of NA 2007).	No record. SNR
Alberta fritillary <i>Boloria Alberta</i>	No. Mountain cordillera of BC and Alberta Glacier NP. (Brock and Kaufman 2003). (MT field guide.) Not listed for either Lincoln or Sanders counties (Butterflies and moths of NA 2007).	Very little information available in NatureServe. No information available in MT CFWCS. MNHP field guide 2008. (Butterflies and moths of NA 2007).	No record/suspected. Known to occur in Glacier NP (USDI 2006)
Bog fritillary <i>Boloria eunomia ursadentis</i>	No information available in NatureServe, MNHP, or other references for this subspecies. Range unknown. Species <i>Boloria eunomia</i> (bog fritillary) wide ranging from upper Great Lakes and northeast through most of arctic Canada. Rare and very local in the Rockies (WY and CO). Would be at the southern extent of Canadian populations) not listed for either Lincoln or Sanders counties (Butterflies and moths of NA 2007).	NatureServe explorer species report. <i>Boloria eunomia</i> not identified as occurring in Glacier NP. MNHP field guide 2008. (Butterflies and moths of NA 2007).	No record.
Relict fritillary <i>Boloria kriemhild</i>	Outside known range. Central Rocky mountains of MT, WY, ID and UT. Based on ranking species does not meet criteria for species of concern (NatureServe 2006). Not listed for either Lincoln or Sanders counties (Butterflies and moths of NA 2007).	Brock and Kaufman, field guide to butterflies of North America. MNHP field guide 2008. (Butterflies and moths of NA 2007). NatureServe explorer species report.	No record
Western sulphur <i>Colias occidentalis</i>	Yes - Limited range, local and uncommon within its range. Southern BC, WA, OR, northern UT, western MT, ID, and northern CA. Based on ranking species does not meet criteria for species of concern (NatureServe 2006).	MNHP field guide 2008. (Butterflies and moths of NA 2007). NatureServe explorer species report.	No record
Gillette's checkerspot <i>Euphydryas gillettei</i>	Yes. Rocky mountains, southern Alberta, MT, western WY, central ID. Known only from Beaverhead county, MT (. Listed for Sanders county (Butterflies and moths of NA 2007).	Brock and Kaufman, field guide to butterflies of North America. MNHP field guide 2008. (Butterflies and moths of NA 2007). NatureServe explorer species report.	No record
Ottoo skipper <i>Hesperia ottoe</i>	Outside species range. Found in eastern MT. Native prairie. (MT field guide). Based on ranking species does not meet criteria for species of concern (NatureServe 2006). Not listed for either Lincoln or Sanders counties (Butterflies and moths of NA 2007).	Brock and Kaufman, field guide to butterflies of North America. MNHP field guide 2008. (Butterflies and moths of NA 2007). NatureServe explorer species report.	No record
Swale (Wyoming) satyr <i>Neominois wyomingo</i>	Outside known range. Isolated pockets in central Rockies. Limited range, apparently somewhat local within it. (MT field guide). Based on ranking species does not meet criteria for species of concern (NatureServe 2006). Not listed for either Lincoln or Sanders counties (Butterflies and moths of NA 2007).	Brock and Kaufman, field guide to butterflies of North America. MNHP field guide 2008. (Butterflies and moths of NA 2007). NatureServe explorer species report.	No record. SNR
Caddisflies			
A Agapetus caddisfly	Yes. Lincoln and Sanders counties plus others.	MNHP field guide 2008. NatureServe explorer species	

Species	Species Range	Reference	Observations on the forest
<i>Agapetus montanus</i>		report,2008.	
A caddisfly <i>Allomyia bifosa</i>	Outside species range. Glacier NP. Wyoming, BC. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	No record. SNR
A caddisfly <i>Allomyia hector</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	No record. SNR
A caddisfly <i>Apatania comosa</i>	Outside species range. Blackfoot R. , Lolo Cr. and Bitterroot R. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Asynarchus circopa</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Ceraclea coph</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Cryptochia furcata</i>	Outside species range. WA. BC. NW MT. In Madison R. Gallatin R. basin, Rattlesnake Cr. And Dog Cr. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Glossosoma idaho</i>	No info in MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Goereilla baumanni</i>	Outside species range. Missoula and mineral counties. Known to occur only in the Northern Rocky Mtns Refugium area. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Lepidostoma apornum</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Lepidostoma knulli</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Limnephilus alberta</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Neophylax sinuatus</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Neotrichia ersitis</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Ochrotrichia alsea</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Ochrotrichia potomus</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Oligophlebodes mostbento</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Philocasca banksi</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Polycentropus demingi</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Psychoglypha prita</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
Alexander's Rhyacophilan caddisfly <i>Rhyacophila alexanderi</i>	Outside species range. Bitterroot NF. Lake county, Manitoba. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	No record.
A caddisfly <i>Rhyacophila belona</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Rhyacophila donaldi</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly	Outside species range. Glacier NP. Manitoba, BC. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species	No record.

Species	Species Range	Reference	Observations on the forest
<i>Rhyacophila ebria</i>		report,2008.	
A caddisfly <i>Rhyacophila gemona</i>	Outside species range. WA. MT. Lake county. No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A Rhyacophila caddisfly <i>Rhyacophila glaciera</i>	Outside species range. Glacier NP. Waterton and Jasper NP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	No record.
A caddisfly <i>Rhyacophila kernada</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A Rhyacophila caddisfly <i>Rhyacophila newelli</i>	Outside species range. MT. AB. BC. Missoula county. Limited knowledge. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	No record.
A caddisfly <i>Rhyacophila ophrys</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Rhyacophila potteri</i>	Suspected. ID. MT. Known from 4 localities in MT. Likely to occur in a continuous distribution along the MT/ID border north to BC and Alberta. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Rhyacophila rickeri</i>	No info in MNHP. Very limited info in NatureServe. On MT species of concern list but NatureServe explorer does not list for MT.	MNHP field guide 2008. NatureServe explorer species report,2008.	
A caddisfly <i>Rhyacophila robusta</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Rhyacophila unimaculata</i>	Outside species range. BC. Lake county MT. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Rossiana montana</i>	Outside species range. WA. BC Western MT. Missoula, Mineral and in the Clark fork in Sanders county. Known from Clearwater River in Idaho and adjacent in the Clark Fork. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Sericostriata surdickae</i>	Outside species range. Missoula, Mineral, Granite, Powell, Clearwater River in Idaho and adjacent in the Clark Fork. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Zumatrichia notosa</i>	Range unknown. No info in MNHP or NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
Damselflies			
Last best place damselfly <i>Enallagma optimolocus</i>	Outside species range. Known from 3 locations in MT in Flathead, Lewis and Clark, and Madison counties. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	No record. SNR
Grasshoppers			
Rehn's slow grasshopper <i>Arigiocris rehni</i>	Range unknown. No info in MNHP. Very limited info in NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	No record. SNR
A grasshopper <i>Barricris petraea</i>	Range unknown, no information available in MNHP. Very limited info in NatureServe.	NatureServe explorer species report. MNHP field guide 2008.	No record. SNR
A spur-throat grasshopper <i>Melanoplus lanthanus</i>	Range unknown. A new MT grasshopper, shrubland/chaparral. No info in MNHP. Very limited info in NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	No record. SNR
A spur-throat grasshopper <i>Melanoplus missoulae</i>	Range unknown, grassland/herbaceous. No information available in MNHP. Very limited info in NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	No record. SNR
A spur-throat grasshopper <i>Melanoplus picropidzae</i>	Range unknown, grassland/herbaceous. No information available in MNHP. Very limited info in NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	No record. SNR
A spur-throat grasshopper <i>Melanoplus sp. 1</i>	Range unknown, alpine, grassland/herbaceous. No information available in MNHP. Very limited info in NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	No record. SNR
A spur-throat grasshopper <i>Melanoplus sp. 15</i>	Range unknown, grassland/herbaceous. No information available in MNHP. Very limited info in NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	No record. SNR
Mayflies			
A mayfly <i>Ameletus bellulus</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
A mayfly <i>Ameletus majusculus</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
A mayfly	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report	No record. SNR

Species	Species Range	Reference	Observations on the forest
<i>Ameletus shepherdii</i>		2008.	
A mayfly <i>Ameletus sparsatus</i>	Outside species range. Known only from Gallatin county in MT. And southern Idaho. Southwest MT. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
A mayfly <i>Ameletus vernalis</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
A mayfly <i>Analetris eximia</i>	Outside species range. Known from 1 location in Hill county. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
A mayfly <i>Anepoerus rusticus</i>	Outside species range. Known from 2 sites in Powder River, and possibly occurs in Yellowstone R. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
A mayfly <i>Caudatella edmundsi</i>	Outside species range. Endemic to Northern Rocky Mtn. Refugium area. Beaverhead, Deerlodge, Missoula, Mineral, Granite, Powell and Sanders counties. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
A mayfly <i>Caudatella jacobii</i>	Outside species range. BC. OR. MT. Known from Northern Rocky Mtn, Refugium area. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Lolo mayfly <i>Caurinella idahoensis</i>	Outside species range. Known from Northern Rocky Mtn. Refugium area. Endemic to western Mt and ID. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
A mayfly <i>Heterocloeon rubrolaterale</i>	Outside species range. In MT known from Missouri R. Species not found in MNHP field guide. Very limited info in NatureServe.	NatureServe Explorer species report. NatureServe explorer species report 2008.	No record. SNR
A mayfly <i>Macdunnoa nipawinia</i>	Outside species range. Recently discovered in Mt in Richland county. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
A mayfly <i>Rhithrogena virilis</i>	Range unknown. No info in MNHP or NatureServe. Listed for MT, BC and Alberta.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Stoneflies			
Glacier snowfly <i>Bolshecapnia milami</i>	Outside species range. No info in MNHP. Known from Flathead and Lake counties. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Mission mountains snowfly <i>Bolshecapnia missiona</i>	Outside species range. Species not found in MNHP field guide. Known from Flathead, Lake and Missoula counties (NatureServe). Very limited info in NatureServe.	NatureServe explorer species report 2008.	No record. SNR
Ice snowfly <i>Bolshecapnia spenceri</i>	Outside species range. No info in MNHP. Known from Flathead and Glacier counties (NatureServe). Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Cascades stripetail <i>Cascadoperla trictura</i>	Outside species range. Known from 2 collections in Missoula county. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Notched stripetail <i>Isoperla sordida</i>	Range unknown. No info in MNHP or NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Mist forestfly <i>Lednia tumana</i>	Outside species range. Glacier and Banff NP. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record.
Tiny forestfly <i>Malenka tina</i>	Outside species range. Missoula county. No specific collection records for MT. Although reported to be from Missoula county (Bauman et al. in MNHP 2008). Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Giant needelfly <i>Megaleuctra stigmata</i>	Outside species range. Known from Lake and Missoula counties (MNHP 2008). NatureServe (2008) also lists for Flathead, Glacier and Powell counties. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Utah needelfly <i>Perlomyia utahensis</i>	Range unknown. No info in MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Autumn springfly <i>Pictiella expansa</i>	Suspected. In MT known from Flathead and Gallatin counties. Known from adjacent Boundary, Bonner, and Shoshone counties in Idaho.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Alberta springfly <i>Setvena bradleyi</i>	Range unknown. No info in MNHP or NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Clearwater roachfly <i>Soliperla salish</i>	Outside species range. In MT known only from Northern Rocky Mtn Refugium area. Mineral county. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Idaho forestfly <i>Soyedina potteri</i>	Outside species range. In MT known only from Northern Rocky Mtn Refugium area. Mineral county. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
A stonefly	Outside species range. Known only from Flathead Lake (NatureServe 2008). No info in MNHP.	MNHP field guide 2008. NatureServe explorer species report	No record. SNR

Species	Species Range	Reference	Observations on the forest
<i>Suwallia salish</i>		2008.	
Cordilleran forestfly <i>Zapada cordillera</i>	Suspected.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record.
Glacier forestfly <i>Zapada glacier</i>	Outside species range. Known only from Glacier NP. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record.
Millipedes and centipedes			
A millipede <i>Adrietyla cucullata</i>	Range unknown. Very limited info in MNHP and NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	No record
A millipede <i>Austrotyla montani</i>	Range unknown. Very limited info in MNHP and NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	No record
A millipede <i>Corypus cochlearis</i>	Yes - Range unknown. Very limited info in MNHP and NatureServe. 1 observation on the forest	NatureServe explorer species report, MNHP field guide 2008.	No record
A millipede	Range unknown. Very limited info in MNHP and NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	No record
A millipede <i>Endopus parvipes</i>	Range unknown. Very limited info in MNHP and NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	No record
A millipede <i>Lophomus laxus</i>	Range unknown. Very limited info in MNHP and NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	No record
A millipede <i>Orophe cabinetus</i>	Yes. Little info MNHP. No information available from NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	Yes
A millipede <i>Orthogmus oculatus</i>	Yes. Little info MNHP. No information available from NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	Yes
A millipede <i>Taiyutyla curvata</i>	Yes. Little info MNHP. No information available from NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	Yes
Mollusks			
Rocky Mountain capshell <i>Acroloxus coloradensis</i>	Outside known range. Very few, extremely small, isolated populations. Glacier NP, freshwater. High altitude lakes and ponds.	NatureServe explorer species report. MNHP 2007.	No record
Washington duskysnail <i>Annicola sp. 2</i>	Northern WA and one site in NW MT. Freshwater. Lakes.	NatureServe explorer species report,	No record
Chrome ambersnail <i>Catinella rehderi</i>	Outside species range. Central MT.	NatureServe explorer species report.	No record
Kingston Oregonian <i>Cryptomastix sanburni</i>	Extremely limited range. Possibly extirpated. Habitats unknown. Reported from 5 sites on Coeur d' Alene River, Hope to Kingston.	NatureServe explorer species report. MNHP 2007.	No record
Lake disc <i>Discus brunsoni</i>	Outside known range. Known from one site, McDonald Lake.	NatureServe explorer species report,	No record
Shortface lanx <i>Fisherola nuttalli</i>	Freshwater, streams and rivers. Presently not known for MT. Columbia River drainage of the Pacific Northwest, including ID, WA, OR, and MT.	NatureServe explorer species report. Presumed extirpated in MT. No sightings in past 50 years (Stagliano et al. 2007).	No record
Ashy pebblesnail <i>Fluminicola fuscus</i>	Outside known range. Kootenai river in BC. In swift current on stable gravel to boulder substrate. Possibly extirpated. Freshwater.	NatureServe explorer species report, MNHP field guide 2008.	No record
Marbled jumping slug <i>Hemphillia danielsi</i>	Outside known range. Known only from eastern side of Bitterroot Mtns. Ravalli, mineral and lake Co. moderate elev. rich PP. Persistence of moisture a significant feature.	NatureServe explorer species report. MNHP 2007.	No record
Pygmy slug <i>Kootenaia burkei</i>	Yes. Adjacent to perennial water.		Yes
Magnum mantleslug (spotted slug) <i>Mangipelta mycophaga</i>	Yes. NW MT, northern ID, NE WA, BC. Upper Kootenai, upper/middle/lower Clark fork.		Yes
Alpine mountainsnail <i>Oreohelix alpina</i>	Outside known range. Talus above treeline. Known from two sites, Swan range, and Mission range.	NatureServe explorer species report. MNHP field guide 2008.	No record
Bitterroot mountainsnail <i>Oreohelix amariradix</i>	Outside known range. Known only from Lolo Cr, near Missoula, MT.	NatureServe explorer species report. MNHP field guide 2008.	No record
Keeled mountainsnail <i>Oreohelix carinifera</i>	Outside known range. Clark Fork River drainage, Powell and Granite counties.	NatureServe explorer species report. MNHP 2007.	No record
Carinate mountainsnail	Outside known range. Limited range, restricted mobility and habitat. Known only from Lake County.	NatureServe explorer species report. MNHP field guide 2008.	No record

Species	Species Range	Reference	Observations on the forest
<i>Oreohelix elrodi</i>			
Berry's mountainsnail <i>Oreohelix strigosa berryi</i>	Outside known range. Restricted to two disjunct ranges although may occur in a third.	NatureServe explorer species report. MNHP field guide 2008.	No record
Gallatin mountainsnail <i>Oreohelix yavapai mariae</i>	Outside known range. Known only from type locality at Squaw Cr	NatureServe explorer species report. MNHP 2007.	No record
Bearmouth mountainsnail <i>Oreohelix sp. 3</i>	Outside known range. Clark Fork river valley between Clinton and Garrison. Not found in MNHP field guide.	NatureServe explorer species report, MNHP field guide 2008.	No record
Drummond mountainsnail <i>Oreohelix sp. 4</i>	Outside known range. Clark Fork Valley between Clinton and Garrison. Known from one site. Not found in MNHP field guide.	NatureServe explorer species report, MNHP field guide 2008.	No record
Brunson mountainsnail <i>Oreohelix sp.</i>	Outside known range. Known only from one site. Bitterroot Mtns. Not found in MNHP field guide.	NatureServe explorer species report, MNHP field guide 2008.	No record
Kintla lake mountainsnail <i>Oreohelix sp. 6</i>	Outside known range. Glacier NP, Granite Co. Not found in MNHP field guide.	NatureServe explorer species report,	No record
Kitchen creek mountainsnail <i>Oreohelix sp. 7</i>	Outside known range. Lolo NF, Granite and Ravalli Co. Not found in MNHP field guide.	NatureServe explorer species report,	No record
Missoula mountainsnail <i>Oreohelix sp. 10</i>	Outside known range. Missoula and Granite Co. Not found in MNHP field guide.	NatureServe explorer species report,	No record
Subcarinate mountainsnail <i>Oreohelix sp. 11</i>	Outside known range. Know only from Mission Mtns. Conifer forest. Not found in MNHP field guide.	NatureServe explorer species report,	No record
Byrne resort mountainsnail <i>Oreohelix sp. 31</i>	Outside known range. Clark fork valley, near Bearmouth. Not found in MNHP field guide.	NatureServe explorer species report, MNHP field guide 2008.	No record
Oblique ambersnail <i>Oxyloma nuttallianum</i>	No information available in NatureServe or MNHP. Not ranked or under review for Montana. Not listed in MT NHP.	NatureServe explorer species report,	No record
Cloaked physa (large-mantle physa) <i>Physa megalochlamys</i>	Outside of species range. Limited distribution. Freshwater snail.	NatureServe explorer species report. MNHP field guide 2008.	No record
Rotund physa <i>Physella columbiana</i>	Outside known range. Originally found in WA and OR. Possibly extinct. Freshwater.	NatureServe explorer species report,	No record
Humped coin <i>Polygyrella polygyrella</i>	Yes. Northwest MT, northern ID. Prospect Cr. And Glidden Gulch in Sanders Co.	MNHP 2007.	Yes
Northern tightcoil <i>Pristiloma arcticum</i>	No info MNHP.	NatureServe explorer species report.	No record
Black-footed tightcoil <i>Pristiloma chersinella</i>	High elevation in British Columbia. Pacific Northwest. Habitats unknown. Based on ranking species does not meet criteria for species of concern (NatureServe 2006). No info MNHP.	NatureServe explorer species report, MNHP field guide 2008.	No record
Shiny tightcoil <i>Pristiloma wascoense</i>	No information available in NatureServe or MNHP.	NatureServe explorer species report,	No record
Smoky tailedropper <i>Prophysaon humile</i>	Yes. Northern ID and NW MT. Terrestrial.	NatureServe explorer species report.	Yes
<i>Prophysaon humile</i>	Outside known range. One location thermal spring Canyon Ferry reservoir. Subaquatic.	NatureServe explorer species report, MNHP field guide 2008.	No record
<i>Pyrgulosis bedfordensis</i> <i>Stagnicola elrodi</i> ***	Outside known range. Found in only one lake, Flathead Lake. Freshwater.	NatureServe explorer species report, MNHP field guide 2008.	No record
Longmouth pondsnaail <i>Stagnicola elrodiana</i> ***	Outside known range. Known from only two lakes, Sin-yale-a-min and McDonald. Freshwater.	NatureServe explorer species report, MNHP field guide 2008.	No record
Mountain marshsnail <i>Stagnicola montanensis</i> ***	Outside known range. Freshwater. Known only from Ravalli Co.	NatureServe explorer species report, MNHP field guide 2008.	No record
Widelip pondsnaail <i>Stagnicola traski</i>	CA to WY. North to southern Alberta. Potential in British Columbia. Extirpated from UT. Freshwater.	NatureServe explorer species report, MNHP field guide 2008.	No record
Lyre mantleslug <i>Udosarx lyrata</i>	Outside species range. Known only from northern ID and NW MT. Missoula and Ravalli Co. terrestrial – habitat unknown.	NatureServe explorer species report. MNHP field guide 2008.	No record

Species	Species Range	Reference	Observations on the forest
Lyre mantleslug <i>Udosarx lyrata lyrata</i>	Outside known range. Historical range, Bitterroot Mtns. Upper Clearwater River and Clark Fork drainages. Clearwater NF, ID. Lolo NF. Not found in MNHP field guide.	NatureServe explorer species report,	No record
Russell mantleslug <i>Udosarx lyrata russelli</i>	Outside known range. Known from single locality on Lolo NF. Not found in MNHP fieldguide.	NatureServe explorer species report,	No record
Cylindrical vertigo <i>Vertigo binneyana</i>	No current populations known. May be extirpated. Habitats unknown/terrestrial	NatureServe explorer species report, MNHP field guide 2008.	No record
Sheathed slug <i>Zacoleus idahoensis</i>	Yes. Local endemic. Lake and Lincoln Co. DF forests? Based on ranking species does not meet criteria for species of concern (NatureServe 2006).	NatureServe explorer species report.	Yes
Invertebrate - other			
A cave obligate harvestman <i>Cryptobunus cavicolus</i>	Outside of species range. Known only from Jefferson Co. subterrestrial, subterranean obligate.	NatureServe explorer species report. MNHP 2007.	No record
A freshwater sponge <i>Ephydatia cooperensis</i>	Outside of species range. Known from 3 lakes in northern Rocky Mtns. Known only from Lewis and Clark county in Montana.	NatureServe explorer species report. MNHP 2007.	No record
Crustaceans			
A cave obligate isopod <i>Salmasellus steganothrix</i>	Outside known range. Reported only from Alberta, Canada. Flathead Co. collected from stomach of rainbow trout. Subterranean obligate. No information available.	NatureServe explorer species report. MNHP field guide 2008.	No record
Glacier amphipod <i>Stygobromus glacialis</i>	Outside known range. Caves in Glacier N P. Subaquatic, subterranean obligate.	NatureServe explorer species report. MNHP field guide 2008.	No record
A cave obligate amphipod <i>Stygobromus montanensis</i>	Subaquatic, subterranean obligate. No information available in NatureServe.	NatureServe explorer species report. MNHP field guide 2008.	No record
A cave obligate amphipod <i>Stygobromus obscurus</i>	Outside known range. Known only from Ravalli Co. Subaquatic, subterranean obligate.	NatureServe explorer species report. MNHP field guide 2008.	No record
A cave obligate amphipod <i>Stygobromus puteanus</i>	Outside known range. Known only from Gallatin Co. Subaquatic, subterranean obligate.	NatureServe explorer species report. MNHP field guide 2008.	No record
A cave obligate amphipod <i>Stygobromus tritus</i>	Subaquatic, subterranean obligate. No information available in NatureServe. Known only from Missoula and Ravalli counties in Montana.	NatureServe explorer species report. MNHP field guide 2008.	No record
Diplurans, springtails, and proturans			
A springtail <i>Oncopodura cruciata</i>	Outside of species range. No information available in NatureServe.	NatureServe explorer species report. MNHP 2007.	No record

Table 6. Species of concern - Information on habitat and population status for wildlife species of concern for the IPNF

Species common name	Habitat	Habitat abundance and distribution	Population abundance and distribution	Major Risks	Conservation needs
Mammals					
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	Breed in large blocks of riparian habitats, particularly woodlands with cottonwoods and willows. Dense understory foliage important in nest selection.	In the northern Rocky Mtns extremely rare and local as a breeding bird (Hughes 199 in USFWS 2008). While breeds in southeast Montana, southern Idaho, northeast and southwest Wyoming, west Colorado, and Utah, it is quite rare or absent in the higher Rocky Mtns.	Montana included in Historical occurrence but no in current occurrence ((USFWS 2008). Estimated 52% decline in statewide surveys in New Mexico, Arizona, and California. Numbers too low to establish trends in Idaho, Montana Utah, Nevada, and Colorado. Extirpated as a breeding bird in Washington, Oregon, and BC.	Loss of riparian habitat due to conversion for agricultural and other uses. Dams and other river flow management, stream channelization and stabilization, and livestock grazing.	MBTA
Peregrine falcon <i>Falco peregrinus</i>	High cliffs, preys on small birds.	Cliffs occur mostly along major river corridors and Cabinet Mtns wilderness. Although a minor component, well distributed across the forest.	Seasonal KNF & IPNF. Four known active nest sites on KNF associated with the Kootenai River, Bull Lake/River, and Clark Fork river. Widespread with increasing populations in many areas. Rangewide estimates not available (NatureServe).	Disturbance at nest sites. Loss of habitat of primary prey, poachers robbing nests, shooting by hunters, and food chain contamination (NatureServe). MT and elsewhere proposed to allow removal of young for falconry.	Provide habitat for prey – small (generally migratory) bird species. Provide secure habitat conditions around active nest sites.
Bald eagle <i>Haliaeetus leucocephalus</i>	Nests in large trees generally within ¼ mile of large lakes, rivers	Widespread along major river corridors and larger Lakes.	Fairly common on the forest. Number of nests have continually increased over the past 20+ years. Similar status over its range. Continual increase in number of nests and wintering birds throughout its range.	Disturbance at nest sites.	Provide secure habitat conditions around active nest locations.
Columbian sharp-tailed grouse <i>Tympanuchus phasianellus columbianus</i>	Grassland. Native bunchgrass and shrub steppe communities. Deciduous shrubs are critical for winter food and escape cover (NatureServe).	Grasslands are a very minor component of the forest, mostly occurring on private lands. FS lands provide little habitat for this species. Montana PIF states that not enough contiguous habitat is available to support viable populations over the long term.	In the past decade there was a breeding lek near Eureka on private land owned by the Nature Conservancy. No birds seen on lek for past 4-5 years. Very few observations on NFS lands. Possibly extirpated. Population has been augmented on at least two occasions with a total of 78 birds. No birds have been observed on the lek for the past 3-4 years. Formerly widespread from BC and northern California to Montana and Colorado, now occupies less than 10% of its former range.	Disturbance at breeding sites (leks). Mortality. Historic lek surrounded by major activities on private lands. Habitat loss and degradation due to agricultural practices and livestock overgrazing.	Provide secure habitat conditions at known leks.
Fish					
Burbot <i>Lota lota</i>	Mainstem Kootenai River only.				
Westslope cutthroat trout <i>Oncorhynchus clarki lewisi</i>	Found throughout the forest in a number of streams. Some isolated pops.				
Invertebrates – insects					
Butterflies					
Western sulphur <i>Colias occidentalis</i>	See species of interest.				
Gillette’s checkerspot	Valleys, glades, open wooded areas in	Unknown. Although twinberry habitats	Unknown. very local and stays near	Isolation of colonies (extirpation),	Provide secure habitat conditions at known

Species common name	Habitat	Habitat abundance and distribution	Population abundance and distribution	Major Risks	Conservation needs
<i>Euphydryas gilletti</i>	mountains, often near streams. host plants include honeysuckle family including twin berry honeysuckle (<i>Lon icera involucrata</i>), and snowberry (<i>Symphoricarpos albus</i>) and the figwort family including speedwell (<i>Veronica wormskjoldii</i>). (Butteflies and Moths of NA 2007).	common across the forest. Very rare or local throughout its range or found locally in a restricted range (21 to 100 occurrences). threatened throughout its range (Butterflies and Moths of NA 2007).	larval foodplants. Globally rare. Occurs mostly as very widely scattered colonies. Populations could be very quickly (one season) eradicated if grazing were severe enough. Aquatic protections.	grazing. Isolation of colonies makes species vulnerable to permanent local extirpation from any kind of temporary habitat disruption including browsing by large ungulates.	locations. Maintain ecosystem components, especially fire disturbance. Aquatic/riparian protection. Ensure presence of sufficient habitats in appropriate successional condition (Butterflies and Moths of NA 2007). All populations should be monitored and conserved (Ibid).
Caddisflies					
A Agapetus caddisfly – <i>Agapetus montanus</i>	Upper surfaces and sides of cobbles and boulders in moderately high gradient, fast flowing, foothills to mountain streams. higher elevation cold mountain streams.	Idaho, Montana, and Manitoba.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	Intolerant of silt and sedimentation. Improper mgmt practices in the riparian, zone that would increase fine sediment in the streambed substrate and otherwise degrade aquatic habitat.	
A caddisfly <i>Rhyacophila potteri</i>	Small streams or seeps with abundant mosses. Moderate gradient perennially flowing headwater seeps and streams.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database. Likely that <i>R. potteri</i> occurs in a continuous distribution along the Montana-Idaho border north to British Columbia and Alberta. May have evolved from an isolated population of the <i>R. verruca</i> along the MT/ID border and southern BC and AB.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	Mismanagement of forested riparian areas including sediment and temperature increases.	
Stoneflies					
Autumn springfly <i>Pictetiella expansa</i>	High quality small rocky higher elevation pristine mountain aquatic eco system.	High elev. Rocky Mtns. of CO, ID, MT, UT, WY. Fairly common on the forest, well distributed.	Known from 3 locations in Flathead and Gallatin counties. In Idaho found in 26 streams in Boundary, Bonner, Shoshone, Clearwater, Benewah, Blaine, Caribou, Bonneville, and Teton counties.	Specific threats to the species has not been identified. Changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality. Degradation of riparian and aquatic habitats.	
Cordilleran forestfly <i>Zapada cordillera</i>	Spring influenced creeks and small streams. A rare species due to habitat specificity; never abundant when collected. Restricted to large spring influenced habitats (NatureServe).	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	Known from scattered localities in California, Oregon, Washington, Idaho and Montana. Occurrences in the northern rocky mountain region appear to be disjunct glacial refugium populations. Scattered localities in Flathead and Glacier counties and from Mineral and Missoula counties.	Specific threats to the species has not been identified. Changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality. Degradation of riparian and aquatic habitats.	
Millipedes					
A millipede <i>Corypus cochlearis</i>	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	1 observation noted in MNHP tracker database on the forest.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.
A millipede <i>Orophe cabinetus</i>	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	Recorded from around Flathead Lake, 1-90 west of Missoula, and Sanders county.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.
A millipede <i>Orthogmus oculus</i>	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	Recorded from Sanders county.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.

Species common name	Habitat	Habitat abundance and distribution	Population abundance and distribution	Major Risks	Conservation needs
A millipede <i>Taiyutyla curvata</i>	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	Recorded from Sanders county.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.
Invertebrates - Mollusks					
Pygmy slug <i>Kootenai burkei</i>	Western hemlock forests, western red cedar, grand fir, Douglas-fir, black cottonwood, paper birch, and red alder. Near perennial water. Down wood, moss mats, and deciduous tree leaves as substrate.	Known to occur in Mineral and Sanders counties on the Kootenai and Lolo NF.	Loss and degradation of habitat. Little is known about the threats to this species. May include logging, development, roads, grazing.	Limit surface disturbance at known sites (Idaho CWCS). Provide secure habitat conditions at known locations.	
Magnum mantle slug (spotted slug) <i>Magnipelta mycophaga</i>	Yearlong KNF & IPNF. Found only at undisturbed sites, intolerant of habitat alteration. Moist, cool, and relatively undisturbed forest with a diverse understory and intact duff layer. Canopy includes western redcedar, western hemlock, Douglas-fir, cottonwood, mountain maple, and paper birch.	Low to mid elevation, often with water in the general vicinity. Moist cool sites in relatively undisturbed forest with an intact duff layer, such as found in moist valleys, ravines and talus areas. Spruce-fir appears to be the most frequent forest association. 25 localities in 6 counties; Flathead, Granite, Lincoln, Mineral, Missoula and Sanders counties on the Lolo NF.	Loss and degradation of habitat. logging, grazing, fire. (Hendricks 2003). Absent from all but relatively undisturbed sites. logging, grazing.	Provide secure habitat conditions at known locations.	
Humped coin <i>Polygyrella polygyrella</i>	Undisturbed open spruce and Douglas-fir forests having diverse forbs, mosses, and deciduous shrubs in the understory. Near basalt, schist, or limestone outcroppings and permanent or persistent water. Forested talus. Canopy includes western redcedar, western hemlock, grand fir, Douglas-fir, alder, black cottonwood, and mountain maple.	Present in adjacent Washington and Oregon. Known to occur in mineral and Sanders counties on the Kootenai and Lolo NF.	Logging, grazing, roads, severe fires. Development. Quarry expansion.	Provide secure habitat conditions at known locations.	
Smokey taildropper <i>Prophysaon humile</i>	Low-medium elevation pine and spruce forest. sites with perennial moisture and much downed wood are preferable. Especially if accompanied by a diverse understory with a strong deciduous and forb component. Canopy includes western redcedar, western hemlock, grand fir, Douglas-fir, subalpine fir, Engelmann spruce, lodgepole pine, alder, paper birch and cottonwood.	Known to occur in Flathead, Lake, Lincoln, Mineral, Missoula, and Sanders counties on the Flathead, Kootenai and Lolo NF.	Loss and degradation of habitat. Surface disturbance from activities such as mining and timber harvest. Development, mining and smelting, roads, habitat loss and degradation	Limit surface disturbance at known sites (Idaho CWCS). Aquatic/riparian protection. Provide secure habitat conditions at known locations.	

Table 7. Species of Interest. Information on wildlife species under consideration as potential species of interest range and status for the IPNF

Species common name	Range within forest	Reference	Observation on the forest
Vertebrates			
Amphibians			
Western toad <i>Bufo boreas</i>	Yes		Yearlong
Great plains toad <i>Bufo cognatus</i>	Outside of species range. Great plains, southwestern US, and northern Mexico. Eastern MT.	NatureServe explorer, species report, p. 5	No record
Coeur d'Alene salamander <i>Plethodon idahoensis</i>	Yes. Eastern edge of species range		Yearlong
Northern leopard frog <i>Rana pipiens</i>	Yes. Western edge of species range		Yearlong
Plains spadefoot <i>Spea bombifrons</i>	Outside of species range. south central Canada to north central Mexico, west to western Montana, eastern Colorado, eastern Arizona, east to western Iowa, eastern Missouri, and central Arkansas. East and central MT.	NatureServe explorer, species report, p. 5	No record
Reptiles			
Spiny softshell <i>Apalone spinifer</i>	Outside of species range. Montana to southern Quebec, south to northern Mexico and Florida panhandle. Eastern MT.	NatureServe explorer, species report	No record
Snapping turtle <i>Chelydra serpentina</i>	Outside of species range. southern Alberta to Nova Scotia, south to the Gulf coast, and northern SA. Custer, McCone, Rosebud, Sanders, Yellowstone Co. in Montana.	NatureServe explorer, species report	No record
Northern alligator lizard <i>Elgaria coerulea</i>	Yes		Yearlong
Western skink <i>Eumeces skiltonianus</i>	Yes		Yearlong
Western hog-nosed snake <i>Heterodon nasicus</i>	Outside of species range. southern Alberta, southern Saskatchewan, and southern Manitoba southward through the Great Plains region to southeastern Arizona and central Mexico. Eastern MT.	NatureServe explorer, species report, p. 5	No record
Milksnake <i>Lampropeltis triangulum</i>	Outside of species range. southern Maine, Great lakes region, and Montana south to northern SA. Eastern MT.	NatureServe explorer, species report	No record
Smooth green snake <i>Liochlorophis vernalis</i>	Outside of species range. Nova Scotia west across southern Canada to southeastern Saskatchewan south and west to northern New Jersey, western Maryland, Virginia, West Virginia, southern Ohio, northwestern Indiana, Illinois, Missouri, Nebraska, New Mexico, and Utah. Eastern Montana - Sheridan Co.	NatureServe explorer, species report	No record
Greater short-horned lizard <i>Phrynosoma hernandesi</i>	Outside of species range. southern Alberta and southern Saskatchewan south through eastern Montana, western Dakotas, Wyoming, western Nebraska, Colorado, Utah, eastern Nevada, New Mexico, Arizona, and western Texas.	NatureServe explorer, species report, p. 5	No record
Common sagebrush lizard <i>Sceloporus graciosus</i>	Outside of species range. Washington, southern Idaho, Southern Montana, south to Utah, Nevada, northern New Mexico and Arizona.	NatureServe explorer, species report, p. 5	No record
Birds			
Northern goshawk <i>Accipiter gentilis</i>	Yes		Yearlong

Species common name	Range within forest	Reference	Observation on the forest
Clarks grebe <i>Aechmophorus clarkii</i>	Outside of species range.		
Baird's sparrow <i>Ammodramus bairdii</i>	Outside of species range. southeastern Alberta, southern Saskatchewan, and southern Manitoba south to central and eastern Montana, northeastern Wyoming, southern South Dakota, southeastern North Dakota, and northwest central Minnesota.	NatureServe explorer, species report, p. 5. MT animal field guide	No record
Leconte's sparrow** <i>Ammodramus leconteii</i>	Outside of species range. Northeastern BC and southern Mackenzie to central Quebec, south to southern Alberta, northern Montana southern Saskatchewan, North Dakota, central Minnesota, northern Wisconsin, and northern Michigan (NatureServe 2008). Extreme northeast MT, area around Glacier NP (Montana field guide 2008).	NatureServe explorer, species report, p. 4. MT animal field guide	No record.
Nelson's sharp-tailed sparrow** <i>Ammodramus nelsoni</i>	Outside of species range. east central BC, southern Mackenzie, northern Alberta, central Saskatchewan, and central Manitoba, south to south central Alberta, southern Saskatchewan, southern Manitoba, North Dakota, northeastern South Dakota, and northwestern Minnesota. Extreme northeast MT (Montana field guide 2008).	NatureServe explorer, species report, p. 4. MT animal field guide	No record
Grasshopper sparrow <i>Ammodramus savannarum</i>	Yes	MNHP	Seasonal. No direct evidence of breeding
Sage sparrow* <i>Amphispiza belli</i>	Outside of species range. Southwestern corner of the state (Montana field guide 2008). Seen fewer than 20 times in the state.	MT animal field guide	No record
Sprague's pipit <i>Anthus spragueii</i>	Outside of species range.	MT animal field guide	No record
Golden eagle <i>Aquila chrysaetos</i>	Yes		Yearlong
Burrowing owl <i>Athene cucularia</i>	Outside of species range. 1 observation on the forest. east of the continental divide in Montana (Montana field guide 2008). South central BC southern Alberta, southern Saskatchewan, southern Manitoba south through western US.	NatureServe explorer, species report, p. 4. MT animal field guide	Accidental. No direct evidence of breeding.
Upland sandpiper <i>Bartramia longicauda</i>	Outside of species range. Considered a transient species for the forest.	MNHP	Transient/accidental. No evidence of breeding.
American bittern <i>Botaurus lentiginosus</i>	Yes		
Ferruginous hawk <i>Buteo regalis</i>	Outside of species range. western edge of species range extends to the east of the forest (Montana field guide 2008).	NatureServe explorer, species report, p. 5. MT animal field guide	Transient/no record
Swainson's hawk <i>Buteo swainsoni</i>	Outside of species range. Western edge of species range extends to the east and south of the forest (Montana field guide 2008). migratory	MT animal field guide	Transient/accidental. No direct evidence of breeding.
Lark bunting <i>Calamospiza melanocorys</i>	Outside of species range. east of the continental divide in Montana. 1 observation in Tobacco Valley. No evidence of breeding	NatureServe explorer, species report, p. 5. MT animal field guide	Transient/accidental.
McCown's longspur <i>Calcarius mccownii</i>	Outside of species range. east of the continental divide in Montana (Montana field guide 2008).		No record
Chestnut collared longspur <i>Calcarius ornatus</i>	Outside of species range. East of the continental divide in Montana (Montana field guide 2008). Southern Alberta to southern Manitoba, south east to the Rocky Mtns to northeastern Colorado, western Kansas, northcentral Nebraska, and western Minnesota.	NatureServe explorer, species report, p. 5. MT animal field guide	No record
Baird's sandpiper <i>Calidris bairdii</i>	Outside of species range. Migratory.	NatureServe explorer, species report. MT animal field guide	Migrant/no record
Sanderling <i>Calidris alba</i>	Outside of species range, not in MT animal field guide	MNHP	No record

Species common name	Range within forest	Reference	Observation on the forest
Cassins finch <i>Carpodacus cassinii</i>	Yes.		
Greater sage grouse <i>Centrocercus urophasianus</i>	Outside of species range	NatureServe explorer, species report, p. 6. MNHP	No record
Snowy plover* <i>Charadrius alexandrinus</i>	Outside of species range. Range does not include Montana (Montana field guide 2008). Not in MT animal field guide. Seen fewer than 20 times in the state.	MNHP. Not listed for MT in NatureServe.	No record
Black tern <i>Chlidonias niger</i>	Western edge of species range. Migrant only.	MT animal field guide	Seasonal. No direct evidence of breeding
Sedge wren** <i>Cistothorus platensis</i>	Outside of species range. eastern Alberta west across southern Canada, to central Maine and New Brunswick, south to eastern Arkansas, southern Illinois, central Kentucky, western west Virginia, and southeastern Virginia, west to Dakotas, and Kansas. Extreme northeast MT (Montana field guide 2008).	NatureServe explorer, species report, p. 4. MT animal field guide	No record
Yellow-billed cuckoo <i>Coccyzus americanus</i>	Yes	MT animal field guide	No record
Olive-sided flycatcher <i>Contopus cooperi</i>	Yes		Seasonal
Yellow rail* <i>Coturnicops noveboracensis</i>	Outside of species range. northeast corner of Montana (Montana field guide 2008). Seen fewer than 20 times in the state.	NatureServe explorer, species report, p. 4. MT animal field guide	No record
Trumpeter swan <i>Cygnus buccinator</i>	Outside of species range.	NatureServe explorer, species report, p. 5. MT animal field guide	No record
Black swift <i>Cypseloides niger</i>	Yes	MNHP	Seasonal
Bobolink <i>Dolichonyx oryzivorus</i>	Yes. Edge of species range	MNHP	Seasonal/transient. No direct evidence of breeding.
Alder flycatcher** <i>Empidonax alnorum</i>	Outside of species range. small isolated range in Teton county in Montana (Montana field guide 2008). Central Alaska and Yukon east across central Canada to southern Labrador and Newfoundland, south to southern BC, northern North Dakota, Great lakes region east. at the southern edge of species range. Considered rare and local in Montana. Pine butte fen, Blackleaf game range. 1 observation on the forest with indirect evidence of breeding.	NatureServe explorer, species report page 5.	1 observation in the Fisher River. No direct evidence of breeding.
Prairie falcon <i>Falco mexicanus</i>	Outside species range. Winter use.	MT animal field guide	Transient/accidental.
Common loon <i>Gavia immer</i>	Yes		Seasonal
Sandhill crane <i>Grus canadensis</i>	Outside of breeding range, migrant.	Mt animal field guide. MNHP.	Migrant
Pinyon jay <i>Gymnorhinus cyanocephalus</i>	Outside of species range		
Harlequin duck <i>Histrionicus histrionicus</i>	Yes		Seasonal
Caspian tern <i>Hydroprogne caspia</i>	Outside of species range	NatureServe explorer, species report, p. 5. MT animal field guide	No record
White-tailed ptarmigan <i>Lagopus leucura</i>	Yes		Accidental. 1 observation 1981. no evidence of breeding.

Species common name	Range within forest	Reference	Observation on the forest
Loggerhead shrike <i>Lanius ludovicianus</i>	Outside of species range.	NatureServe explorer, species report, p. 6.	Transient/accidental. No direct evidence of breeding.
Franklins gull <i>Larus pipixcan</i>	Migrant only.	MT animal field guide	No record
Black rosy finch <i>Leucosticte atrata</i>	Outside of species range. northwest corner of the state (Montana field guide 2008).mountains from central Idaho southwestern and south central Montana and northwestern and north central Wyoming south to southeastern Oregon, northeastern and east central Nevada and central Utah.	Montana animal field guide. MNHP.	No record
Gray crowned rosy finch <i>Leucosticte tephrocotis</i>	Yes	MNHP	Yearlong
Marbled godwit <i>Limosa fedoa</i>	Migrant	MT animal field guide.	Migrant/no record
Red-headed woodpecker <i>Melanerpes erythrocephalus</i>	Outside of species range.	MT animal field guide	No record
Lewis's woodpecker <i>Melanerpes lewis</i>	Yes		Seasonal
Black and white warbler <i>Mniotilta varia</i>	Outside of species range	NatureServe explorer, species report, p. 5. MT animal field guide	No record
Clarks nutcracker <i>Nucifraga columbiana</i>	Yes.		
Long-billed curlew <i>Numerius americanus</i>	Yes	MNHP	Seasonal
Whimbrel <i>Nutterinus phaeopus</i>	Outside of species range	MNHP	No record
Black-crowned night heron <i>Nycticorax nycticorax</i>	Outside of species range	NatureServe explorer, species report, p. 5. MNHP.	No record
Sage thrasher <i>Oreoscoptes montanus</i>	Outside of species range	MT animal field guide	No record
Flammulated owl <i>Otus flammeolus</i>	Yes		Seasonal
Wilson's phalarope <i>Phalaropus tricolor</i>	Outside of species range, No direct evidence of breeding. 1 observation on the forest.	MT animal field guide	Migrant/accidental.
White-headed woodpecker* <i>Picoides albolarvatus</i>	Outside of species range. Not in MT animal field guide.	NatureServe explorer, species report, p. 3, 4. not shown for MT in NatureServe.	Accidental. Seen fewer than 20 times in the state.
Black-backed woodpecker <i>Picoides arcticus</i>	Yes	MNHP	Yearlong
White-faced ibis <i>Plegadis chihi</i>	Outside of species range. transient	NatureServe explorer, species report, p. 4. MNHP.	Accidental
Boreal chickadee <i>Poecile hudsonica</i>	Yes. Southern edge of species range	MNHP	Yearlong
American golden plover <i>Pluvialis dominica</i>	Outside of species range. Migratory.	NatureServe explorer, species report. Not in MNHP.	Migrant/no record.
Blue-gray gnatcatcher**	Outside of species range. Pryor Mtns.	NatureServe explorer, species report, p. 4. MT	No record. Considered rare and

Species common name	Range within forest	Reference	Observation on the forest
<i>Polioptila caerulea</i>		animal field guide	local in the state.
Broad-tailed hummingbird* <i>Selasphorus platycercus</i>	Outside of species range	NatureServe explorer, species report, p. 3. MT animal field guide	Accidental. Seen fewer than 20 times in the state.
Eastern bluebird <i>Sialia sialis</i>	Outside of species range	NatureServe explorer, species report, p. 5. MT animal field guide	No record
Pygmy nuthatch <i>Sitta pygmaea</i>	Yes		Yearlong
Dicksissel* <i>Spiza americana</i>	Outside of species range. Seen fewer than 20 times in the state.	NatureServe explorer, species report, p. 5. MT animal field guide	No record
Red-naped sapsucker <i>Sphyrapicus nuchalis</i>	Yes		Seasonal
Williamson's sapsucker <i>Sphyrapicus thryoideus</i>	Yes		Seasonal
Brewer's sparrow <i>Spizella breweri</i>	Yes.	MNHP	Seasonal. Direct evidence of breeding.
Forster's tern <i>Sterna forsteri</i>	Outside of species range. Migrant.	MT animal field guide	No record
Common tern <i>Sterna hirundo</i>	Outside of species range	NatureServe explorer, species report, p. 4	Migrant/accidental. No evidence of breeding.
Great gray owl <i>Strix nebulosa</i>	Yes		Yearlong
Northern hawk-owl <i>Surnia ulula</i>	Southern edge of species range.	No documentation of occurrence during breeding season (NHP, 2004)	Accidental. No evidence of breeding
Solitary sandpiper <i>Tringa solitaria</i>	Considered a transient species in MT.	MNHP	Migrant/accidental. No evidence of breeding.
Cassin's kingbird <i>Tyrannus vociferans</i>	Outside of species range	NatureServe explorer, species report, p. 4. MT animal field guide	No record
Barn owl** <i>Tyto alba</i>	Outside of species range. North of normal breeding range. Considered transient species in the state. SE portion. Bitterroot valley. 1 observation on the forest.	NatureServe explorer, species report, p. 5. MT animal field guide. MNHP.	Accidental. Considered rare and local in the state.
Virginia's warbler <i>Vermivora virginiae</i>	Outside of species range	Not included in MT animal field guide. MNHP. Not shown for MT in NatureServe.	No record
Mammals			
Pallid bat <i>Antrozous pallidus</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide. MNHP	No record
Northern short-tailed shrew <i>Blarina brevicauda</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide. MNHP	No record
American bison <i>Bison bison</i>	Outside of species range	NatureServe explorer, species report,	No record
Pygmy rabbit <i>Brachylagus idahoensis</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide. MNHP	No record
Rocky Mountain elk <i>Cervus canadensis</i>	Yes		

Species common name	Range within forest	Reference	Observation on the forest
Hispid pocketmouse <i>Chaetodipus hispidus</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide. MNHP	No record
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	Yes	NatureServe explorer, species report	Seasonal
White-tailed prairie dog <i>Cynomys leucurus</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide	No record
Black-tailed prairie dog <i>Cynomys ludovicianus</i>	Outside of species range	NatureServe explorer, species report,	No record
Spotted bat <i>Euderma maculatum</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide. MNHP	No record
North American wolverine <i>Gulo gulo luxos</i>	Yes		Yearlong
Eastern red bat <i>Lasiurus borealis</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide. MNHP	No record
Hoary bat <i>Lasiurus cenerius</i>	Yes.		
Black-tailed jackrabbit <i>Lepus californicus</i>	Outside of species range	NatureServe explorer, species report,	No record
Hoary marmot <i>Marmota monax</i>	Yes.		
Fisher <i>Martes pennanti</i>	Yes		Yearlong
Fringed myotis <i>Myotis thysanodes</i>	Yes		Seasonal
Northern myotis <i>Myotis septentrionalis</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide. MNHP	No record
Uinta chipmunk <i>Neotamias umbrinus</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide	No record
Mountain goat <i>Oreamnos americanus</i>	Yes		
Rocky Mountain bighorn sheep <i>Ovis canadensis</i>	Yes		
Great basin pocketmouse <i>Perognathus parvus</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide. MNHP	No record
Arctic shrew <i>Sorex arcticus</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide	No record
Merriam's shrew <i>Sorex merriami</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide. MNHP	No record
Dwarf shrew <i>Sorex nanus</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide. MNHP	No record
Preble's shrew <i>Sorex preblei</i>	No	NatureServe explorer, species report. MT animal field guide. MNHP	No record
Western spotted skunk	Outside of species range	NatureServe explorer, species report. MT animal	No record

Species common name	Range within forest	Reference	Observation on the forest
<i>Spilogale gracilis</i>		field guide	
Northern bog lemming <i>Synaptomys borealis</i>	Yes		Yearlong
Meadow jumping mouse <i>Zapus hudsonius</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide. MNHP	No record
Fish			
Torrent sculpin <i>Cottus rhotheus</i>	Yes		Known
Spoonhead sculpin <i>Cottus ricei</i>	Outside species range.		No record
Shortnose gar <i>Lepisosteus platostomus</i>	Outside species range. Eastern MT	NatureServe explorer, species report. MNHP field guide 2008.	No record
Pearl dace <i>Margariscus margarita</i>	Outside species range. Eastern MT	NatureServe explorer, species report. MNHP field guide 2008.	No record
Inland redband trout <i>Oncorhynchus mykiss gairdneri</i>	Yes	NatureServe explorer, species report. MNHP field guide 2008.	Known
Trout perch <i>Percopsis omiscomaycus</i>	Outside species range. Eastern MT	NatureServe explorer, species report. MNHP field guide 2008.	No record
Northern redbelly X finescale dace <i>Phoxinus eos X phosinus neogaeus</i>	Outside species range. Eastern MT.		No record
Paddlefish <i>Polyodon spathula</i>	Outside species range. Eastern MT	NatureServe explorer, species report. MNHP field guide 2008.	No record
Lake trout <i>Salvelinus namaycush</i>	Yes	NatureServe explorer, species report. MNHP field guide 2008.	Known
Sauger <i>Sander canadensis</i>	Outside species range. Eastern MT	NatureServe explorer, species report. MNHP field guide 2008.	No record
Arctic grayling <i>Thymallus arcticus</i>	Outside species range	NatureServe explorer, species report. MNHP field guide 2008.	Stocked previously, not endemic.
Invertebrates - insects			
Butterflies			
Astarte fritillary <i>Boloria astarte</i>	Outside species range. Rocky Mtns of Alberta and MT. BC and WA. Known range includes Glacier NP only.	NatureServe explorer, species report MNHP field guide 2008. information is not complete	No record
Astarte fritillary <i>Boloria astarte astarte</i>	No info in MNHP.	NatureServe explorer, species report MNHP field guide 2008. information is not complete	No record
Bog fritillary <i>Boloria eunomia</i>	Outside species range. Known range includes Glacier NP. And area Southeast of Bozeman. AK to Labrador, south to CO in Rocky Mtns. To WI and ME.	NatureServe explorer, species report MNHP field guide 2008. information is not complete	No record
Frigga fritillary <i>Boloria frigga</i>	Outside species range. Northern Alaska and Canada, in rocky Mtns. to Colorado. Known range includes Glacier NP south and area southeast of Bozeman.	NatureServe explorer, species report MNHP field guide 2008. information is not complete	No record
Labrador sulphur <i>Colias nastes</i>	Outside species range. Known range includes Glacier NP. and south (MNHP). AK to BC. South to borders of WA and MT (NatureServe).	NatureServe explorer, species report MNHP field guide 2008. information is not complete	No record
Western sulphur <i>Colias</i>	Yes MNHP range map includes entire Western MT. Southern BC, WA, OR, UT, western	NatureServe explorer, species report MNHP field	No record

Species common name	Range within forest	Reference	Observation on the forest
<i>occidentalis</i>	MT, ID and northern CA. Extreme southern BC and northwestern US south to north coastal California and central Utah (Butterflies and Moths of NA 2007).	guide 2008. information is not complete.	
Monarch <i>Danus plexipus</i>	Listed for winter habitat only. outside species winter habitat.		
Colorado alpine <i>Erebia callias</i>	Outside of species range. Known range includes Glacier NP. and area Southeast of Bozeman. South central MT. Western WY. NE UT.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Magdalena alpine <i>Erebia magdalena</i>	Outside of species range. Southern Mt. South to CO. known range includes area southeast of Bozeman. AK and Yukon. Disjunct in southern MT, south in Rocky Mtns to NM.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Northern marble <i>Euchloe creusa</i>	Outside species range. Known range includes Glacier NP. AK, Yukon, NW territory. South in the Canadian Rockies to MT border.	NatureServe explorer, species report MNHP field guide 2008. information is not complete	No record
White admiral <i>Limenitis arthemis</i>	Yes MNHP range map includes entire Northern MT. New England south to FL, west to MT and AZ. Alaska to BC.	NatureServe explorer, species report MNHP field guide 2008. information is not complete	No record
White-veined artic <i>Oeneis bore</i>	Outside species range. Known range includes area Southeast of Bozeman. Arctic AK, Canada, Greenland, Alberta, MT, WY, CO, Labrador.	NatureServe explorer, species report MNHP field guide 2008. information is not complete	No record
Melissa artic <i>Oeneis melissa</i>	Outside species range. Known range includes Glacier NP. And area South of Bozeman	NatureServe explorer, species report MNHP field guide 2008. information is not complete	No record
Indra swallowtail <i>Papilio indra</i>	Yes MNHP range map includes entire western half of MT. Western US.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Tawny crescent <i>Phyciodes batesii</i>	Outside of species range. Eastern MT. Eastern US. AK to Newfoundland. South to NH, in the west extends south in the Rocky Mtns to CO and NM.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Lakota crescent <i>Phyciodes batesii lakota</i>	Outside of species range. Eastern MT. Western MI through WI, MN, Dakotas and NE.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Gray comma <i>Polygonia progne</i>	Northwest territories and BC south along Pacific coast to central California, southeast through Montana, Utah, Colorado, and the Dakotas to eastern Nebraska, central Kansas, and central Arkansas; east through southern Canada and the northern US to Maine and the Maritimes. Range for Montana does not include the western portion of the state (Montana field guide 2008). Butterflies and moths of NA identifies the species to Lincoln and Sanders counties.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete. Butterflies and moths of NA 2007.	
Eyed brown <i>Satyrodes eurydice</i>	Outside of species range. Northeastern MT. Southern NW territories, south through Dakotas to CO. and east to Nova Scotia and DE.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Damselflies			
Paiute dancer <i>Argia alberta</i>	Outside species range. Only known from warm springs from western and central areas of the state.	NatureServe explorer, species report. MNHP field guide 2008.	No record
Prairie bluet <i>Coenagrion angulatum</i>	Outside species range. Known from single record in Hill county.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Subarctic bluet <i>Coenagrion interrogatum</i>	Outside species range. Known only from Spencer and Howe Lakes.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Dragonflies			
Lance-tipped damer <i>Aeshna constricta</i>	Outside species range. Known from a pond in Rosebud county.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Subarctic damer <i>Aeshna subarctica</i>	Outside species range. Known only from Mud Lake near Skalkaho Pass. Probably occurs in other boreal areas of western MT.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	Suspected
Zigzag damer <i>Aeshna sitchensis</i>	Outside species range. Wet meadows in the Swan R. Valley, Skalkaho Pass and Indian Meadows.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	Suspected

Species common name	Range within forest	Reference	Observation on the forest
Eastern ringtail <i>Erpetocomphus designatus</i>	Outside species range. Warm springs in the Little Rocky Mtns. SE US. Furthest record west is NV.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Western pondhawk <i>Erythemis collocata</i>	Outside species range. Potosi warm spring. Tobacco Root Mtns.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Boreal whiteface <i>Leucorrhinia borealis</i>	Outside species range. Pond in the Little Belt Mtns. Judith Basin county. Rockies south to CO and UT. Upper Midwest and northern great plains. Canada west and north of Ontario.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	Suspected
Ringed emerald <i>Somatochlora albicincta</i>	Outside species range. Rarely collected and only from Mud Lake near Skalkaho Pass. Should be present at other boreal lentic sites.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	Suspected
Hudsonian emerald <i>Somatochlora hudsonica</i>	MNHP range map includes western MT. No other information available.	NatureServe explorer, species report no info. MNHP field guide 2008. information is not complete	
Brush-tipped emerald <i>Somatochlora walshii</i>	Loon Lake in Lincoln county and a boggy stream near West glacier	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	Known
Brimstone clubtail <i>Stylurus intricatus</i>	Outside species range. Eastern MT.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Red-veined meadowhawk <i>Sympetrum madidum</i>	Outside species range. NW territories east to Manitoba, extending south into northern CA, ID, and MT. In MT only documented in the southeastern part of the state.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Mayflies			
A mayfly <i>Caenis youngi</i>	Outside species range. Known from Beaverhead, Cascade, Flathead, Gallatin, Lake, and Madison counties.	NatureServe explorer, species report no info. MNHP field guide 2008. information is not complete	
A mayfly <i>Ephemerella mucronata</i>	Unknown – no info available	NatureServe explorer, species report. MNHP field guide 2008.	
A sand dwelling mayfly <i>Homoeoneuria alleni</i>	Outside species range. Saskatchewan and intermountain west. In MT 2 sites on the Powder River and 1 on the lower Yellowstone River.	NatureServe explorer, species report no info. MNHP field guide 2008. information is not complete	
A mayfly <i>Lachlania saskatchewanensis</i>	Outside species range. Until recently known only from Saskatchewan. Recently recorded from MT.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	
A mayfly <i>Raptoheptagenia cruentata</i>	Unknown - No info available	NatureServe explorer, species report no info. MNHP field guide 2008. information is not complete	
Stoneflies			
A stonefly <i>Isocapnia crinita</i>	Outside species range. Glacier NP southeast to Bozeman.	NatureServe explorer, species report no info. MNHP field guide 2008. information is not complete	
A stonefly <i>Isocapnia integra</i>	Outside species range. Known only from northern Rocky Mtns. Seems restricted to the North Fork Flathead and Banff NP.	NatureServe explorer, species report no info. MNHP field guide 2008. information is not complete	
A stonefly <i>Isoperla petersoni</i>	Outside species range. Glacier NP southeast to Bozeman.	NatureServe explorer, species report no info. MNHP field guide 2008. information is not complete	
A stonefly <i>Utacapnia columbiana</i>	Yes. Fisher River.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	
Invertebrates - Mollusks			
Rocky Mountain dusksnail <i>Colligyrus greggi</i>	Outside of species range. Limited to SW MT. SE ID. Western WY.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Striate disc <i>Discus shimekii</i>	Yes	NatureServe explorer, species report. MNHP field guide 2008.	Known
Robust lancetooth <i>Haplotrema vancouverense</i>	Yes	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	Known

Species common name	Range within forest	Reference	Observation on the forest
Pale jumping slug <i>Hemphilia camelus</i>	Yes	NatureServe explorer, species report. MNHP field guide 2008.	Known
Western pearlshell mussel <i>Margaritifera falcata</i>	Yes	NatureServe explorer, species report. MNHP field guide 2008.	Known
Meadow ramshorn <i>Planorbula campestris</i>	Outside of species range. No information in MT fieldguide. Southern Manitoba, ND.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Prairie sprite* <i>Promenetus exacuouus megas</i>	Unknown. Known originally from western MT and WY. May be found in NW MT kettle lakes that are undisturbed. Northern WA and ID.	NatureServe explorer, species report. Montana field guide	No record
Reticulate tailedropper <i>Prophyson andersoni</i>	Yes	Montana field guide	Known
Fir pinwheel <i>Radiodiscus abietum</i>	Yes	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	Known
Threeridge valvata <i>Valvata tricarinata</i>	Unknown. Flathead Indian reservation, lakes in the Clark Fork and Flathead drainages. Originally found in Quebec, and New Brunswick, west to AB, and south to WY, AR, and VA. More work is necessary to determine the species current status in WA, ID and MT.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Sheathed slug <i>Zacholeus idahoensis</i>	Yes. local endemic. Lake and Lincoln Co.	NatureServe explorer, species report. MNHP field guide 2008.	Known
Invertebrates - other			
A freshwater sponge <i>Heteromeyenia baileyi</i>	Yes	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	Known
A crayfish <i>Pacifastacus gambelii</i>	Outside species range. Missouri drainage in MT, WY and UT. OR, WA, ID, MT, NV.	NatureServe explorer, species report. MNHP field guide 2008. info	No record

Table 9. Information on species habitats, populations and major risks and threats

Species common name	Habitats	Habitat abundance and distribution	Population abundance and distribution	Major risk factors/threats	Conservation strategies
Vertebrates - Amphibians					
Western (Boreal) toad <i>Bufo boreas</i>	Ponds, lakes, moist forests and grasslands. Low elev. beaver ponds, reservoirs, streams, marshes, lake shores, potholes, wet meadows, and marshes. And high elev. ponds, fens, and tarns at or near treeline. (MNHP 2008). Utilizes a variety of habitats, prefer shallow areas with mud bottoms. Remain fairly close to wet area during the day but may range widely at night. No info specific to migration in MT. Elsewhere migrates between aquatic breeding and terrestrial nonbreeding habitats.	Habitat is well distributed across the forest. breeding ponds impacted by past mgmt activities but significance unknown. Once considered the most abundant amphibian of the western third of MT, still encountered widely and frequently though be no means commonly and is no longer ranked as the most abundant amphibian. Experienced regional pop. declines in the state.	Species appears to be well distributed across the forest. pop. size unknown. Individual population decline or extirpation possible. Local extirpation due to restricted mobility and fragmentation. Invasive species. population declines or extinctions have yet been documented in MT. Pop sizes difficult to measure and no estimates are available.	Habitat loss and degradation. Disease and parasites. Invasive species. Roadkill mortality.	
Coeur d'Alene salamander <i>Plethodon idahoensis</i>	Springs and seeps, waterfall spray zones, and edges of streams. seepages and streamside talus, deep talus mixed with moist soil on well shaded north facing slopes.	Habitat occurs in small isolated locations across the forest. regional endemic, Montana is the eastern edge of range. In Montana known from about 45 locations in 5 northwestern counties; Lincoln, Sanders, Mineral, Missoula, and Ravalli.	Occurs in several small disjunct populations across the forest. Pop. numbers unknown. Individual population decline or extirpation possible. Populations have declined from historical levels (Idaho CWCS-northern leopard frog). small pop. size, low productivity and possible isolation leads to increased probability of extinction no estimates of population size available for the state	Habitat loss and degradation. Disease and parasites. Vulnerable to highway construction, timber harvest, populations may be isolated by roads, timber harvest.	
Northern leopard frog <i>Rana pipiens</i>	Permanent water sources during all life stages. A variety of wetland situations, including marshes, pond margins, and slow moving sections of streams and rivers. (Idaho CWCS). Low elev. and valley bottom ponds, spillway ponds, beaver ponds, stock reservoirs, lakes, creeks, intermittent streams, warm water springs, potholes and marshes. Require a mosaic of habitats. separate sites are used for breeding and overwintering, although they may occur in the same location.	Habitat rare on NFS lands. known from 1 active location on NFS lands. historically known from several sites. occurs in all but 7 Montana counties, all west of the continental divide. Formerly present in intermountain valleys, especially in the Flathead and lower Clark Fork river drainages. Recently documented in only 2 western sites near Kalispell and Eureka.	Small range in North Idaho, western Montana and B.C. rare on the forest. In northern Idaho, populations were found in the Kootenai, Pend Oreille, and Clark Fork Rivers prior to 1955, but populations may no longer persist in this region. Little information on this species available. Northern Idaho and northwestern Montana. Individual population decline or extirpation possible. Only 1 known population on the forest, near Eureka. Effects of small isolated population	Habitat loss and degradation. Disease and parasites. Invasive species. Introduced animals.	
Reptiles					
Northern alligator lizard <i>Elgaria coerulea</i>	Dry open forest to cool moist areas near streams. Hides under logs and rocks. Areas with bushes, trees, and grassy areas needed to provide cover and foraging sites. little specific info. on habitat associations in MT. Several observations on south facing slopes in fine to coarse talus. Secretive.	Habitat fairly common and well distributed across the forest. reduction in down wood, especially in warm/dry habitat types. likely further reduction with emphasis on reduction in the wildland urban interface. may be locally abundant in some areas. range restricted to NW counties.	Known from only a few observations..Pop. numbers unknown. Secretive. Life history not well known. Uncommon. On edge of primary range. restricted to NW counties in MT.	Habitat loss and degradation. Disease and parasites. Invasive species.	
Western skink <i>Emeces skiltonianus</i>	Soil, fallen log/down wood. Rocky areas near streams or on dry hillsides. Partial to open wooded foothills, usually associated with rocks. Often under cover. Digs burrows in soil. In Sanders county found in open ponderosa pine in or near talus. Grasslands on southwest aspects. Gentle terrain with rocky areas imbedded, to rocky and steeper terrain with scattered PP and DF.	Habitat fairly common and well distributed across the forest. reduction in down wood, especially in warm/dry habitat types. likely further reduction with emphasis on reduction in the wildland urban interface.	Known from only a few observations. Pop. numbers unknown	Little information is available for MT.	
Birds					
Northern goshawk <i>Accipiter gentilis</i>	Wide variety of cover types but nests usually in mature forest stands >25 acres with high canopy. goshawks in MT tend to nest predominantly in	Habitat common and well distributed across the forest. Considered to be declining in numbers near fortine (Weydemeyer	Nesting common across the forest, although small portion of historical nests active. Of 20 potential nesting territories only 4 confirmed active. Found	Loss and degradation of habitat. Disturbance near nest sites. Fire exclusion.	

Species common name	Habitats	Habitat abundance and distribution	Population abundance and distribution	Major risk factors/threats	Conservation strategies
	mature large tract conifer forests with a high canopy cover (69%), relatively gentle slope (21%) and little to sparse undergrowth. All nest trees were either LP or DF with an average dbh of 33.6 cm and average height of 21.9 meters. In another study in MT DF, PP and GF were the trees most selected for nesting. Nests usually located near water or clearings. Hunt in closed canopy habitats as more open generalists in terms of prey selection.	1975). Maj reports northern goshawk populations in region 1 are increasing or stable in many forests. habitat abundant and wide spread throughout the forest. use of known historic nest sites very uncommon (less than 10% use of known nest sites).	region wide. No downward trend in population or habitat availability found during evaluations conducted to determine sensitive species status, 1988-1991 and currently (Montana PIF, version 1.1, 2000).		
Grasshopper sparrow <i>Ammodramus saviannarum</i>	Grasslands of intermediate height often associated with clumped vegetation interspersed with patches of bare ground. Prefers open prairies with intermittent brush although not particular to heavy brush cover. Grasslands of intermediate height.	Grasslands rare on the forest. mostly on private lands in the Tobacco Valley and Pleasant Valley areas. Habitat and species rare on the forest. prefers open prairies. edge of species range. Known only from Tobacco Valley area-grassland habitats on private lands.	Rare. Not known to occur on NFS lands. Large range, significant population declines in NA and probably elsewhere. BBS data indicate a significant decline in NA between 1966 and 1989. experienced rangewide population declines including the northern rockies physiographic area which includes the Kootenai NF. Does well in many CRP plantings but is sensitive to grazing.	Loss, degradation and incompatible management of grassland habitat. Cultivation, urban sprawl, and reforestation. Termination of CRP program. no info for MT.	
Golden eagle <i>Aquila chrysaetos</i>	Occurs primarily in Dry, open and semi-open areas. Prairies, tundra. Nests on cliffs and large trees and hunt over prairie and woodlands.	Habitat rare on the forest. Prefers open prairies. Rare on the forest. known to nest only on private lands. not considered a species of concern for MT.	Rare. Not known to occur on NFS lands. locally very uncommon to rare. 3-4 known nests on the forest on private land.	Disturbance at nest sites. Access management (road kills). Habitat loss and degradation. Powerlines. Lead poisoning.	
American bittern <i>Botaurus lentifinosus</i>	Shallow wetlands with dense growths of robust emergents.		Widespread distribution but populations are declining. Abundance difficult to estimate due to its secretive nature.	Loss and degradation of habitat.	Protect habitat through land purchases and easements. Preservation of wetland habitats, particularly large (greater than 25 acres) shallow wetlands with dense growths of emergents.
Cassins finch <i>Carpodacus cassinii</i>	Open coniferous forest. usually nests in conifer 3-25 m above the ground. Eats seeds and buds, insects and berries. Forages high in trees or on the ground.	Considered in Montana. A fairly large number of observations on the forest (MNHP 2008).			
Black tern <i>Chiononotus niger</i>	Wetlands, marshes, prairie potholes, and small ponds. Semi-colony breeders in shallow freshwater marshes with emergent vegetation. In MT approximately 30-50% of wetland complex is emergent vegetation.	Habitat rare on the forest. known only from the Noxon reservoir area of the forest. Rare on the forest. known to occur only in Noxon reservoir area on private lands. breeding not known to occur on the forest habitat on NFS lands rare.	Rare on the forest. seasonal. pop. numbers unknown. Not known to occur on NFS lands. Black terns are limited to breeding locations with appropriate habitat, size, and vegetation composition. Appropriate habitat in Montana is patchy at best. Threats not related to activities on FS lands.	Loss or degradation of wetlands for breeding and migration. Pesticide reduction of favored insect foods. Disturbance in nesting colonies, although tolerant of nearby human activity. Water level fluctuation.	
Yellow-billed cuckoo <i>Coccyzus americanus</i>					
Olive-sided flycatcher <i>Coturnicops noveboracensis</i>	Open or semi open mature and older montane and northern coniferous forest. Large conifer snags. generally breeds in the montane and boreal forests in the mountains of western North America. Highly adapted to the dynamics of a landscape frequently altered by fire. More often associated with post fire habitat than any other major habitat type, but may also be found in forest openings (clear cuts and other disturbed forest habitat), open forests with a low percentage of canopy cover, and forest edges near natural meadows, wetlands, or canyons. Affinity for forested edges near water may be a	Common. Moderate threats. Post fire species. Known or strongly suspected serious declines.	Uncommon. Seasonal	Loss or degradation of habitat. Fire exclusion.	

Species common name	Habitats	Habitat abundance and distribution	Population abundance and distribution	Major risk factors/threats	Conservation strategies
	product of a higher presence of insects in these areas. common in spruce and aspen. Uncommon in mixed conifer, ponderosa pine, aspen, and cedar hemlock forests and rarely present in lodgepole pine or pinyon juniper.				
Black swift <i>Cypseloides niger</i>	Cliffs, waterfalls, caves.	Habitat rare on the forest. known in 1 location associated with wilderness. Habitat rare on the forest. Known only from 1 location on the forest associated with wilderness area. species of continental concern but not regional concern. No management activity ongoing in MT but increased recreation use at breeding sites should be discouraged.	1 population known to occur. Numbers unknown but considered uncommon. Little information available. Casey 2000. Uncommon. On edge of primary range.	Decreases in water flow. Disturbance at nesting areas.	
Bobolink <i>Dolichonyx oryzivorus</i>	Tall grass areas, flooded meadows, prairies, deep cultivated grains, and hayfields. Dense relatively tall grasslands with intermediate amounts of litter. Native grasslands and non native tame pastures, haylands, wet meadows, and old fields. Little to no woody vegetation. Prefer large grasslands (>40 hectares).	Grasslands rare on the forest. mostly on private lands in the Tobacco Valley and Pleasant Valley areas. Prefer tall and mixed grass prairies. Habitat rare on the forest, - mostly on private lands. no known breeding on NFS lands.	Rare on the forest. known from the Tobacco Valley area of the forest. not known to occur on NFS lands. Breed widely throughout Montana. Nests locally in wheat fields in Idaho. Still widespread and fairly common, but declining due to changing agricultural practices. BBS data indicate a significant population decline in NA in recent decades, particularly in central NA.	Habitat loss. Decrease in hayfield areas, earlier and more frequent hay cropping, and shift from timothy and clover to alfalfa.	
Prairie falcon <i>Falco mexicanus</i>					
Common loon <i>Gavia immer</i>	Lowland lakes and reservoirs (generally greater than 10 acres in size).	Breeding/rearing habitat uncommon. Mostly on private lands. Uncommon seasonal, nests on several lakes, only a few with adjacent NF lands.	Uncommon. Nesting not known to occur on NFS lands. but FS lands adjacent or surround nesting areas.	Human disturbance at breeding lakes, heavy metal poisoning, fluctuating water levels, increasing numbers of predators. Shoreline development.	
Sandhill crane <i>Grus canadensis</i>					
Harlequin duck <i>Histrionicus histrionicus</i>	Forested mountain streams of relatively low gradient, free of human disturbance. Winters in rough, coastal waters, especially along rocky shores.	Habitat uncommon on the forest.	Uncommon to rare. Known to breed and rear on several streams across the forest. seasonal. Pop. trend considered to be stable.	Loss or degradation of habitat. Destruction of watershed stability and stream flow regimes. Sedimentation and toxic chemical pollution. Human disturbance near breeding areas. Hunting on wintering grounds.	
Loggerhead shrike <i>Lanius ludovicianus</i>					
Gray crowned rosy finch <i>Leucosticte tephrocotis</i>	Barren, rocky, or grassy areas and cliffs, among glaciers or beyond timberline. Nests in rock crevices or holes in cliffs.	Habitat rare on the forest. Not known but suspected to occur on the forest. Habitat abundant and well distributed on the forest.	Large and widespread. Apparently stable.	No threats known.	
Lewis's woodpecker <i>Melanerpes lewis</i>	Open parklike, mature ponderosa pine and riparian cottonwood with dense understory and large snags. Burned coniferous forests. Requires snags of advanced decay for nesting. Migratory woodpecker of open forests and post fire habitat. Excavates and reuses cavities in the soft wood of dead and decaying trees. Breeding habitat in MT consists of open ponderosa pine, burned coniferous forest and	Recorded during the breeding season in all parts of MT except the NE quarter. Current habitat conditions in MT are significantly inferior in quantity and quality to historic conditions. opportunities in dry forests are present to significantly improve habitat over coming decades. Opportunities in burned and riparian cottonwood habitat however	Rare. Seasonal Known or strongly suspected serious declines. Based on bbs data, populations in NA have declined 60% from 1966 to 1991. in MNT trends are strongly downward for the same time period but the number of survey routes is insufficient for statistical analysis. local declines were reported in the Fortine area of Lincoln county, MT (Wedemeyer 1975) though local	Loss and degradation of habitat. Loss of large Douglas-fir and mixed conifer snags. Fire suppression. Fire exclusion. Quality and quantity of habitat in BC continues to decline for what are already small and declining populations of Lewis's.	

Species common name	Habitats	Habitat abundance and distribution	Population abundance and distribution	Major risk factors/threats	Conservation strategies
	<p>in riparian woodland (particularly cottonwood). Open forest canopy that permits flycatching, a dense understory shrub coverage to generate an abundance of insects and large snags for nesting. In underburned forests necessary snag and understory conditions are generally found in older, open stands that lack dense layer of sub canopy trees. Burned forest sites are rarely occupied until a significant shrub layer is developed. Based on the geographic region, specific habitat and the intensity of the burn site occupation may range from 5-22 years post fire, though the species was abundant 2-3 years post fire in a large high intensity burn in western ID. After 2-3 decades post fire the development of young second growth forest again creates conditions unsuitable for Lewis's woodpeckers. In BC confined to relatively few habitats at lower elevations with a strong link to older aged open canopied ponderosa pine and riparian stands of large black cottonwood trees. Also abundant in a 18 year old burn of mature Douglas-fir forest.</p>	<p>will require major shifts in policies and actions before benefits can be realized. Dry forest - The conversion and expansion of mature dry forest stands to second growth throughout the range of Lewis has created underivable high density vegetation conditions. Currently blocks of appropriate pp habitat are rare in Mt. Major restoration of xeric forest ecosystems is currently underway, within region 1 project that 50% of dry pp and df habitat approximately 2 million acres will be restored in the next 20 years to more natural open parkland conditions dominated by large mature trees (USDA FS 1998). Once restored the FS has an opportunity to manage these areas to meet habitats of identified wildlife species including Lewis. Post fire - areas now burned by stand replacement fires constitute a small proportion of historic levels of post fire habitat. The results of effective fire suppression for species closely associated with stand replacement fire conditions are potentially devastating. Compounding the lack of post fire habitats I post fire timber are lost on those few areas that do burn. Riparian cottonwood - in a state of decline throughout American west due to the effects of human activities and the suppression of natural disturbance regimes. Cavity nesting habitat due to snag attrition historic and current logging of large cottonwoods and farmland conversion and competition with European starlings may further limit nesting opportunities. Future viability of cottonwood threatened by flood control irrigation, and grazing, that combine to thwart cottonwood regeneration dependent on periodic flooding and resultant disturbed substrates.</p>	<p>changes must be interpreted against the relatively uncommon status and sporadic distribution of the species. southwestern BC and AB south to southern NM and AR west to southern CA and east to eastern CO. approximating the distribution of pp in NA. Range contractions in the 20th century have occurred in the western and southern extremes of historic range, western BC, NW sections of WA and OR, and portions of southern CA.</p>		
<p>Clarks nutcracker <i>Numerius americanus</i></p>					
<p>Long-billed curlew <i>Numerius americanus</i></p>	<p>Open short grass or mixed prairie with level to slightly rolling topography, generally avoid areas with trees, high density shrubs and tall, dense grasses. Prairies and grassy meadows, generally near water. Nests on ground usually in flat areas with short grass. Presence of short grass prairie is a requirement. Have adapted well to nesting in croplands if the vegetation is of the correct height. Well drained native grasslands and agricultural land</p>	<p>Grasslands rare on the forest. mostly on private lands in the Tobacco Valley and Pleasant Valley areas. Habitat and species rare on the forest. prefers open prairies. edge of species range. Known only from Tobacco Valley area-grassland habitats on private lands.</p>	<p>Rare. Not known to occur or nest on NFS lands. Local population declines but not widespread. Extirpated from eastern U.S. north American populations have declined in the past 25 years as suitable nesting habitat has been converted to other uses. Formerly listed as a category 2 candidate for federally threatened and endangered status. Breeding habitat in the state appears to be fragmented and unprotected. In Montana they can be found</p>	<p>Loss of habitat. Cultivation of grassland. Hunting along Atlantic coast. Pesticides. Grazing. Disturbance of nest sites.</p>	

Species common name	Habitats	Habitat abundance and distribution	Population abundance and distribution	Major risk factors/threats	Conservation strategies
	with a gentle rolling topography. Require large blocks of grasslands.		breeding and migrating throughout the state, however they are more common east of the Rockies, particularly along the Rocky Mountain front. There are a few records from the extreme western edge of the state.		
Flammulated owl <i>Otus flammeolus</i>	Dry montane forests with brushy understory or open grasslands nearby. Low/mid elevation multi-storied, open to semi-open mature and old ponderosa pine and dry Douglas-fir forests. Preference for mature open dry forests. Breed primarily in open mature montane pine forests from southern BC to southern Mexico. Ponderosa pine and Jeffrey pine preferred habitats though mixed coniferous stands occasionally used. Considered rare until recently (1990s). Adapted to foraging in open forest conditions. Nest primarily in cavities excavated by woodpeckers in large trees and snags. Ecological factors positively affecting owls include large scale open forest, forest openings, and small patches of dense vegetation. It appears that owls use and perhaps need a limited amount of clustered dense vegetation in their breeding territory.	Habitat fairly well distributed. Impacted by past and ongoing mgmt activities. Common seasonal, nesting known throughout the warm/dry portion of the forest. Habitat and species considered fairly common on the forest. Considered to be a significant habitat loss – large diameter ponderosa pine, with open understories.	Uncommon. Pop. numbers unknown but appear to be fairly well distributed across the forest during seasonal use period. Seasonal. Comply with snag and down woody debris guidelines. Vegetation restoration to maintain two or more canopy layers and adjacent to forest/grass or forest/shrub ecotones.	Loss of mature ponderosa pine and Douglas-fir forest. Fire suppression. Disturbance near breeding, nesting and rearing sites. Loss of large snags and lack of snag recruitment. Conversion and expansion of mature dry forest stands to second growth created undesirable high density vegetation conditions. Blocks of suitable habitat are rare in MT. Major restoration of ponderosa pine and Douglas-fir dominated sites in western MT. McCallum (1994) believes the most immediate threat to the species in NA may be the elimination of snags through firewood gathering and other logging.	
Wilson's phalarope <i>Phalaropus tricolor</i>					
Black-backed woodpecker <i>Picoides arcticus</i>	Well distributed and recently burned or insect infested areas. Found in association with subalpine fir and Engelmann spruce in higher elevations and ponderosa pine, Douglas-fir and lodgepole pine at lower elevations. Closed boreal and montane coniferous forests. A Montana/Wyoming study (Hutto 1995) found they are essentially restricted to early post fire habitats. Primary excavators, they may be more limited by foraging resources than nesting or roosting resources (Montana PIF). Both Goggans et al. (1987) and Caton (1996) concluded that managing snags for nesting alone does not provide for the habitat needs of black-backed woodpeckers. Areas that have undergone disturbance or in patches in mature and old growth forests.	Habitat amount and distribution varies	Naturally low, pop. numbers vary dependent on habitat but unknown. Found in 7 of 8 planning units. Irruptive species. dependent on fire habitats.	Fire suppression. Salvage harvest of post fire and insect infested areas. Human disturbance near nest sites. Loss of snags.	
Boreal chickadee <i>Poecile hudsonica</i>	Little information for Montana exists. Boreal coniferous and mixed forests in vicinity of white cedar and hemlock swamps, and in birches and streamside willows. Nests in natural cavities or abandoned woodpecker holes, or in a cavity dug by a pair in rotten tree stub.	Montana is in the southern extreme of the breeding range. Southern extreme of species range. Habitat abundant and well distributed on the forest. Little information on breeding habitat available for MT.	Uncommon. Pop. numbers unknown. Considered at risk or high risk in MT due to limited or potentially declining numbers, extent or habitat making it vulnerable to global extinction or extirpation in the state.	Little information available. Loss and degradation of habitat, particularly snags.	
Pygmy nuthatch <i>Sitta pygmaea</i>	Late seral, large diameter, live ponderosa pine stands, and large snags.	Rare on the forest. Habitat loss on the forest considered significant – large diameter ponderosa pine snags.	Rare.	Loss and degradation of habitat (including large snags). Fire exclusion. Grazing.	

Species common name	Habitats	Habitat abundance and distribution	Population abundance and distribution	Major risk factors/threats	Conservation strategies
Red-naped sapsucker <i>Sphyrapicus nuchalis</i>	Mixed conifer forests. Nests in cavity in live tree, frequently near water.	Very little info for the KNF.	Uncommon	Loss and degradation of habitat (including snags)	
Williamson's sapsucker <i>Sphyrapicus thyroideus</i>	Mixed conifer forests. Constructs nesting cavity in standing snag/hollow tree. Mainly mature and old growth mixed conifer and ponderosa pine forests, as well as aspen stands. In MT range restricted to the main chain of the Rocky Mtns. Migrate to southwest US and Mexico. Primary excavators, seem to be severely restricted to large diameter trees and snags for their nesting (and roosting?), except when nesting in aspen. Use western larch, DF, and grand fir types as well as aspen and ponderosa pine. Prefer stands with less than 75% canopy closure, 2-3 canopy layers, and >10 snags per hectare.	Very little info for the KNF.	Uncommon. poorly sampled by BBS so population trends unknown.	Loss and degradation of habitat (including snags).	
Brewer's sparrow <i>Spizella breweri</i>	Little information for Montana. Sagebrush.	Very little habitat on KNF, almost none on NF lands. the sagebrush form is a sagebrush obligate which has shown significant population declines throughout much of its range including PA 64 which includes the Kootenai. Very little is known about distribution and habitat needs of the timberline form. Prefers sagebrush or grassland habitats. known only from Tobacco Valley or Pleasant Valley areas – on private lands. habitat rare on NFS lands.	Very little habitat on KNF, almost none on NF lands. the sagebrush form is a sagebrush obligate which has shown significant population declines throughout much of its range including PA 64 which includes the Kootenai. Very little is known about distribution and habitat needs of the timberline form. Prefers sagebrush or grassland habitats. known only from Tobacco Valley or Pleasant Valley areas – on private lands. habitat rare on NFS lands.	Little information available. Habitat loss and degradation, grazing, invasive grasses, fire, brood parasitism, predators, pesticides. Widespread long-term decline and threats to shrub-steppe breeding habitats.	
Great gray owl <i>Strix nebulosa</i>	Coniferous and hardwood forests, especially pine, spruce, paper birch, and poplar. Most commonly near extensive meadows. In Montana lodgepole pine/Douglas-fir. Nest in tops of large broken off tree trunks, in old nests of other large birds or in debris platforms from dwarf mistletoe.	Habitat uncommon but appears to be well distributed across the forest. Habitat appears to be well distributed across the forest.	No evident population decline throughout its range. Pop. trend uncertain for MT. Known nests will be protected.	Loss and degradation of habitat. Forest succession of large meadows. Disturbance at nest sites. Over-grazing meadows.	
Northern hawk owl <i>Surnia ulula</i>	Open coniferous or mixed forest, forest edge and clearings, old deciduous forest burns, dense shrubby areas, swamps, scrubby second growth woodland and muskeg. Nests in hollow tops of dead spruces, birches, natural tree hollows, abandoned woodpecker holes, deserted nests of crows and birds of prey.	Habitat common and well distributed across the forest. Appears to be at the southern extreme for this species. Trend in Canada is stable. On the edge of primary range. No known breeding on forest. Southern edge of species range. Movements into MT may be in response to prey abundance.	No documentation of known occurrence during breeding season. Considered accidental in MT (infrequent and outside usual range). The majority of the records for the state are for transient individuals (MNHP 2005). 1 observation on the forest. Habitat abundant and well distributed throughout the forest. known nests will be protected.	Loss and degradation of habitat, especially snags. Disturbance near nest sites. Fire exclusion. Montana PIF lists this species as a priority IV – non-priority, due to occurrence as rare migrants only, extremely peripheral occurrence, or lack of imminent risk (widespread, generalist, increasing).	
Mammals					
Rocky mountain Elk <i>Cervus canadensis</i>	Habitat generalist. Summer range – mid to high elevation. Winter range low elevation south facing slopes. Mainly coniferous forests interspersed with natural man made openings (mountain meadows, grasslands, burns and logged areas). basic habitat components include security, shelter (may use to maintain thermal equilibrium) and forage production. High open road densities affect habitat effectiveness, good winter range critical.	Habitat well distributed across the forest. herds have large area requirements and have distinct summer and winter ranges. Crucial winter range	Common, several small populations across the forest. combination of introduced and possibly remnant. Occurs in herds of various sizes, generally less than 20 animals. Proximity to humans and roads.	Loss and degradation of habitat. Access management – road and recreation impacts. Fire exclusion. Invasive species – particularly winter range. Hunting.	

Species common name	Habitats	Habitat abundance and distribution	Population abundance and distribution	Major risk factors/threats	Conservation strategies
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	caves and abandoned mines used for maternity roosts and hibernacula, use of buildings in late summer has also been reported. Habitats in the vicinity of roosts include DF, LP, PP.	Natural caves rare on the forest, abandoned mines relatively common, mostly on private lands. No hibernacula or roosting sites known to occur on the forest.	Rare to Uncommon. Pop. numbers unknown. present yearround in MT.	Habitat loss and degradation. Loss of large snags. Degradation of riparian habitat. very sensitive to human disturbance.	
North American wolverine <i>Gulo gulo</i>	High elevation roadless/wilderness. In NW MT and AK tend to occupy higher elev. in summer and lower elev in winter. Large home range. Limited to alpine tundra and boreal and mountain forests (primarily coniferous) in the western mountains, especially wilderness areas. dens in caves, rock crevices, under fallen trees, in thickets or similar sites. avoid clearcuts and burns. Medium scattered timber, with young dense timber used least.	Denning habitat uncommon. <1% of the forest. Wilderness and roadless lands. limited distribution to high elevation remote areas.	Uncommon to rare although pop. numbers unknown. Solitary and wide ranging. Occur at relatively low densities. Were nearly extinct in MT during the 1900s and have been increasing in numbers and range since. Recovery originated in NW MT and spread to its current range. Classified as a furbearer in MT.	Human disturbance - especially winter rec. at denning sites. (heli skiers, snowmobiles, motorized vehicles can disturb or displace wolverines). Roadless area management. Trapping. Habitat loss. Limited distribution. Effects of small population size. Dependent on recruitment of dispersers from BC. Large highways and associated corridors fragment habitat and creates barriers or impediments to movement.	
Hoary bat <i>Lasiurus cinereus</i>					
Hoary marmot <i>Marmota monax</i>					
Fisher <i>Martes pennanti</i>	Low/mid elevation multi-storied, mature and older forest with riparian habitat, down large wood, forest connectivity. Dens in Tree hollows, under logs, or in ground or rocky crevices, or they rest in branches of conifers. Occur primarily in dense coniferous or mixed forests, including early successional forest with denser overhead cover. Optimal conditions are forest tracts of 245 acres or more, interconnected with other large areas of suitable habitat. a dense understory of young conifers, shrubs, and herbaceous cover is important in winter. Forest structure which affects prey abundance and vulnerability and provides denning and resting sites is probably more important than tree species composition. Forest structure can be characterized by a diversity of tree shapes and sizes, understory vegetation, snags and fallen limbs and trees and tree limbs close to the ground. Large snags (>20" dbh) are important for maternal den sites.	Reintroduced or population augmented on the forest. occur mainly in remote areas. Extinct in MT by the 1930s. reintroduction efforts in 1959 and 1990 in Lincoln, Granite and Missoula counties resulted in establishment of population in those counties. Recent introduction were made in the Cabinet Mountains between 1988 and 1991. managed as a furbearer with a limited harvest of 7 animals.	Uncommon to rare. Pop. numbers unknown. Pop. augmented. Limited in abundance and extent and may be isolated from other populations	Trapping, loss and degradation of habitat (including snags and down logs). Loss of prey habitat. small pop. size, low productivity and possible isolation leads to increased probability of extinction	
Fringed myotis <i>Myotis thysanodes</i>	Ponderosa pine and Douglas fir forest while foraging over willow/cottonwood areas along creeks and over pools, and in caves. Found primarily in desert shrublands, sagebrush-grassland, and woodland habitats (pp forest, oak, and pine habitat, DF). Nursery colonies in caves, mines and sometimes buildings.		Population numbers unknown but considered uncommon to rare.		
Mountain goat <i>Oreamnos americanus</i>	Alpine and subalpine habitat. Usually at timberline or above. High elevation roadless/wilderness.	Habitat uncommon, in wilderness and/or roadless areas.	Uncommon. Occur in 2 small populations.	Loss and degradation of habitat. Mining. Human-caused	

Species common name	Habitats	Habitat abundance and distribution	Population abundance and distribution	Major risk factors/threats	Conservation strategies
	precipitous terrain, steep south facing slopes in winter. Sometimes enter subalpine forest. snow is an important influence on winter distribution. Winter habitat: cliffy terrain, south facing canyon walls, windblown ridgetops, spring: south and west facing slopes, summer: meadows, cliffs, ravines, and forests.			disturbance, especially winter recreation. Hunting. High quality hunting big game species by permit only. vehicle access linked to population declines. Low productivity and sociobio characteristics combine to make sensitive to overharvest. May leave traditional areas to disturbances – logging.	
Bighorn sheep <i>Ovis canadensis</i>	Mid elevation steep lands and high elevation roadless/wilderness. Cliffs, mountain slopes, rolling foothills, sometimes cross intermountain valleys. Min. snow depth important in winter, availability of high quality green forage most important in spring and summer. Semi open to open veg. types preferred.	Majority of Habitat occurs in roadless and wilderness areas. occur in 3 locations across the forest.	Uncommon. 3 small herds. Only 1 native herd.	Loss and degradation of habitat. Fire exclusion. Invasive species. Access management. Hunting. High quality hunting big game species by permit only.	
Northern bog lemming <i>Synaptomys borealis</i>	Sphagnum bogs, fens, wet meadows, moist mixed and coniferous forests, alpine sedge meadows and mossy streamside. in MT found in at least 9 community types; ES, SF, birch, willow, sedge, spike rush, or combinations of the above often occurring wet meadows, fens, or bog like environments. Areas with extensive moss mats, especially sphagnum.	Habitat occurs in small isolated locations on the forest.	Uncommon to rare. Naturally rare, occur in several very small pop. Individual population decline or extirpation possible	Habitat loss and degradation. Human disturbance. Grazing. Changes in water regimes. Invasive species.	
Fish					
Torrent sculpin <i>Cottus rhotheus</i>	Fast, freshwater streams of the Kootenai River drainage. Riffles of cold, clear streams but are also taken in lakes. Hide in stones on the bottom.	Pools and glides in streams generally in small gravel and rock.			
Inland redband trout <i>Oncorhynchus mukiss gairdneri</i>	Stream resident fish. Prefer cool, clean, relatively low gradient streams but in some circumstances are able to withstand wider temperature variations than westslope cutthroat trout.	Cool waters of lakes, rivers, and streams.	Hybridization, activities that elevate temperature, alter hydrology, increase sedimentation. Known from several small populations. Pop. numbers unknown. MFWP stocking into several areas on the forest.	Hybridization with non-native species	
Lake trout <i>Salvelinus namaycush</i>	Native to St. Mary and Missouri River drainages. Introduced elsewhere. Very deep, cold lakes and reservoirs. With some rocky bottom and abundant forage fish.	Known to occur in Noxon reservoir and mainstem Kootenai River.	Known to occur only in Noxon reservoir and mainstem Kootenai river. Does not occur on NFS lands.	None known.	
Invertebrates – Insects					
Butterflies					
Western sulphur <i>Colias occidentalis</i>	No info in MNHP. Ocean bluffs, forest openings, mountain slopes, and subalpine meadows with substantial populations of various herbaceous legumes. Occurs in generally forested (especially DF) landscapes but in a variety of habitats. larval foodplants are various legumes including milk-vetches, golden banner, lotis and Oxytropis. Very rare or local throughout its range or found locally in a restricted range or apparently secure globally, though it might be quite rare in parts of its range, especially at the periphery (Butterflies and Moths of NA 2007).	Unknown. No info. for state of MT or locally.	Unknown. No info. for state of MT or locally. Lack of information, habitat not well understood.	Clearcutting, fire suppression and resultant invasion of meadows and glades by dense woody vegetation, and invasion of aggressive alien weeds. Overgrazing and logging. Some populations affected by grazing and fire suppression (Butterflies and Moths of NA 2007). Management needs not reported (Ibid). Improper logging, invasive alien	

Species common name	Habitats	Habitat abundance and distribution	Population abundance and distribution	Major risk factors/threats	Conservation strategies
	Open areas including meadows, sagebrush flats, conifer forest openings, powerline cuts.			weeds (Ibid).	
White admiral <i>Limenitis arthemis</i>		Unknown. No info. for state of MT or locally.	Unknown. No info. for state of MT or locally.		
Indra swallowtail <i>Papilio indra</i>		Unknown. No info. for state of MT or locally.	Unknown. No info. for state of MT or locally.		
Gray comma <i>Polygonia progne</i>	Along dirt roads, streamsides and within clearings in rich deciduous or coniferous woods, in aspen parks, yards and gardens. Often in hilly terrain or canyons. Host plants include gooseberries (ribes) and azalea (Rhododendron).			No management needs reported. Conservation not usually required. (Butterflies and Moths of NA 2007).	
Dragonflies					
Hudsonian emerald <i>Somatochlora walshii</i>	No info in MNHP or NatureServe. Adults fly along grassy margins of mountain lakes and ponds.	Unknown. No info. for state of MT or locally. MT predicted range includes western 1/3 of the state.	Unknown. No info. for state of MT or locally.		
Brush tipped emerald <i>Somatochlora intricatus</i>	Loon Lake in Lincoln county and a boggy stream near west Glacier.	Unknown. No info. for state of MT or locally. MT predicted range includes NW corner of the state.	Unknown. No info. for state of MT or locally.		
Stoneflies					
<i>Utacapnia columbiana</i>	No info in MNHP or NatureServe although known to occur in Fisher River	No information available in MNHP or NatureServe. Known from location in Lincoln county. MT predicted range includes the very NW corner of the state.	No information available in MNHP or NatureServe.	No information available in MNHP or NatureServe.	
Invertebrates - Mollusks					
Striate Disc <i>Discus shimelii</i>	Spruce/fir intermixed with aspen or old broadleaf trees and shrubs. Soils often are from weathering limestone. Active most often in litter in lowland forest, but sometimes on downed wood and rock surfaces. Slopes are often north facing and shaded. Tends to be associated with quaking aspen at MT sites where it was documented. Most recently found at sites with canopies including Engelmann spruce, Douglas-Fir, Subalpine Fir, and Lodgepole Pine but with scattered also present.	Pop. sizes are not reported. Can be abundant in colonies but colony sites are relatively small in extent. Widely distributed in the Rocky Mtns. Of Arizona, NM, UT, CO, and Wy. With populations also extant in the black Hills. It is also found in MT in the Canadian Rockies. Documented from 5 MT. counties including Lincoln.	Documented in 5 counties; Gallatin, Hill, Lincoln, Park and Sweetgrass.	Loss and degradation of habitat. Changes in water quality. Degradation due to timber harvest and livestock grazing. Fire is also a concern. Stand replacement fires could permanently eliminate populations in isolated colonies.	
Robust lancetooth <i>Haplotrema vancouverense</i>	No info in MNHP or NatureServe.	MNHP predicted distribution includes portions of Lincoln and Sanders counties.	No information available in MNHP or NatureServe.		
Pale jumping slug <i>Hemphillia camelus</i>	No info in MNHP or NatureServe.	MNHP predicted distribution includes western 1/3 of the state.	No information available in MNHP or NatureServe.		
Western pearlshell mussel <i>Margaritifera falcata</i>	Cold, clear, streams and rivers. Often in reaches having fast current and coarse substrate. Larva are parasitic on salmonids. Montana's only cold water trout stream mussel- only native mussel west of divide.	MNHP predicted distribution includes portions of Lincoln and Sanders counties. Cold, well oxygenated low gradient streams with gravel/sand bottom. Larva parasitic on salmonids.	Pollution, sedimentation, may be reduced to isolated populations	Loss and degradation of habitat. Changes in water quality. The loss of host fish populations. Collection. Found in AK, CA, ID, MT, NV, OR, WA, WY, and British Columbia. Extirpated in UT. Range Widespread in area, but spotty in viable population coverage. Montana's populations have showed significant declines, in comparison to Idaho's. Declining in terms of area	

Species common name	Habitats	Habitat abundance and distribution	Population abundance and distribution	Major risk factors/threats	Conservation strategies
				occupied and number of sites with viable individuals. Global short term trend declining (10-30%). Global long term trend – substantial to moderate decline (25-50%).	
Prairie sprite <i>Promethes exacuouus megas</i>	Historical range not well known. Portions of northern WA and ID, western MT and western WY.	Little info available. In MT found at 13 sites in six counties; Lake, Lincoln, Mineral, Missoula, Ravalli and Sanders. All sites are west of the Continental Divide. MT predicted distribution includes western portion of the state.	Probably declining in most sites, although other sites remain stable. Existing sites should be protected. (NatureServe). widespread and somewhat common in northern ID and NW MT. Extirpated in some locations. Probably once very common and widespread. Lost most of its habitat and most of its historic sites.	Known originally from western MT, found in NW kettle lakes that are undisturbed, exact extent unknown. Total population declining in both numbers of populations and number of individuals.	
Reticulate tailedropper <i>Prophyaon andersoni</i>	No info in MNHP or NatureServe. MNHP shows predicted distribution in Sanders county. Moist forest floor conditions, abundant coarse woody debris	Known to occur on Kootenai in small isolated pop. MT predicted distribution includes a very small area of Sanders county.	No information available in MNHP or NatureServe. Isolated populations vulnerable.	No info in MNHP or NatureServe. MNHP. Isolated populations vulnerable.	
Fir pinwheel <i>Radiodiscus abietum</i>	Most often found in moist and rocky DF forest at mid elev. in valleys and ravines. Western red cedar form the canopy in Montana locations. Often found in talus of a variety of rock types or under fallen logs.			Logging and grazing over most of the range are probably the greatest threats, through alteration of appropriate habitat. alteration of habitat from fire, highway and road construction. rural housing development and land clearing could represent threats, as could fire suppression retardants and chemical methods of weed control.	
Sheathed slug <i>Zacoleus idahoensis</i>	Most occurrences in ID are in moist microsites in relatively intact DF, PP, and ES forests. rocky substrate including sedimentary, igneous and metamorphic types.	Documented only in northern ID and NW MT. Recorded from 4 sites in MT in 4 counties; Granite, Lake, Lincoln, and Sanders. MT predicted distribution includes the western portion of the state.	No information available in MNHP or NatureServe. Local endemic. Loss of historic sites and loss of most habitat (NatureServe).	Logging and grazing over most of the known and potential ranges. Highway construction severe forest fires. Species has lost most of its habitat at most historic sites. known from 1 site on the forest. local endemic, loss of historic sites, and loss of most habitat.	
Sheathed slug <i>Zacoleus idahoensis</i>	Kootenai falls. Absent from sites disturbed by timber harvest and livestock grazing. Include as a group with other aquatic associated mollusks.	Douglas-fir, spruce, and ponderosa pine forests that have a diverse understory of forbs and bryophytes. Typically in moist valleys, gorges, ravines, and talus fields near permanent water.	Loss and degradation of habitat. Logging, grazing, fires, and roads. (Hendricks 2003)	Limit surface disturbance at known sites (Idaho CWCS). Aquatic/riparian protection.	
Invertebrates - other					
A freshwater sponge <i>Heteromeyenia baileyi</i>	No info available in MNHP or NatureServe although known to occur in upper Kootenai.	No information available in MNHP or NatureServe. Known from location in Lincoln county.	No information available in MNHP or NatureServe.	No information available.	

Table 10. Information on species habitat and population abundance and distribution - “throughout its range”

Species common name	Habitat abundance and distribution	Population abundance and distribution
Vertebrates		
Amphibians		
Boreal toad, <i>Bufo boreas</i>	Small range in northern ID, western MT, southeastern BC. Regional endemic, MT is eastern limit in distribution. 45 locations in 5 counties. Range wide declines in the western U.S. Most known sites on FS lands.	Unknown but may exceed 10,000. from 97-192 documented sites (164 in ID, 28 in MT). Known from more than 30 sites on the forest. Apparently secure. Trend unknown, likely stable in extent of occurrence, stable to declining in population size, area of occupancy and number/condition of occurrences. A unique genetic resource in ID, MT, BC.
Coeur d’Alene salamander <i>Plethodon idahoensis</i>	Large range throughout much of the US and southern Canada. Many and/or large occurrences throughout most of its range. Historically present in intermountain valleys west of the Continental Divide but in recent years documented in only two locations near Kalispell and near Eureka. Prairie regions of eastern 2/3 of state east of divide.	Still common in many areas populations have declined in some areas due to habitat loss and degradation, overexploitation, interactions with non-native species and unknown causes. Likely in the hundreds of thousands or millions. Population trend probably declining in size, area of occupancy and condition of occurrences. 10 historic breeding sites - Known from one active site on the forest. Populations appear to have declined in MT. Where the species is no longer extant in most localities where historically it occurred. Extirpated from most of historical range in WA. Recent extirpations are reported in all of western MT and across much of the neighboring states.
Northern leopard frog <i>Rana pipiens</i>	Widely distributed and found in appropriate habitat throughout most of the state. Mountains and intermountain valleys of the western third of the state. Known from approx. 35 breeding sites on the forest.	In previous decades considered most abundant amphibian in western third of state. No longer common. Surveys since early 1990s indicate regional population declines. Range wide declines.
Reptiles		
Northern alligator lizard <i>Elgaria coerulea</i>	West of continental divide in northwest MT. The southern and eastern limit of distribution in the Rocky Mts. Northern portion of ID. Central CA, to southern BC. East to ID and MT.	Rarely encountered and poorly documented. Fewer than a dozen records have been reported. Population trend unknown. One of only two lizards that give birth to live young rather than laying eggs
Western skink <i>Eneces skiltonianus</i>	Central BC to southern Baja CA. east to western MT, ID, eastern UT, north central AZ, and southern NV.	Total adult population size unknown. Locally common in many areas. secretive. Represented by large number of occurrences. Stable, trends not documented but extent of occurrence area of occupancy, number of subpopulations, and population size are large and probably relatively stable.
Birds		
Northern goshawk <i>Accipiter gentilis</i>	Relatively abundant and widespread. Holarctic. West and central AK to eastern Canada south to central CA across the US except southeast US. Nesting range in the eastern US is currently expanding as second growth forests mature. In the west habitat reducing and thus populations.	Relatively common in the main part of its range. Conclusive data supporting the purported decline in populations in the western US is lacking. Population trends are difficult to determine. No hard evidence of a significant decline in recent decades but probably declining in some areas as a result of habitat alteration. (NatureServe)
Grasshopper sparrow <i>Ammodramus savannarum</i>	Large range, extending from southern Canada to northern South America. Breeding eastern WA across northern ID, most of MT, southern BC across southern Canada to Manitoba, eastern ½ of US. Winters southern US, Mexico, central America.	Significant population declines in NA and probably elsewhere due to loss, degradation and incompatible management of grassland habitat. BBS data indicate a significant decline in NA between 1966 and 1989.
Golden eagle <i>Aquila chrysaetos</i>	Widespread distribution throughout the northern hemisphere. Breeds NA, mainly western and northern AK, east across Canada, south to northern Mexico east except southeast US.	Still relatively common in some areas. local threats/declines – do not yet comprise a major conservation problem from a global perspective. Declined in early 1900s due to eradication campaigns. In eastern NA reappearing in some sites in historic nesting range. May be decreasing in the northeastern US, declines in part of range in Canada noted.
American bittern <i>Botaurus lentiginosus</i>	Over half of the original wetlands in the conterminous US have been destroyed (Tiner 1984 in NatureServe 2008).	Substantial to moderate decline (decline of 25-75%). Long term data not available. BBS data (1966-1987) indicate a decline in the north central US. And possibly in New England (USFWS 1987 in NatureServe 2008).
Black tern <i>Chlidonias niger</i>	Widespread distribution and relatively abundant. Loss of breeding habitat appropriate habitat in MT is patchy.	Abundance unknown. severely to rapidly declining decline of 30% to >70%. No breeding records for the forest. Special status in several states, (state listed as endangered or threatened, special concern, watch list). Proposed for threatened listing in Canada.
Olive-sided flycatcher <i>Coturnicops noveboracensis</i>	Large breeding range in wooded areas of Canada, AK, and the western and northeastern US. Winters mtns of SA. In MT breeds throughout mountainous areas of western portion of state.	Total population not known. Declines relatively similar across range, although they appear more severe in the central and eastern regions. Still secure in many areas, but a large significant decline (a loss of 68% from 1966-2000) has occurred in recent decades. Due probably to habitat changes in the breeding range and/or in migration and wintering areas.
Black swift <i>Cypseloides niger</i>	In MT northwestern portion of state. Migrates south. In Idaho breeding in north fork of Coeur d’Alene river, seen in Boundary, Bonner, Shoshone, Clearwater counties.	Large numbers seen in migration, breed over a large area. breeding sites very localized. Stable, 81-300 occurrences. 10000 to >1MM individuals. 2 confirmed breeding records. Unconfirmed breeding in cabinet mtn range. Apparently secure (unknown). Limited breeding distribution an inaccessible breeding habitat.
Bobolink <i>Dolichonyx oryzivorus</i>	Breed widely throughout MT. Near Fortine. Southern BC east across southern Canada to NS. South to OR, UT, portions of Midwest and NJ. Winter in central and southern SA.	Still widespread and fairly common, but declining due to changing agricultural practices. Population trend declining (10-30%).
Common loon <i>Gavia immer</i>	Winters on coast. Breeds Iceland, Greenland, and across Canada and the northern US to Alaska, south to CA, MT ND across to New England. Winters along coasts. In MT breeding range restricted to lower elevation forested glacial lakes in the northwest	Although no precise continent-wide estimate of populations available, some 500000 to 600000 adults probably inhabit the US and Canada. Most in Canada and Alaska. In Canada and Alaska appear to be stable. Large declines in breeding populations in northeastern US. global population secure however many local populations are small and isolated and vulnerable to extinction.

Species common name	Habitat abundance and distribution	Population abundance and distribution
	corner of the state. Considered imperiled in MT. Historically believed to have nested throughout western half of state. Winter along west coast of WA to CA. Northward range contraction documented within the last 100-150 years.	several states that supported breeding loons have lost them.
Harlequin duck <i>Histrionicus histrionicus</i>	Pacific population - Alaska and western Canada south to eastern OR, east central CA, ID and WY. Breeding Eurasia and two disjunct regions in NA. Winters Eurasia Aleutian and Pribilof islands to central CA. in MT range is small and fragmented primarily in northwest MT and parts of Yellowstone ecotype. Known to breed on several streams on the forest estimate 30 breeding pairs. Harlequin duck working group	Although globally widespread, Atlantic population may be reaching critically low levels and pacific population has experienced substantial declines. In 1990 identified as potentially imperiled in western MT. By 1991 Considered as a candidate for listing on ESA. Both breeding and wintering distribution and abundance appear to be declining in western NA. The pacific NA population appear to be stable in some areas (ID, MT, WY) and declining in others. Atlantic populations significant decline this century and continues to decline.
White-tailed ptarmigan <i>Lagopus leucura</i>	Central AK, north Yukon, south to cascade mountains in WA and in rocky mtns from BC and Alberta south to northern NM. In MT alpine and subalpine northwestern portion of state.	
Gray crowned rosy finch <i>Leucosticte tephrocotis</i>	Breeds western and north central AK, central Yukon, BC and southwestern Alberta south through Cascades Sierra Nevada and Rocky Mtns. To central ID, northwestern Mt.	Populations are large and widespread. Apparently stable.
Lewis's woodpecker <i>Melanerpes lewis</i>	Large range in western US and adjacent southern Canada but distribution can be spotty. Breeding southern BC, Alberta, MT, southwestern SD and northwestern NE to south central CA central AZ southern NM and eastern CO. winters northern OR, southern ID, central CO south central NE south to northern Mexico. In MT western and southern.	Apparently declining in abundance and may have declined 60% or more since the 1960s. no estimates of population size. Declined in BC by more than 50%. Populations tend to be scattered and irregular and are considered rare, uncommon or irregularly common throughout range. Local abundance may be cyclical or irregular.
Long-billed curlew <i>Numerius americanus</i>	In MT breeds widely throughout the state, although more common east of the Rocky Mtns. Breeds Southern BC, Alberta, Saskatchewan, Manitoba south to eastern WA, NE CA, NV, UT, CO NM and northern TX east to KA. Winters southern US Mexico etc.	Total population estimated to be 20,000. population declines in western US are local not widespread. Extirpated from eastern US by cultivation of grassland. Fall populations decimated by hunting.
Flammulated owl <i>Otus flammeolus</i>	Widespread distribution in western NA. Total population numbers unavailable. locally common in quality habitat. for the northern Rockies the few available data indicate a significant decline. Breeding southern BC western MT and northern CO south to southern CA, southern AZ southern NM western TX to Mexico. Winters central Mexico. In MT range restricted to western portion of state.	But loss and fragmentation of mature forest habitat suggests that populations are declining. In ID widely distributed throughout montane forests. no trend data available. probably decline in population during this century, although species is poorly monitored (PIF). Population data inadequate for trend assessment. Low reproductive rate.
Black-backed woodpecker <i>Picoides arcticus</i>	In MT northwestern portion of the state. Habitat severely reduced	
Boreal chickadee <i>Poecile hudsonica</i>	Western and central AK to Saskatchewan and Labrador south to WA, MT, MN and northern new England. In MT northwestern portion of state.	Three confirmed breeding records including Lincoln county. Also overwintered in Lincoln county.
Pygmy nuthatch <i>Sitta pygmaea</i>	Southern BC northern ID, western MT central WY, and southwestern SD south to northern Baja CA, southern NV central and southeastern AZ, central NM, extreme western TX. Heterogeneous stands of a mixture of well-spaced old pines and vigorous trees of intermediate age.	Known from breeding record near Fortine. In northern ID occur as common resident. BBS data – statistically significant declines in ID 1966-2004 and more recent period 1980-2004.
Brewers sparrow <i>Spizella brewerii</i>	Breed widely throughout MT. Fairly large range in western north America.	Declining in many areas of the US. Significant decline throughout range during last 10-20 years.
Red-naped sapsucker <i>Sphyrapicus nuchalis</i>	Breeding rocky mountain region from south central BC southwestern Alberta and western MT, south east of cascades to east central CA, southern NV central AZ southern NM and extreme western TX. Winters southern CA, NV, AZ Nm south to Mexico.	Populations appear to be stable to increasing overall with areas of local declines. Related to loss of cottonwood and aspen nesting habitats.
Williamson's sapsucker <i>Sphyrapicus thryoideus</i>	Breeds southern BC, ID, western MT and WY, south in mtns to northern and east central CA, central AZ southern NM and northern Baja CA. winters south to Baja. .	Stable to increasing.
Great gray owl <i>Strix nebulosa</i>	Large circumboreal range. Breeds central AK to northern Ontario south locally in mountains to CA, ID, MT WY across to northern MN and southcentral Ontario. In MT limited to mountainous region, western MT.	No decline evident in vast majority of the range, apparently stable but few data available for most areas. usually uncommon but may be locally abundant.
Northern hawk owl <i>Surnia ulula</i>		
Mammals -		

Species common name	Habitat abundance and distribution	Population abundance and distribution
Rocky Mtn elk <i>Cervus canadensis</i>	Formerly widespread in Canada and the US, now mostly restricted to the west, with small reintroduced populations elsewhere.	
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	Throughout western NA from BC south to Mexico, east to the Black Hills. isolated populations in gypsum caves and limestone regions. In MT range unknown.	Apparently secure in western US and Mexico. Quite rare in other parts of the range. Very little known in MT about distribution and relative abundance. Abundant in western US and Mexico. Rare in east and northwest. Two eastern subspecies listed as endangered.
North American wolverine <i>Gulo gulo</i>	Remote wilderness from Labrador east to Alaska, and south to mountainous regions of western US.	Populations in Canada and Alaska are probably in good condition. Status not well known in many portions of the range. Total population size unknown. Outside of Alaska, ID and MT likely have the largest populations in the US (perhaps a few hundred in each state). May be fewer than 750 in the contiguous US. Presently extirpated from most of the southern part of the historical range including all of the northcentral and northeastern US and most of southeastern and south central Canada. Extirpated from most of range in contiguous US. Promising signs of semi-recovery in selected western states. Global long term trend – extirpated from large portions of their range in southern and eastern Canada and now considered to be endangered. Numbers declined steadily in US in latter half of 1800s, in MT rebounding from near extinction from 1920-1940. Declining in southern Mtns of BC, may be extirpated on Vancouver Island, declining throughout Alberta. Rare and possibly declining in southern boreal forest of Saskatchewan. Still trapped in MT. Poor breeding success, high juvenile mortality, and slow sexual maturity.
Fisher <i>Martes pennanti</i>	Large range in northern NA. Quebec, maritime provinces and New England west across boreal Canada to SE Alaska, south in western Mtns to UT, WY, ID, and CA.	Extirpation from southern portion of range, due mainly to habitat loss. Adequate population data are unavailable but the species currently is regarded as secure. West coast dps – threatened with extirpation due to size and isolation. Warranted but precluded from ESA listing by higher priority actions. Total fisher population size unknown. Extinct in MT by the 1930s. Reintroductions on the forest on several occasions, did not do well. Current population unknown. global long term trend -substantial decline. Recovered in some of the central and eastern portions of their historic range through reintroductions etc. Still absent from former range southeast of the Great Lakes.
Fringed myotis <i>Myotis thysanodes</i>		
Mountain goat <i>Oreamnos americanus</i>	Mtns of northwestern NA from southeast AK to WA, western MT and southern ID. Introduced in other states and areas. southern portion of range.	On the forest 2 small populations, one in wilderness area.
Bighorn sheep <i>Ovis canadensis</i>	Still widespread in western NA from Canada to Mexico, although populations are much smaller than in the past. Southwestern BC and Alberta south through rocky Mtns, Sierra Nevada, and desert Mtns to Baja CA.	CA peninsular populations listed as endangered. Sierra Nevada population listed as endangered. Several subspecies probably <i>O. Canadensis canadensis</i> . In 1991 total population estimated at 71,000 (38000 Rocky Mtn sheep). No numbers for total population at this time. In 1915 there were only 1775-3400 rocky Mountain bighorn sheep in Canada. Increases occurred but devastating die offs occurred as domestic sheep were introduced. By 1960 US populations was 15,000-18,000. Long term trend substantial decline (decline of 50-75%). short term trend - recent trend seem more or less stable. Long term trend great decline, from approximately 15,000-200,000 before 1800 to a few thousand at the turn of the century. Local extirpations and reintroductions in many parts of range. Distribution naturally fragmented due to discontinuity of habitat.
Northern bog lemming <i>Synaptomys borealis</i>	Widespread distribution extending from AK to Labrador and south to portions of the northern US. Populations are localized. Population sizes are not known for any location. Nowhere does it appear common.	In MT southern margin of global distribution in the Rocky Mtns. 18 sites mainly on FS lands.
Fish		
Torrent sculpin <i>Cottus rhotheus</i>		
Inland redband trout <i>Oncorhynchus mykiss gairdneri</i>		
Lake trout <i>Salvelinus namaycush</i>		
Invertebrates - insects		
Butterflies		
Western sulphur <i>Colias occidentalis</i>	limited range	local and uncommon in much of its range
White admiral <i>Limenitis arthemis</i>	New England south to central Florida, west to MT and AZ, Alaska to BC.	Extremely widespread and abundant. Globally secure (G5)
Indra swallowtail <i>Papilio indra</i>	Widespread in western US. Some subspecies are very localized.	Globally secure (G5)
Gray comma		

Species common name	Habitat abundance and distribution	Population abundance and distribution
<i>Polygona progne</i>		
dragonflies		
Hudsonian emerald <i>Matochloa walshii</i>	AK, all Canadian provinces, MT, WY, CO.	Globally secure (G5)
Brush-tipped emerald <i>Somatochloa intricatus</i>	all northern US states and adjacent Canadian provinces.	Globally secure (G5)
stoneflies		
<i>Utacapnia columbiana</i>	AK, MT, Yukon, and Manitoba.	No information available in MNHP or NatureServe.
Invertebrates - Mollusks		
Striate disc <i>Discus shimekii</i>	Distribution data known to be incomplete or has not been reviewed. NatureServe. Widely distributed in Rocky Mountains of AZ, NM, UT, CO, and WY. Populations also extant in Black Hills. Also found north of Montana in the Canadian Rockies.	No information available in MNHP or NatureServe. Globally secure (G5)
Robust lancetooth <i>Haplotrema vancouverense</i>	Distribution data known to be incomplete or has not been reviewed. BC, AK south to CA, ID and MT.	No information available in MNHP or NatureServe. Globally secure (G5)
Pale jumping slug <i>Hemphillia camelus</i>	WA, ID, AB, BC.	No information available in MNHP or NatureServe.
Western pearlshell mussel <i>Margaritifera falcata</i>	AK, south to CA, east to UT, WY and MT.	Widespread and maintains hundreds of occurrences with perhaps hundreds of thousands of individuals, but is declining in terms of area occupied and number of sites and individuals. Global short term trend – declining (10-30%), likely extirpated from parts of OR and UT. Global long term trend – moderate decline (25-50%). Now extirpated along much of the snake and Columbia rivers, and remnant populations show few signs of reproduction. Widespread declines, formerly very abundant.
Fir pinwheel <i>Promenetes exacuouus megas</i>	Known from extreme northeastern OR, extreme NE and SE WA, northern ID, and NW MT. Widespread and somewhat common in northern ID and northwest MT with several new locations for 2005. nowhere abundant. Most old ID sites unsuccessfully checked, with species being extirpated in all but one. Distribution data known to be incomplete or not been reviewed.	Known to survive in several of original sites, extirpated in others. Current distribution and abundance unknown. Probably declining in most sites, other sites remain viable. Species was probably once very common and widespread, it has lost most of its habitat and most historic sites. but a fair number of other sites probably remain viable.
Reticulate tailedropper <i>Prophysaon andersoni</i>	BC, AK south to CA, ID and MT.	Globally secure (G5).
Sheathed slug <i>Radiodiscus abietum</i>	ID, MT WA.	Local endemic, loss of historic sites and loss of most habitat. global short term trend (10-30%) once very common and widespread, has lost most of its habitats and most historic sites due to threats.
Invertebrates - other		
A Freshwater sponge <i>Heteromeyenia baileyi</i>	MT. Known only from Lincoln county. Incomplete.	No information available in MNHP or NatureServe.

The forest has very little information on population numbers for most species. Information from other sources are used to determine numbers or trends in populations. (Montana Fish, Wildlife and Parks, Montana Natural Heritage Program, etc.).

Table 11. Wildlife species of interest. Justification for continuation of further analysis or elimination as species of interest.

Common name	Scientific name	Identification source	Justification	Conservation needs/mgmt recommendations
Amphibians				
Western (boreal) toad	<i>Bufo boreas</i>	Species of greatest conservation need, sensitive species	Vulnerable to habitat loss and degradation. Local pop. trends unknown. Regional population declines, range wide declines.	Maintain and restore aquatic and riparian habitats (Groves et al. 1996). Partners in Amphibian and Reptile Conservation (PARC). Reduce access by livestock to known breeding sites. eliminate use of fertilizers, herbicides, and pesticides within 100 meters of breeding sites. no stocking of fish into breeding sites and conduct surveys prior to eliminating fish from any water body, known breeding sites should not be drained or altered, and water bodies where alteration is planned should first be surveyed for use by toads.
Coeur d'Alene salamander	<i>Plethodon idahoensis</i>	Species of greatest conservation need, sensitive species	Vulnerable to loss and degradation of habitat. local population trends unknown but small individual pop. subject to extirpation. A unique genetic resource in ID, MT, BC.	Maintain and restore aquatic and riparian habitats. (Groves et al. 1996). (PARC). Conduct routine monitoring of known populations to identify threats to each as well as to determine their continued viability.
Northern leopard frog	<i>Rana pipiens</i>	Species of greatest conservation need, sensitive species	Rare. Known from only one location on the forest. Vulnerable to habitat loss and degradation and extirpation. Extirpated throughout much of its range, declined in MT.	Maintain and restore aquatic and riparian habitats. Additional direction found in; Groves et al. 1992, Maxell et al. 2000, Partners in Amphibian and Reptile Conservation (PARC). For all breeding sites west of the continental divide – protect from livestock, organic and chemical contamination, avoid introducing parasites, fungal, bacterial, and viral pathogens.
Birds				
Northern goshawk	<i>Accipiter gentilis</i>			Unknown at this time. Little information available. Mgmt towards HRV and long term sustainability of snags and down wood. No special management activities are defined at this time.
Olive-sided flycatcher	<i>Contopus borealis</i>	Species of greatest conservation need, sensitive species	Loss of snags. Fire exclusion.	
Black swift	<i>Cypseloides niger</i>	USFWS birds of conservation concern, Montana species of concern, sensitive species	Sensitive to disturbance at roost sites. rare on the forest, known from only 1 site associated with wilderness area. local pop. trends unknown. Apparently secure throughout its range. Mgmt actions not likely to impact the species.	Manage summer and winter habitat within HRV. Provide security, reduce vulnerability. Reduce noxious weeds on winter range. Montana Cooperataive elk logging study.
Common loon	<i>Gavia immer</i>	Species of greatest conservation need, sensitive species	Sensitive to disturbance during nesting season.	
Harlequin duck	<i>Histrionicus histrionicus</i>	Species of greatest conservation need, sensitive species	Sensitive to human-caused disturbance during nesting season.	Maintain large habitat areas (well distributed and connected), particularly “wet productive” forests. Mgmt towards HRV (late and old growth successions), and longterm sustainability of snags and down wood. See Ruggiero et al. 1994 for more information on fisher management.
Lewis's woodpecker	<i>Melanerpes lewis</i>	USFWS birds of conservation concern, Montana species of concern, sensitive species	Loss of snag, especially large diameter	Maintain large habitat areas (well distributed and connected), particularly “wet productive” forests. Mgmt towards HRV (late and old growth successions), and longterm sustainability of snags and down wood. (Joslin 1985).
Flammulated owl	<i>Otus flammeolus</i>	USFWS birds of conservation concern, Species of greatest conservation need, sensitive species	Loss of snags. Large diameter ponderosa pine and Douglas-fir	Maintain known and potential habitats. Reduce impacts from snow compaction. Reichel and Corn 1997. Apply management/conservation guidelines for peatlands. Protection guidelines (Reichel and Corn) should be applied to all sites where northern bog lemming are known to occur. As well as potential peatland sites not yet surveyed. Guidelines include; 1) assumption that northern bog lemmings are present at sphagnum or fen moss habitat patches unless site specific surveys indicate otherwise, 2) restriction of timber harvest to a zone beyond a 100 meter buffer surrounding sphagnum or other fen moss mats, or associated riparian areas which could provide corridors for dispersal to adjacent patches of suitable habitat, 3) minimize livestock grazing in drainages with unsurveyed moss mats present, and maintaining range conditons there and in those populations present as good to excellent, and 4) elimination of

Common name	Scientific name	Identification source	Justification	Conservation needs/mgmt recommendations
				management activities that could destroy moss mats (road building, pothole blasting, trail construction, dam construction, alteration of surface and subsurface waterflow, recreational vehicle use in fen habitats).
Black-backed woodpecker	<i>Picoides arcticus</i>	Species of greatest conservation need, sensitive species	Reduction in habitat conditions for this species.	
Pygmy nuthatch	<i>Sitta pygmaea</i>	USFWS birds of conservation concern, sensitive species	Susceptible to Loss of large diameter ponderosa pine snags for nesting.	Maintain open grassland. To sustain breeding populations 30 hectares are required (Herkert 1994b) . provide and maintain large areas of grasslands characterized by intermediate grass height, moderate litter depth and low shrub density. Management techniques should occur prior to or following the breeding season.
Williamson's sapsucker	<i>Sphyrapicus thyroideus</i>	USFWS birds of conservation concern		Maintain and conserve habitat elements. Reduce human disturbance. active management is limited to population monitoring and water level fluctuation control.
Mammals				Maintain or enhance conditions on existing and recent historic nesting, feeding and rearing lakes. Promote and fund loon education and monitoring programs.
Fisher	<i>Martes pennanti</i>	Montana species of concern, sensitive species	Vulnerable to loss of mature and older moist forest, snag and down wood.	Maintain fast moving, low gradient clear mountain streams with a healthy riparian component. Reduce human caused disturbance during nesting season. Cassirer et al. 1996.
Fringed myotis	<i>Myotis thysanodes</i>	Montana species of concern, sensitive species	Sensitive to disturbance at roost and hibernacula. Loss of snags	Maintain and protect habitat elements
Mountain goat	<i>Oreamnos americanus</i>	Local MFWP species of concern	Sensitive to disturbance on winter range.	Maintain and restore stands of open canopy mature and older ponderosa pine and cottonwood. Maintain the longterm sustainability of snags over time. Retain large diameter snags (especially within stand replacement fire areas).
North American wolverine	<i>Gulo gulo</i>	Montana species of concern, sensitive species	Sensitive to disturbance at den sites.	Maintain and/or restore grassland habitats. Limit pesticide use. Provide large blocks (300-500 meters) of grassland. Maitnain vertical struc ture throughout appropriate management techniques sch as light grazing, and occasional prescribed burning. Delay management and grazing until after the breedign seqason (approxiamtely July 15).
Hoary bat	<i>Lasiurus cinereus</i>			
Northern bog lemming	<i>Synaptomys borealis</i>	Species of greatest conservation need, sensitive species	Potential loss or degradation of habitat. Potential impact from winter motorized use.	Maintain open lower to mid-elevation mature/old forest habitat near open grassland or shrub habitat. Maintain the longterm sustainability of snags over time. see Hart et al. 1998. breedign abhbitat cvonsists priamrily of mid elevation, open pp or d or similar dry forests. usually occur on lower and middle souothern slopes and occuasinally on ridgetops. Strongly associated with mature to old growth pp and df. Open fo54rest standws with large trees and snags forr nesting and foraging, occasdional clusters of thick understory vegetation for roosting and calling and adjacent grassland openings that provide optimum edge haitat for foraging. Old woodpecker holes created by pileated woodpeckers and to al lesser degree flickers. In BC mature old growth df and df/pp as nesting habitat, restricted to open stands with multi layered canopies and an abundance of large well speced trees interspeersed with grassy openingw up to 2 ha insize. Regeneragin thickets within stands were used for roosting.
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	Species of greatest conservation need, sensitive species	Sensitive to disturbance at roost and hibernacula. Loss of snags.	Retain and restore stands of open canopy mature and older ponderosa pine. Maintain the longterm sustainability of snags over time. retain or maximize loss of large diameter snags.
Bighorn sheep	<i>Ovis Canadensis</i>		Human-caused disturbance during lambing and winter.	Retain and maintain sufficient snag numbers and sizes and actively promote long-term sustainability within a desired range.
Rocky mountain elk	<i>Cervus elaphus</i>		Vulnerability due to lack of security. Winter range.	Maintain and/or restore habitat conditions. Maintain sagebrush cover and the quality and integrity of native vegetation. Parasitism by brown headed cowbirds. Maintenance of large stands of sagebrush in robust condition.
Fish				
Columbia basin redband trout	<i>Oncorhynchus mykiss gairdneri</i>	SOGCN		
Invertebrates				

Common name	Scientific name	Identification source	Justification	Conservation needs/mgmt recommendations
Butterflies				
Gillette's checkerspot				
Caddisflies				
	Agapetus montanus			
Dragonflies				
Subarctic darner				
Boreal whiteface				
Brush-tipped emerald				
Mollusks				
Striate disc				
Western pearlshell mussel		SOGCN,		

BCC = birds of conservation concern, IDFG = Idaho department of fish and game, MDFWP = Montana department of fish, wildlife, and parks, WDFW = Washington Department of Fish and Wildlife, RO = Regional (R1) Office

Grasshopper sparrow	<i>Ammodramus savannarum</i>	Montana species of concern.	Rare. Reduction in grassland habitats, mostly on private lands. Local pop. trends unknown. Habitat very limited on NF lands.	Little information available. Mgmt towards HRV and direction to provide longterm sustainability of snags and down wood.
Black tern	<i>Chilodonia niger</i>	Species of greatest conservation need, sensitive species	Uncommon. On edge of primary range. Not known to occur on FS lands. FS mgmt not likely to have an influence on this species and/or its habitat in the plan area. Breeding not known on KIPZ.	Identify and protect roosts and hibernacula. Retain and maintain large snags. Promote the long-term sustainability of key habitat components (riparian areas and snags) over time. the response to big-eared bats to human activities is largely undocumented in MT. Abandoned mines should be surveyed prior to any reclamation activity. Surveys should follow protocols in the conservation assessment and conservation strategy (Pierson et al. 1999). Installation of bat friendly gates should be considered as a protective measure for all big eared roosts. other land management activity (cave management, pesticide spraying, timber harvest, other vegetation conversion) at or near known roosts should also be conducted according to the best management practices outlined in the conservation assessment and strategy.
Bobolink	<i>Dolichonyx oryzivorus</i>	Montana species of concern	FS mgmt not likely to have an influence on this species and/or its habitat in the plan area.	Maintain connectivity between roadless and wilderness areas. Prevent human disturbance to den sites. promote effective movement across highway corridors.
Long-billed curlew	<i>Numerous americanus</i>	Montana species of concern		Manage summer and winter habitat within HRV. reduce noxious weeds on winter range.
Boreal chickadee	<i>Poecile hudsonica</i>	Montana species of concern	Rare. On edge of primary range. FS mgmt not likely to have an influence on this species and/or its habitat in the plan area.	Provide for a large landscape with the natural mix of vegetation composition, structure, and arrangement. Protect nests, and nesting and post-fledgling stands.
Red-naped sapsucker	<i>Sphyrapicus nuchalis</i>	USFWS birds of conservation concern		Protect nest sites. Restore grasslands and shrub-steppe.
Brewer's sparrow	<i>Spizella breweri</i>	USFWS birds of conservation concern, Montana species of concern	On edge of primary range. Habitat limited on KIPZ. FS mgmt not likely to have an influence on this species and/or its habitat in the plan area.	Retain, maintain or restore stands of open canopy mature and older ponderosa pine and cottonwood. Maintain the longterm sustainability of snags over time. management actions in MT limited by lack of conclusive information about the specific relationship between species habitat use and reproductive success. Unclear if stand replacing fire or fire of less magnitude provide more appropriate habitat for successful reproduction. In areas where fire suppression has reduced the heterogeneity of the forest fire management techniques that provide a more historic pattern of disturbance would benefit the species. several other management techniques to benefit the species include retaining forested habitat around riparian and wetland habitats retaining snags and large trees post fire, select logging practices that retain medium and large trees with a relatively open canopy closure may also provide appropriate habitat.
Great gray owl	<i>Strix nebulosa</i>	Montana species of concern	Mgmt towards acceptable HRV will provide for this species.	Maintain and conserve habitat elements. Reduce human disturbance.
Northern hawkowl	<i>Surnia ulula</i>	Montana species of concern	Edge of primary range, rare on the forest. breeding not known to occur on the forest.	Providing large areas of suitable habitats (native and tame grasslands of moderate height and density, with adequate litter), controlling succession, and protecting nesting habitat from

				disturbance during the breeding season. Large blocks of suitable habitat with adequate vertical and horizontal structure including litter. Minimize woody edges and invasion by woody species.
White-tailed ptarmigan		Montana species of concern	Rare on the forest. FS mgmt not likely to have an influence on this species and/or its habitat in the plan area. edge of species range.	Maintain and protect habitat elements. Maintain the longterm sustainability of snags over time. provide extensive areas of old growth in the landscape.
Hoary marmot	<i>Marmota caligata</i>	Species of greatest conservation need		Maintain and protect habitat elements.
Preble's shrew	<i>Sorex preblei</i>	Montana species of concern	Rare. On edge of primary range. Moderate threats.	Maintain ecological processes within the HRV. Retain patches of insect, disease or fire-killed trees. Strong association with dying or dead trees infested with beetles. Conservation of specific forest seral stages (mainly mature and old growth) that may ultimately determine the baseline populations and viability of bbwp. focusing only on burned areas as a management approach may jeopardize their longterm viability. Mature and old growth forests containing patches of beetle infested trees may provide adequate habitat to support baseline populations of bbwp when burned areas are not available. It is important to recognize though that large scale disturbances may be more important in maintaining their populations now than in historical times due to the reduction of all old growth forests and the increase in salvage logging techniques which remove dying and recently killed trees throughout north america.
Pygmy shrew	<i>Sorex hoyi</i>	Montana species of concern, sensitive species	Mgmt towards acceptable HRV will provide for this species.	Maintain and/or restore habitat conditions. Maintain the longterm sustainability of snags over time.

Species of Concern

Table 12. Information on wildlife species of concern range and status for the Idaho Panhandle National Forest

Species common name	Scientific name	Species Range	Reference	Observations on the forest
Vertebrates-amphibians				
Columbia spotted frog	<i>Rana luteiventris pop. 3</i>	Outside species range. Great basin population only.	NatureServe explorer species report (2008), Id CWCS (2005)	
Idaho giant salamander	<i>Dicamptodon aterrimus</i>	Yes - In Idaho restricted to the north central forested areas. including parts of the Coeur d'Alene, Clearwater, and Salmon river drainages. Elsewhere reported to occur only in extreme western Montana.	NatureServe explorer species report (2008), Id CWCS (2005)	
Birds				
Greater sage grouse	<i>Centrocercus urophasianus</i>	Outside species range.		
Yellow-billed cuckoo	<i>Coccyzus americanus</i>			
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	Outside species range. Open woodland parks and deciduous woodland. Little to no information for MT. southwest MT.	NatureServe explorer species report (2008),	No record
Peregrine falcon	<i>Falco peregrinus</i>	Yes	NatureServe explorer species report (2008), Id CWCS (2005)	Yes
Bald eagle	<i>Haliaeetus leucocephalus</i>	Yes.		Yes – nesting on both NFS and private lands
American white pelican	<i>Pelecanus erythrorhynchos</i>	Outside species primary range. Migratory. 4 breeding colonies in MT, Medicine Lake, Bowdoin, Arod Lakes and Canyon Ferry.	NatureServe explorer species report (2008), Id CWCS (2005)	No record
Columbian sharp-tailed grouse	<i>Tympanuchus phasianellus columbianus</i>	Yes, southern edge of populations in Canada. Possibly extirpated.	NatureServe explorer species report (2008), Id CWCS (2005)	Yes – but occurrence on NFS lands rare
Mammals				
Townsend's western big-eared bat	<i>Corynorhinus townsendii townsendii</i>	Outside species range		
Northern Idaho ground squirrel	<i>Spermophilus brunneus brunneus</i>	Outside species range	NatureServe explorer species report (2008), Id CWCS (2005)	
Southern Idaho ground squirrel	<i>Spermophilus brunneus endemicus</i>	Outside species range	NatureServe explorer species report (2008), Id CWCS (2005)	
Fish				
Bear lake sculpin	<i>Cottus extensus</i>	Outside species range. Endemic to Bear Lake.	NatureServe explorer species report (2008), Id CWCS (2005)	
Shoshone sculpin	<i>Cottus greenei</i>	Outside species range. Snake River of south central Idaho.	NatureServe explorer species report (2008), Id CWCS (2005)	
Wood river sculpin	<i>Cottus leiopomus</i>	Outside species range. Wood River drainage in south central Idaho.	NatureServe explorer species report (2008), Id CWCS (2005)	
Northern leatherside chub	<i>Lepidoma copei</i>	Outside species range. Bear River drainage, tributaries of the Snake River.	NatureServe explorer species report (2008), Id CWCS (2005)	
Yellowstone cutthroat trout	<i>Oncorhynchus clarki bowieri</i>	Outside of species range. Species has been introduced into the area. native distribution includes the Yellowstone River drainage of Montana, Wyoming and the upper Snake River drainage in Idaho, Wyoming, Utah and Nevada (Behnke 2002 in Id CWCS).	NatureServe e NatureServe explorer species report (2008), Id CWCS (2005)explorer species report. NHP 2008. NatureServe explorer species report (2008), Id CWCS (2005)	No
Westslope cutthroat trout	<i>Oncorhynchus clarkia lewisi</i>	Yes. birth sides of the Continental Divide from Yellowstone NP into BC and Alberta. Additionally there are several disjunct populations in Oregon, Washington, and BC (Ibid). in Idaho they inhabit the Salmon, Clearwater, Coeur d'Alene, Clark Fork and Kootenai drainages.	NatureServe explorer species report (2008), Id CWCS (2005)	Known
Snake river fine-spotted trout	<i>Oncorhynchus clarkia ssp.</i>	Outside of species range. Species has been introduced into the area.	NatureServe explorer species report.	No

Species common name	Scientific name	Species Range	Reference	Observations on the forest
	2			
California golden trout	<i>Oncorhynchus mykiss aquabonita</i>			
Steelhead (Snake R basin)	<i>Oncorhynchus mykiss gairdneri</i>	Outside species range. In Idaho steelhead had access to most of the Clearwater, Salmon, Weiser, Payette, Boise, Owyhee, Bruneau, and Salmon Falls Creek drainages.		
Sockeye salmon (Snake R)	<i>Oncorhynchus nerka</i>	Outside species range. In Idaho sockeye salmon historically spawned and reared in the large lakes accessible to the ocean (Payette and Salmon R drainages).		
Chinook salmon (Snake R) fall run	<i>Oncorhynchus tshawytscha</i>	Outside species range. Snake river Chinook salmon historically were found spawning in the Snake River and Clearwater River.		
Chinook salmon (Snake R) spring/summer run	<i>Oncorhynchus tshawytscha</i>	Outside species range. Snake river Chinook salmon historically were found spawning in the Snake River tributaries of the Clearwater, Salmon, Weiser, Payette, and Boise rivers.		
Bear lake whitefish	<i>Prosopium abyssicola</i>	Outside species range. Endemic to bear lake.	NatureServe explorer species report (2008), Id CWCS (2005)	
Bonneville cisco	<i>Prosopium gemmifer</i>	Outside species range.	NatureServe explorer species report (2008), Id CWCS (2005)	
Spotted whitefish	<i>Prosopium sp. 1</i>	Outside species range		
Bonneville whitefish	<i>Prosopium spilonotus</i>	Outside species range. Endemic to Bear Lake.	NatureServe explorer species report (2008), Id CWCS (2005)	
Landlocked arctic char	<i>Salvelinus alpinus oquassa</i>			
Invertebrates - Crustaceans				
Raptor fairy shrimp	<i>Branchinecta raptor</i>	Outside known range. Limited to two argillotrophic temporary pools in southwestern Idaho (Rogers et al. 2006, in NatureServe 2008).	NatureServe explorer species report (2008),	
Idaho amphipod	<i>Stygobromus idahoensis</i>	Outside of species range. Known from a tributary to the middle fork Salmon river, Lemhi county. (NatureServe 2007)	NatureServe explorer species report (2008), Id CWCS (2005)	
Invertebrates - insects				
Beetles				
St. Anthony Dune tiger beetle	<i>Cincindela arenicola</i>	Outside known range. Southern Idaho in three widely separated areas but now perhaps restricted to the St. Anthony sand dunes, Fremont county (NatureServe 2008) No global range map available. Fremont, Jefferson, Clark, Bonneville, Bannock, Power, Blaine, Minidoka, and Lincoln, perhaps also Madison and Bingham counties (Id CWCS 2005).	NatureServe explorer species report (2008). Idaho CWCS (2005).	No record
Columbia river tiger beetle	<i>Cincindela columbica</i>	Outside known range. Limited remaining range along a single river. Extirpated from most of recent range (NatureServe 2008). No global range map available. Lower Salmon River canyon (Id CWCS 2005).	NatureServe explorer species report (2008). Idaho CWCS (2005).	
Hairy-necked tiger beetle	<i>Cincindela hirticollis couleensis</i>	Outside known range. No global range map available. No information available in NatureServe (2008).	NatureServe explorer species report (2008). Idaho CWCS (2005).	
Alpine tiger beetle	<i>Cincindela plutonica</i>	Outside known range. No global range map available. (NatureServe 2008). Scattered localities in southern parts of the state in Ada, Canyon, Cassia, Elmore, Jefferson, Lemhi, and Owyhee counties (Id CWCS 2005).	NatureServe explorer species report (2008). Idaho CWCS (2005).	
Alpine tiger beetle	<i>Cincindela plutonica plutonica</i>	Outside known range. No global range map available. No information available in NatureServe (2008).	NatureServe explorer species report (2008). Idaho CWCS (2005).	
Oblique-lined tiger beetle	<i>Cincindela tranquebarica vibex</i>	Outside species range. No global range map available. No information available in NatureServe (2008).	NatureServe explorer species report (2008). Idaho CWCS (2005).	No record
Bruneau tiger beetle	<i>Cincindela waynei</i>	Outside known range. No global range map available. Apparently restricted to Owyhee county (NatureServe 2008). Idaho endemic restricted to two locations in northern Owyhee county (Id CWCS 2005).	NatureServe explorer species report (2008). Idaho CWCS (2005).	
Blind cave leiodid beetle	<i>Glavicavicola bathyscioides</i>	Outside known range. No global range map available. Butte, Fremont, Power counties (NatureServe 2008). Occurs in four widely separated lave tube caves on the eastern Snake River plain in Fremont, Butte, Lincoln, and Power counties (Id CWCS 2005).	NatureServe explorer species report (2008). Idaho CWCS (2005).	

		Species Range	Reference	Observations on the forest
Species common name	Scientific name			
Gillette's checkerspot	<i>Euphydryas gillettii</i>	Yes. Rocky mountains, southern Alberta, MT, western WY, central ID. No global range map available. Occurrences listed for Bonner and Shoshone counties (MSU 2008).	NatureServe explorer species report (2008). Idaho CWCS (2005). MSU Butterflies and moths of North America (2008).	No record
Butterflies				
Western sulphur	<i>Colias occidentalis</i>	Yes - Limited range, local and uncommon within its range. Southern BC, WA, OR, northern UT, western MT, ID, and northern CA. (NatureServe 2008). No global range map available. Occurrences listed for Bonner, Kootenai, Shoshone, Clearwater, and Latah counties (MSU 2008).	NatureServe explorer species report (2008). MSU Butterflies and moths of North America (2008).	No record
Intermountain sulphur	<i>Colias occidentalis pseudochristina</i>	Outside known range. Listed for Idaho, Utah, and Washington (NatureServe 2008). No global range map available. Found from the eastern Blue Mtns. In Washington, through the /blue and Ochoco Mtns, in Oregon, along the Snake River in Idaho and south into western Utah (NatureServe 2008). No occurrences for the forest (MSU 2008).	NatureServe explorer species report (2008). MSU Butterflies and moths of North America (2008).	No record
California marble	<i>Euchloe hyantis</i>	Outside known range, No global range map available. Southern Oregon south through California including northern coast ranges, Sierra Nevada, transverse ranges, and peninsular ranges into Baja California, Mexico. No occurrences for the forest (MSU 2008).	NatureServe explorer species report (2008). MSU Butterflies and moths of North America (2008).	
Edith's checkerspot	<i>Euphydryas editha owyheensis</i>	Outside known range. No global range map available.	NatureServe explorer species report (2008). MSU Butterflies and moths of North America (2008).	
Relict fritillary	<i>Boloria kriemhild</i>	Outside known range. Rocky mountains of MT, WY, ID and UT. (NatureServe 2008). No global range map available. Idaho localities include Fremont, Teton, Caribou, Bannock, Franklin, Bear, Lake, and Cassia counties (Id CWCS 2005). No occurrences for the forest (MSU 2008).	NatureServe explorer species report (2008). Idaho CWCS (2005). MSU Butterflies and moths of North America (2008).	No record
Caddisflies				
A Agapetus caddisfly	<i>Agapetus montanus</i>	Yes. Idaho, Montana, Manitoba. No global range map available. (NatureServe 2008). Status in Idaho unknown. (Id CWCS 2005).	NatureServe explorer species report (2008). Idaho CWCS (2005).	
A caddisfly	<i>Apatania comosa</i>	Outside species range. No global range map available. Idaho, Montana, Utah. In Idaho Bonneville county only. status in Idaho unknown. (NatureServe 2008).	NatureServe explorer species report (2008).	
A caddisfly	<i>Arctospora salmon</i>	No global range map available. Known from Idaho only. status in Idaho unknown. (NatureServe 2008).	NatureServe explorer species report (2008).	
A caddisfly	<i>Ceraclaea coph</i>	Outside species range. No global range map available. Idaho, Colorado, Wyoming, Montana, also in Canada only in Kaslo, BC. Snake River, Power county, Idaho. status in Idaho unknown.	NatureServe explorer species report (2008).	
A caddisfly	<i>Glossosoma idaho</i>	Outside species range. No global range map available. Idaho and Montana only. Fremont and Gooding counties only. (NatureServe 2008). Status in Idaho unknown.	NatureServe explorer species report (2008).	
A caddisfly	<i>Goereilla baumanni</i>	Outside species range. No global range map available. Idaho and Montana. reported from one stream in Clearwater county. (NatureServe 2008). Status in Idaho unknown.	NatureServe explorer species report (2008).	
A caddisfly	<i>Homophylax auricularis</i>	No global range map available. Known from Idaho only in Adams county (NatureServe 2008). Status in Idaho unknown.	NatureServe explorer species report (2008).	
A caddisfly	<i>Limnephilus challisa</i>	Outside species range. No global range map available. Idaho only in Blaine and Custer counties. (NatureServe 2008). Status in Idaho unknown.	NatureServe explorer species report (2008).	
A caddisfly	<i>Limnephilus rhea</i>	Outside species range. No global range map available. Known from Idaho only, Boise county. (NatureServe 2008). Status in Idaho unknown.	NatureServe explorer species report (2008).	
A caddisfly	<i>Manophylax annulatus</i>	No global range map available. Known from Idaho only. limited area. (NatureServe 2008). Status in Idaho unknown.	NatureServe explorer species report (2008).	
A caddisfly	<i>Nectopsyche minuta</i>	No global range map available. Arizona, California, Idaho, Nevada, and Washington. (NatureServe 2008). Status in Idaho unknown.	NatureServe explorer species report (2008).	
A caddisfly	<i>Ochrotrichia buccata</i>	Outside species range. No global range map available. California and Idaho. Known from California and Oregon (NatureServe 2008). Assumed to be extant. Status in Idaho unknown. Unsure if this species occurs in Idaho base on info in NatureServe.	NatureServe explorer species report (2008).	
A caddisfly	<i>Philocasca antennata</i>	No global range map available. Limited range in Idaho and Washington. (NatureServe	NatureServe explorer species report (2008).	

Species common name	Scientific name	Species Range	Reference	Observations on the forest
		2008). Status in Idaho unknown.		
A caddisfly	<i>Philocasca banksi</i>	No global range map available. Limited range in Idaho and Montana. (NatureServe 2008). Status in Idaho unknown.	NatureServe explorer species report (2008).	
A caddisfly	<i>Polycentropus demingi</i>	No global range map available. Idaho, Montana, Oregon, Washington, and BC. (NatureServe 2008). Status in Idaho unknown.	NatureServe explorer species report (2008). NatureServe explorer species report (2008).	
A caddisfly	<i>Psychoglypha prita</i>	No global range map available. Idaho, Montana, Oregon, BC. (NatureServe 2008)	NatureServe explorer species report (2008).	
A caddisfly	<i>Psychoglypha smithi</i>	No global range map available. Known from limited range in Idaho only. (NatureServe 2008). Assumed to be extant. Status in Idaho unknown.	NatureServe explorer species report (2008).	
A caddisfly	<i>Rhyacophila belona</i>	No global range map available. BC, Alberta, Idaho and Montana. (NatureServe 2008). Status in Idaho unknown.	NatureServe explorer species report (2008).	
A caddisfly	<i>Rhyacophila coloradensis idahoensis</i>	No global range map available. Alberta, BC and Idaho. (NatureServe 2008). Status in Idaho unknown.	NatureServe explorer species report (2008).	
	<i>Rhyacophila oreia</i>	No global range map available. Limited range in Idaho and Wyoming. Assumed to be extant. (NatureServe 2008). Status in Idaho unknown.	NatureServe explorer species report (2008).	
A caddisfly	<i>Rhyacophila potteri</i>	No global range map available. Idaho and Montana. Limited distribution to site in Idaho. (NatureServe 2008). Status in Idaho unknown.	NatureServe explorer species report (2008).	
A caddisfly	<i>Sericostriata surdickae</i>	Outside species range. Clearwater River in Idaho and adjacent in the Clark Fork. Limited area in Idaho and Montana. (NatureServe 2008). In Idaho known from Idaho, Valley, Elmore and Lemhi counties. Status in Idaho unknown.	NatureServe explorer species report (2008).	
Grasshoppers				
Idaho point headed grasshopper	<i>Acrolophitus pulchellus</i>	Outside of species range. Endemic to east central Idaho in the birch Creek and big Lost River drainages. Id CWCS 2005.	NatureServe explorer species report 2008, Id CWCS 2005.	
grasshopper	<i>Arigiacris amissuli</i>	Outside of species range. Endemic to Idaho, butte county. Id CWCS 2005.	NatureServe explorer species report 2008, Id CWCS 2005.	No record
A grasshopper	<i>Arigiacris keithi</i>	Outside of species range. Endemic to Idaho. Custer and Lemhi counties. Id CWCS 2005.	NatureServe explorer species report 2008, Id CWCS 2005.	
A grasshopper	<i>Arigiacris militaris</i>	Outside of species range. Endemic to Idaho. Camas, Blaine, Lemhi, and Custer counties. Id CWCS 2005.	NatureServe explorer species report 2008, Id CWCS 2005.	
A grasshopper	<i>Barricris petraea</i>	Outside of species range. Occurs in Idaho and Montana. In Idaho in Lemhi, Clark and southeastern Idaho counties. Id CWCS 2005.	NatureServe explorer species report 2008, Id CWCS 2005.	No record
A spur-throat grasshopper	<i>Melanoplus artemesiaae</i>	Outside known range. endemic to Idaho. Localities in Lemhi county. Not reported since 1928. Id CWCS 2005.	NatureServe explorer species report 2008, Id CWCS 2005.	No record
A spur-throat grasshopper	<i>Melanoplus daemon</i>	Outside known range. Endemic to Idaho. Single locality in Adams county. Id CWCS 2005.	NatureServe explorer species report 2008, Id CWCS 2005.	No record
A spur-throat grasshopper	<i>Melanoplus digitifer</i>	Outside known range. Oregon and Idaho, perhaps Washington and Montana., in Idaho found in Adams, butte, Caribou, Clearwater, Custer, Idaho, and Valley counties. Id CWCS 2005.	NatureServe explorer species report 2008, Id CWCS 2005.	No record
A spur-throat grasshopper	<i>Melanoplus idaho</i>	Outside known range. Endemic to Idaho. Single locality in Lemhi county. Id CWCS 2005.	NatureServe explorer species report 2008, Id CWCS 2005.	No record
A spur-throat grasshopper	<i>Melanoplus lemhiensis</i>	Outside known range. Endemic to Idaho. One locality in Lemhi county. Id CWCS 2005.	NatureServe explorer species report 2008, Id CWCS 2005.	No record
A spur-throat grasshopper	<i>Melanoplus papyraedus</i>	.Outside of species range. Endemic to Idaho. Few individuals collected in Idaho in Lemhi and Adams counties. Id CWCS 2005.	NatureServe explorer species report 2008, Id CWCS 2005.	No record
A spur-throat grasshopper	<i>Melanoplus payetti</i>	Outside of species range. Washington, Oregon and Idaho. In Idaho reported from Latah, Washington, Idaho and Valley counties. Id CWCS 2005.	NatureServe explorer species report 2008, Id CWCS 2005.	No record
A spur-throat grasshopper	<i>Melanoplus salmonis</i>	Outside known range. Endemic to Idaho. Single location in Lemhi county. Id CWCS 2005.	NatureServe explorer species report 2008, Id CWCS 2005.	No record
A spur-throat grasshopper	<i>Melanoplus trigeminus</i>	Outside known range. Endemic to Idaho. one location in Clark county and 3 in Lemhi county. Id CWCS 2005.	NatureServe explorer species report 2008, Id CWCS 2005.	No record

		Species Range	Reference	Observations on the forest
Species common name	Scientific name			
A spur-throat grasshopper	<i>Melanoplus sp. 3</i>	Not considered a species (Range unknown, No information available in NatureServe or CWCS.	NatureServe explorer species report 2008	No record
A spur-throat grasshopper	<i>Melanoplus sp. 4</i>	Not considered a species (Range unknown, No information available in NatureServe or CWCS.	NatureServe explorer species report 2008,	No record
A spur-throat grasshopper	<i>Melanoplus sp. 15</i>	Not considered a species (Range unknown, No information available in NatureServe or CWCS.	NatureServe explorer species report 2008,	No record
A spur-throat grasshopper	<i>Melanoplus sp. 20</i>	Not considered a species (Range unknown, No information available in NatureServe or CWCS.	NatureServe explorer species report 2008,	No record
A spur-throat grasshopper	<i>Melanoplus sp. 24</i>	Not considered a species (Range unknown, No information available in NatureServe or CWCS.	NatureServe explorer species report 2008,	No record
A spur-throat grasshopper	<i>Melanoplus sp. 25</i>	Not considered a species (Range unknown, No information available in NatureServe or CWCS.	NatureServe explorer species report 2008,	No record
A spur-throat grasshopper	<i>Melanoplus sp. 28</i>	Not considered a species (Range unknown, No information available in NatureServe or CWCS.	NatureServe explorer species report 2008,	No record
A spur-throat grasshopper	<i>Melanoplus sp. 30</i>	Not considered a species (Range unknown, No information available in NatureServe or CWCS.	NatureServe explorer species report 2008,	No record
A spur-throat grasshopper	<i>Melanoplus sp. 33</i>	Not considered a species (Range unknown, No information available in NatureServe or CWCS.	NatureServe explorer species report 2008,	No record
A spur-throat grasshopper	<i>Melanoplus sp. 34</i>	Not considered a species (Range unknown, No information available in NatureServe or CWCS.	NatureServe explorer species report 2008,	No record
A spur-throat grasshopper	<i>Melanoplus sp. 50</i>	Not considered a species (Range unknown, No information available in NatureServe or CWCS.	NatureServe explorer species report 2008,	No record
A spur-throat grasshopper	<i>Melanoplus sp. 53</i>	Not considered a species (Range unknown, No information available in NatureServe or CWCS.	NatureServe explorer species report 2008,	No record
A spur-throat grasshopper	<i>Melanoplus sp. 57</i>	Not considered a species (Range unknown, No information available in NatureServe or CWCS.	NatureServe explorer species report 2008,	No record
A spur-throat grasshopper	<i>Melanoplus sp. 60</i>	Not considered a species (Range unknown, No information available in NatureServe or CWCS.	NatureServe explorer species report 2008,	No record
A spur-throat grasshopper	<i>Melanoplus sp. 63</i>	Not considered a species (Range unknown, No information available in NatureServe or CWCS.	NatureServe explorer species report 2008,	No record
Mayflies				
A mayfly	<i>Ameletus sparsatus</i>	Outside of species range. Colorado, Montana, Idaho, Alberta and BC. In Idaho occurs in scattered localities across the central and eastern parts of the state. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
A mayfly	<i>Ameletus suffusus</i>	Outside of species range. Idaho, Oregon, Alberta, and BC. In Idaho known from 1 collection in Latah county. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
A mayfly	<i>Ameletus tolae</i>	Suspected. Oregon and Idaho. A single collection has been documented in Idaho. (Id CWCS 2005)	NatureServe explorer species report 2008, Id CWCS 2005)	
A mayfly	<i>Ametropus ammophilus</i>	Outside of species range. California, Idaho, Montana, Oregon, Washington, and Alberta. In Idaho occurs in the Payette River and Salmon River drainages. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
A mayfly	<i>Asioplax edmundsi</i>	Outside of species range. Colorado, Idaho, Utah, and Alberta. In Idaho limited to the vicinity of Canyon and Ada counties. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
A mayfly	<i>Baetisca columbiana</i>	Idaho, Montana, Washington, Alberta and Saskatchewan. Status in Idaho unknown. NatureServe 2008.	NatureServe explorer species report 2008	
A mayfly	<i>Caudatella edmundsi</i>	Outside species range. Idaho, Montana, Oregon, and Washington. In Idaho reported in the Snake river drainage. NatureServe 2008. status in Idaho unknown.	NatureServe explorer species report 2008	
Lolo mayfly	<i>Caurinella idahoensis</i>	Outside of species range. Montana and Idaho. in Idaho occurs in scattered localities in the central part of the state. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
A mayfly	<i>Centroptilum selanderorum</i>	Outside of species range. In Idaho includes Custer, Canyon, Blaine, Butte, Bingham, Lincoln, Oneida and Cassia counties. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	

Species common name	Scientific name	Species Range	Reference	Observations on the forest
A mayfly	<i>Cinygma dimicki</i>	Outside of species range. Idaho and Oregon, in Idaho known from a single collection in Custer county. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
A mayfly	<i>Cinygmula uniformis</i>	California, Idaho, Oregon, Washington, BC and Yukon territory. Status in Idaho unknown.	NatureServe explorer species report 2008	
A mayfly	<i>Paraleptophlebia jenseni</i>	Outside of species range. Idaho and Washington. In Idaho known from a single location in Owyhee county. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
A mayfly	<i>Paraleptophlebia vaciva</i>	Outside of species range. Idaho, Colorado, Oregon, Washington, Alberta and BC. In Idaho known from Lemhi, Latah, and Boise counties. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
A mayfly	<i>Parameletus columbiae</i>	Outside of species range. Idaho, Utah, Wyoming and BC. In Idaho includes Latah, Blaine, and Teton counties. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Stoneflies				
Glacier snowfly	<i>Bolshecapnia milami</i>	Outside known range. Idaho, Montana, New Mexico, Alberta, and BC. In Idaho a single locality in Blaine county. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Straight snowfly	<i>Capnia lineata</i>	Outside known range. Idaho and California. In Idaho known only from Latah county. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Boise snowfly	<i>Capnia nedia (Utacapnia nedia)</i>	Outside known range. Idaho and Oregon. Global and state range maps not available. In Idaho known from Ada and Washington counties. Species status in Idaho unknown.	NatureServe explorer species report 2008,	
Idaho snowfly	<i>Capnia zukeli</i>	Outside known range. Endemic to Idaho in Latah county. Species status in Idaho unknown. Global and state range maps not available.	NatureServe explorer species report 2008,	
Cascades stripetail	<i>Cascadoperna trictura</i>	Yes, coastal and cascade ranges of California, Oregon, Washington, and BC, and in the northern rocky Mtns of Idaho and Montana. In Idaho known only from Shoshone county. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
A stonefly	<i>Isoperla bifurcata</i>	Outside known range. California, Idaho and Washington. In Idaho reported to occur in Teton, Lemhi and Blaine counties. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Notched stripetail	<i>Isoperla sordida</i>	Alaska, California, Idaho, Montana, Oregon, Washington, Alberta, and BC. No global or state range maps available. Status in Idaho unknown.	NatureServe explorer species report 2008,	
Tiny forestfly	<i>Malenka tina</i>	Outside known range. Global and state range maps not available. Idaho, Montana, Nevada, Oregon, Utah, and Washington. In Idaho known from Blaine, Butte, Idaho, Lemhi, Minidoka, and Twin Falls counties. Species status in Idaho unknown. NatureServe 2008)	NatureServe explorer species report 2008,	
Cascade needelfly	<i>Megaleuctra kincaidii</i>	Outside known range. Idaho, Washington and Oregon. In Idaho occurs in Clearwater county. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Black needelfly	<i>Perlomyia collaris</i>	Outside known range. California, Idaho, Oregon, BC and the Yukon. In Idaho known only from Nez Perce county. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Autumn springfly	<i>Pictiella expansa</i>	Yes, Colorado, Idaho, Montana, Utah and Wyoming. Widespread in the Idaho Panhandle, known in Boundary, Bonner, Benewah, Shoshone, Clearwater, Bonneville and Teton counties. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Alberta springfly	<i>Setvena bradleyi</i>	Unknown. Global and state range maps not available. Idaho, Montana, Alberta and BC. Status in Idaho unknown. No information available in NatureServe.	NatureServe explorer species report 2008,	
Clearwater roachfly	<i>Soliperla salish</i>	Outside known range. Global and state range maps not available. Idaho and Montana. North fork Clearwater river and Clark fork river in Idaho and Montana. Species status in Idaho unknown. NatureServe 2008)	NatureServe explorer species report 2008,	
Idaho forestfly	<i>Soyedina potteri</i>	Outside known range. Global and state range maps not available. Idaho and Montana. North fork Clearwater river and Clark fork river in Idaho and Montana. Species status in Idaho unknown. NatureServe 2008)	NatureServe explorer species report 2008,	
Utah sallfly	<i>Sweltsa gaufini</i>	Outside known range. Idaho and Utah. Global and state range maps not available. Bear River area of northern Utah and Idaho. Species status in Idaho unknown. NatureServe 2008)	NatureServe explorer species report 2008,	
Umatilla willowfly	<i>Taenionema umatilla</i>	Outside known range. Global and state range maps not available. Idaho and Oregon. I Idaho known only from Latah county. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
A stonefly	<i>Zapada cordillera</i>	Outside known range. Idaho, Oregon, Washington, Montana, California, and Manitoba. In Idaho known only in Idaho county. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	

		Species Range	Reference	Observations on the forest
Species common name	Scientific name			
Invertebrates - millipedes				
A cave obligate millipede	<i>Idagona westcotti</i>	Outside known range. Known from Crystal Falls Cave, Clark county, and Boy Scout Cave, Butte county. Global range map not available (NatureServe 2008).		
Invertebrate - Mollusks				
Selway forestsnail	<i>Allogona lombardii</i>	Outside known range. Endemic to Idaho. Selway, Lochsa, lower Salmon, and upper Clearwater drainages (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Dry land forestsnail	<i>Allogona ptychophora solida</i>	Outside known range. Idaho, eastern Washington and eastern Oregon. In Idaho, includes Hells Canyon, lower Salmon River canyon and lower Clearwater River drainage (Frest 1999 in Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Washington duskysnail	<i>Ammicola sp. 2</i>	Not considered a species	NatureServe explorer species report 2008	No record
Nimapuna tigersnail	<i>Anguispira nimapuna</i>	Outside known range. Endemic to Idaho. Clearwater, Selway and Lochsa drainages. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
California floater	<i>Anodonta californiensis</i>	Outside known range. BC, Oregon, Washington, California, Idaho, Wyoming, Utah, Nevada, and Arizona. In Idaho occur in the Snake River drainage. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Western thorn	<i>Carychium occidentale</i>	Does not meet the criteria for species of concern. Range unknown. No global or state range map available (NatureServe 2008, Id CDC 2008). California, Idaho, Oregon, Washington.	NatureServe explorer species report 2008	
Riblet ambersnail	<i>Catinella gabbi</i>	Unknown. No global or state range map available (NatureServe 2008, Id CDC 2008). California, Idaho, Washington. No information available in NatureServe. Status in Idaho unknown.	NatureServe explorer species report 2008	
Chrome ambersnail	<i>Catinella rehderi</i>	Outside known range. Idaho, northeast Oregon and extreme southeast Washington. In Idaho occur in the Snake, lower Salmon, and lower Clearwater River canyons.	NatureServe explorer species report 2008	
Salmon Oregonian	<i>Cryptomastix harfordiana</i>	Outside known range. Endemic to lower Salmon River canyon in Idaho. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Columbia Oregonian	<i>Cryptomastix hendersoni</i>	Outside known range. No global or state range map available (NatureServe 2008, Id CDC 2008). Idaho, Oregon, Washington. Known only from Washington and Oregon. (NatureServe 2008).	NatureServe explorer species report 2008	
Mission creek Oregonian	<i>Cryptomastix magnidentata</i>	Outside known range. Endemic to single site in the Mission Creek drainage. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Oregonian	<i>Cryptomastix mullani blandi</i>	Yes. endemic to lower Coeur d'Alene River valley of Idaho. Efforts to relocate populations unsuccessful (Frest 1999 in Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
River of no return Oregonian	<i>Cryptomastix mullani clappi</i>	Outside known range. Endemic to Idaho in scattered locations along the lower Salmon River. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
A land snail (lower salmon river)	<i>Cryptomastix mullani latilabris</i>	Outside known range. Endemic to Idaho. Clearwater and Salmon River drainages. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
A land snail (lower Clearwater river)	<i>Cryptomastix mullani tuckerii</i>	Outside known range. Endemic to Idaho. formerly occurring along the mainstem Clearwater River. Current distribution uncertain. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
A land snail (hells canyon)	<i>Cryptomastix populi</i>	Outside known range. Idaho, Oregon, Washington. In Idaho occur in the Snake, lower Salmon, and lower Clearwater River canyons. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Kingston Oregonian	<i>Cryptomastix sanburni</i>	Yes. Endemic to Idaho. primarily along the Coeur d'Alene River although reported to occur near Pend Oreille Lake. Recent efforts to relocate populations unsuccessful. Current status unknown. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	No record
Disc Oregonian	<i>Cryptomastix sp. 3</i>	Not considered a species	NatureServe explorer species report 2008	
Lochsa Oregonian	<i>Cryptomastix sp. 4</i>	Not considered a species	NatureServe explorer species report 2008	
Lucille Oregonian	<i>Cryptomastix sp. 5</i>	Not considered a species	NatureServe explorer species report 2008	
Whitebird Oregonian	<i>Cryptomastix sp. 6</i>	Not considered a species	NatureServe explorer species report 2008	
Hells canyon Oregonian	<i>Cryptomastix sp. 7</i>	Not considered a species	NatureServe explorer species report 2008	
Marbled disc	<i>Discus marmorensis</i>	Outside known range. Endemic to lower Salmon River drainage in Idaho. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	No record
Shortface lanx	<i>Fisherola nuttalli</i>	Outside known range. Columbia River drainage of the Pacific Northwest, including ID,	NatureServe explorer species report 2008, Id	No record

Species common name	Scientific name	Species Range	Reference	Observations on the forest
		WA, OR, MT and BC. Most populations appear to be extirpated. In Idaho populations persist in the Salmon and Snake rivers. (Id CWCS 2005).	CWCS 2005)	
Green river pebblesnail	<i>Fluminicola coloradoensis</i>	Outside known range. Wyoming, Utah, and Idaho. widespread in southeast Idaho in springs and tributaries in the Bear River and upper Snake River drainages (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Ashy pebblesnail	<i>Fluminicola fuscus</i>	Outside known range. Originally known from the Lower Snake and Columbia River drainages in Washington, Oregon, Idaho BC and possibly Montana (Frest and Johannes 1995, Hershler and Frest 1996 both in Id CWCS). Has been extirpated from the middle and upper Columbia River in Washington, Montana and BC. And may be extinct in the lower Columbia River in Washington and Oregon (Frest and Johannes 1995 in Id CWCS). Is still extant in some tributaries in Washington.	NatureServe explorer species report,	No record
Pixie pebblesnail	<i>Fluminicola minutissimus</i>	Outside known range. Endemic to Weiser River drainage in Idaho. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
A freshwater snail	<i>Fossaria cockerelli</i>	Does not meet definition of species of concern. Range unknown. No global or state range map available (NatureServe 2008, Id CDC 2008). Idaho, Texas, Washington. No information available in NatureServe. Status in Idaho unknown.	NatureServe explorer species report 2008	
Western ridged mussel	<i>Gonidea angulata</i>	Outside known range. BC, Washington, Oregon, California, Nevada, and Idaho. In Idaho existed in the Snake River, Clearwater River, Salmon River, and Little Salmon River. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Great basin rams horn	<i>Helsioma newberryi</i>	Outside known range. No global or state range map available (NatureServe 2008, Id CDC 2008). California, Idaho, Oregon, Nevada, Utah, Wyoming. Confined to large spring complexes on the periphery of the Great Basin. There are few remaining populations, most in the upper Klamath Lake and its River drainages. Northeastern California and south central Oregon. Idaho sites are from the Pleistocene and considered extirpated. (NatureServe 2008) .	NatureServe explorer species report 2008	
Salmon coil	<i>Helicodiscus salmonaceus</i>	Outside known range. Endemic to Idaho in the lower Snake River valley. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Pale jumping slug	<i>Hemphilia camelus</i>	Yes. endemic to Idaho. St Joe, Selway, and south fork Clearwater river valleys, and historically portions of the lower Salmon River valley. Current status of the St Joe populations unknown. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Marbled jumping slug	<i>Hemphillia danielsi</i>	Unknown. No global or state range map available (NatureServe 2008, Id CDC 2008). Idaho and Montana. About 10 sites in Montana with additional sites likely and infrequently in Idaho. seldom collected recently in Idaho (NatureServe 2008).	NatureServe explorer species report 2008	No record
Pygmy slug	<i>Kootenaia burkei</i>	Yes. endemic to Idaho. Lake Pend Oreille or the Coeur d'Alene lake watersheds. populations occur in Shoshone, Bonner, Kootenai, Benewah counties. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	Yes
Banbury springs limpet	<i>Lanx sp. (undescribed)</i>	Outside known range. Endemic to Idaho, in the Snake River drainage. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Masked or Washington dusksnail	<i>Lyogyrus sp. 2</i>	Not considered a species	NatureServe explorer species report 2008	
Snake dusksnail	<i>Lyogyrus sp. 6</i>	Not considered a species	NatureServe explorer species report 2008	
Magnum mantleslug (spotted slug)	<i>Mangipelta mycophaga</i>	Outside known range. western Montana, northern Idaho, northeastern Washington, south central BC. In Idaho historically located in the Bitterroot Mtns. And Clearwater NF. Not located in recent years, current status unknown. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	Yes
Southern tightcoil	<i>Ogaridiscus subrupicola</i>	Unknown. No global or state range map available (NatureServe 2008, Id CDC 2008). Idaho, Oregon, Utah. Extirpated in Utah, nearly extirpated in Oregon, status unknown in Idaho.(NatureServe 2008).	NatureServe explorer species report 2008	
Seven devils mountainsnail	<i>Oreohelix hammeri</i>	Outside known range. Endemic to seven devils Mtns, in Idaho. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	No record
Lyrate mountainsnail	<i>Oreohelix haydeni</i>	Outside known range. Known only from Lolo Cr, near Missoula, MT. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	No record
A land snail	<i>Oreohelix haydeni</i>	Outside known range. Northern Colorado, northern Utah, and Idaho. in Idaho occurs in the	NatureServe explorer species report 2008, Id	No record

Species common name	Scientific name	Species Range	Reference	Observations on the forest
	<i>hesperia</i>	lower Salmon River canyon but may also occur in southeastern part of state. (Id CWCS 2005).	CWCS 2005)	
A land snail	<i>Oreohelix haydeni perplexa</i>	Unknown. Endemic to Idaho. No global or state range map available (NatureServe 2008, Id CDC 2008). Status in Idaho unknown.	NatureServe explorer species report 2008	No record
Whitepine mountainsnail	<i>Oreohelix hemphilli</i>	Unknown. NatureServe lists for Idaho and Nevada. No global or state range map available (NatureServe 2008, Id CDC 2008). Status in Idaho unknown, No information in NatureServe.	NatureServe explorer species report 2008	No record
Costate mountainsnail	<i>Oreohelix idahoensis</i>	Outside known range. Endemic to Salmon River canyon in Idaho. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	No record
A land snail	<i>Oreohelix idahoensis baileyi</i>	Outside known range. No global or state range map available (NatureServe 2008, Id CDC 2008). Endemic to Idaho from single site. Not relocated in recent years.	NatureServe explorer species report 2008	No record
Costate mountainsnail	<i>Oreohelix idahoensis idahoensis</i>	Outside known range. No global or state range map available (NatureServe 2008, Id CDC 2008). Endemic to Idaho in the lower Salmon River.	NatureServe explorer species report 2008	No record
Deepslide mountainsnail	<i>Oreohelix intersum</i>	Outside known range. In Idaho occurs along the little Salmon River. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	No record
Boulder pile mountainsnail	<i>Oreohelix jugalis</i>	Outside known range. Endemic to Salmon River canyon in Idaho. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	No record
Deseret mountainsnail	<i>Oreohelix peripherica</i>	Unknown. No global or state range map available (NatureServe 2008, Id CDC 2008). Idaho, Oregon, Utah. Status in Idaho unknown. No information in NatureServe.	NatureServe explorer species report 2008	No record
A land snail	<i>Oreohelix strigosa capax</i>	Unknown. No global or state range map available (NatureServe 2008, Id CDC 2008). Endemic to Idaho. status in Idaho unknown. No information in NatureServe.	NatureServe explorer species report 2008	No record
Striate mountainsnail	<i>Oreohelix strigosa goniogyra</i>	Outside known range. Endemic to Idaho in a limited area along the lower Salmon River drainage. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	No record
Thin-ribbed mountainsnail	<i>Oreohelix tenuistriata</i>	Outside known range. Known from single location in Bannock county but no relocated since early 1900s. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Striate mountainsnail	<i>Oreohelix strigosa goniogyra</i>	Outside known range. Known only from a few sites in southwestern Idaho county, Idaho. (NatureServe 2009).	NatureServe explorer species report.	No record
Whorled mountainsnail	<i>Oreohelix vortex</i>	Outside known range. Endemic to lower Salmon River canyon in Idaho. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	No record
Lava rock mountainsnail	<i>Oreohelix waltoni</i>	Outside known range. Endemic to lower Salmon River canyon in Idaho. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	No record
Squaw creek mountainsnail	<i>Oreohelix sp. 8</i>	Not considered a species	NatureServe explorer species report 2008	No record
Bluebird canyon mountainsnail	<i>Oreohelix sp. 9</i>	Not considered a species	NatureServe explorer species report 2008	No record
Hackberry mountainsnail	<i>Oreohelix sp. 12</i>	Not considered a species	NatureServe explorer species report 2008	No record
Rapid river mountainsnail	<i>Oreohelix sp. 13</i>	Not considered a species	NatureServe explorer species report 2008	No record
Limestone mountainsnail	<i>Oreohelix sp. 14</i>	Not considered a species	NatureServe explorer species report 2008	No record
Speckled mountainsnail	<i>Oreohelix sp. 15</i>	Not considered a species	NatureServe explorer species report 2008	No record
Rugose mountainsnail	<i>Oreohelix sp. 16</i>	Not considered a species	NatureServe explorer species report 2008	No record
Bicarinate mountainsnail	<i>Oreohelix sp. 17</i>	Not considered a species	NatureServe explorer species report 2008	No record
Limestone point mountainsnail	<i>Oreohelix sp. 18</i>	Not considered a species	NatureServe explorer species report 2008	No record
Single creek mountainsnail	<i>Oreohelix sp. 19</i>	Not considered a species	NatureServe explorer species report 2008	No record
Sheep gulch mountainsnail	<i>Oreohelix sp. 20</i>	Not considered a species	NatureServe explorer species report 2008	No record
Box canyon mountainsnail	<i>Oreohelix sp. 21</i>	Not considered a species	NatureServe explorer species report 2008	No record
Slate creek mountainsnail	<i>Oreohelix sp. 22</i>	Not considered a species	NatureServe explorer species report 2008	No record
Lucile mountainsnail	<i>Oreohelix sp. 23</i>	Not considered a species	NatureServe explorer species report 2008	No record
Wet gulch mountainsnail	<i>Oreohelix sp. 24</i>	Not considered a species	NatureServe explorer species report 2008	No record
Stites mountainsnail	<i>Oreohelix sp. 25</i>	Not considered a species	NatureServe explorer species report 2008	No record
Pass creek mountainsnail	<i>Oreohelix sp. 27</i>	Not considered a species	NatureServe explorer species report 2008	No record
Quartzite mountainsnail	<i>Oreohelix sp. 28</i>	Not considered a species	NatureServe explorer species report 2008	No record

Species common name	Scientific name	Species Range	Reference	Observations on the forest
Hells canyon mountainsnail	<i>Oreohelix sp. 29</i>	Not considered a species	NatureServe explorer species report 2008	No record
Skookumchuck mountainsnail	<i>Oreohelix sp. 30</i>	Not considered a species	NatureServe explorer species report 2008	No record
Boundary ambersnail	<i>Oxyloma hawkinsi</i>	No global or state range map available. NatureServe lists for Alaska, Idaho, Washington, Alberta, BC, and Manitoba. Status in Idaho unknown. No information in NatureServe.	NatureServe explorer species report 2008	No record
Oblique ambersnail	<i>Oxyloma nuttallianum</i>	No global or state range map available. NatureServe lists for Alaska, California, Idaho, Montana, Oregon, Utah, Washington, and BC. Status in Idaho unknown. No information available in NatureServe	NatureServe explorer species report 2008	No record
Cloaked physa, (large-mantle physa)	<i>Physa megalochlamys</i>	Outside of species range. Limited distribution. Saskatchewan, Wyoming, Idaho, Oregon, Utah, and Colorado (Taylor 1988 in Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	No record
Snake river physa	<i>Physxa natricina</i>	Outside known range. Endemic to Idaho in the Snake River drainage. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Olive physa	<i>Physella cooperi</i>	Outside known range. Originally found in WA and OR. Possibly extinct. Freshwater.	NatureServe explorer species report,	No record
Western flat whorl	<i>Planogyra clappi</i>	Outside known range. Alaska, BC, Washington, Oregon, California and Idaho. in Idaho occurs at one site along the Snake River. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Humped coin	<i>Polygyrella polygyrella</i>	Yes. Idaho, Montana and Washington. In Idaho historically occurred in the Coeur d'Alene, Clearwater, Lochsa, Selway, and lower Salmon river drainages. Current distribution includes sites at Mission Creek, and Mt. Idaho.	NatureServe explorer species report 2008, Id CWCS 2005)	Yes
Northern tightcoil	<i>Pristiloma arcticum</i>	Unknown. Listed for the states of Alaska, Idaho, Oregon, and Washington and for British Columbia and Yukon Territory. No global or state range maps available. No information available in NatureServe (2009).	NatureServe explorer species report 2008	
Black-footed tightcoil	<i>Pristiloma chersinella</i>	Based on ranking species does not meet criteria for species of concern (NatureServe 2006). High elevation in British Columbia. Pacific Northwest. Habitats unknown.	NatureServe explorer species report, 2008.	No record
Thinlip tightcoil	<i>Pristiloma idahoense</i>	Yes. No range map available in NatureServe (2008). Idaho, Montana, and Washington. In Idaho thought to include Adams, Boise, Benewah, Clearwater, Idaho, Kootenai, and Shoshone counties (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	No record
Shiny tightcoil	<i>Pristiloma wascoense</i>	Outside known range. No range map available in NatureServe (2008). Idaho, Washington, Oregon, BC, and perhaps Montana and California. In Idaho, Pilsbry documented four sites in Washington, Adams, Boise, and Shoshone counties. Recent searches found no sites in Shoshone county.	NatureServe explorer species report 2008	No record
Pristine pyrg	<i>Pristincola hemphilli</i>	Outside known range. California, Oregon, Washington, Montana and Idaho. in Idaho occur in portions of the lower Snake and lower Salmon river drainages. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Blue-gray tailedropper	<i>Prophysaon coeruleum</i>	Suspected. Coast range of Oregon and Washington Cascades, Puget Trough, Klamath Mtns of southwestern Oregon and northern California, western Idaho and southern Vancouver Island BC. (Wilkes and Duncan 2004 in NatureServe). Ovaski et al(2004 in NatureServe) report on new populations in southwestern BC on Vancouver Island, at 2 sites in the Coeur d'Alene Lake watershed in Idaho (a disjunct population) and at 2 sites in the Cispus River watershed in Washington. Global status does not meet the criteria for species of concern	NatureServe explorer species report 2008	Yes
Smoky tailedropper	<i>Prophysaon humile</i>	Yes. Idaho Panhandle and adjoining portions of Washington and Montana. In Idaho historically in Benewah, Clearwater, Kootenai, and Shoshone counties. Recent surveys found extant populations in Shoshone county only, status of other populations unknown. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	Yes
Bruneau hot spring snail	<i>Pyrgulopsis bruneauensis</i>	Outside known range. Endemic to thermal springs along Bruneau River and Hot Creek in Idaho. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Bear lake springsnail	<i>Pyrgulopsis pilsbryana</i>	Outside known range. Found in Bear Lake drainage in Idaho, Wyoming and Utah. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	No record
A springsnail	<i>Pyrgulopsis robusta</i>	Outside known range. Idaho, Wyoming, Oregon and Washington. In Idaho occurs in the Snake River. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	No record
Teton river springsnail	<i>Pyrgulopsis sp. 14</i>	Not considered a species	NatureServe explorer species report 2008	
Blackfoot springsnail	<i>Pyrgulopsis sp. 15</i>	Not considered a species	NatureServe explorer species report 2008	
Warm springs springsnail	<i>Pyrgulopsis sp. 16</i>	Not considered a species	NatureServe explorer species report 2008	

Species common name	Scientific name	Species Range	Reference	Observations on the forest
Wilson flat springsnail	<i>Pyrgulopsis sp. 17</i>	Not considered a species	NatureServe explorer species report 2008	
Jim sage springsnail	<i>Pyrgulopsis sp. 18</i>	Not considered a species	NatureServe explorer species report 2008	
Benson springsnail	<i>Pyrgulopsis sp. 20</i>	Not considered a species	NatureServe explorer species report 2008	
Indian hot springsnail	<i>Pyrgulopsis sp. 21</i>	Not considered a species	NatureServe explorer species report 2008	
Birch creek springsnail	<i>Pyrgulopsis sp. 22</i>	Not considered a species	NatureServe explorer species report 2008	
Rock creek springsnail	<i>Pyrgulopsis sp. 23</i>	Not considered a species	NatureServe explorer species report 2008	
Pauline springsnail	<i>Pyrgulopsis sp. 24</i>	Not considered a species	NatureServe explorer species report 2008	
Bannock springsnail	<i>Pyrgulopsis sp. 25</i>	Not considered a species	NatureServe explorer species report 2008	
Brush creek springsnail	<i>Pyrgulopsis sp. 26</i>	Not considered a species	NatureServe explorer species report 2008	
Rustic pondsnaill	<i>Stagnicola hinckleyi</i>	Outside known range. Idaho, Wyoming and Oregon. Historical distribution in middle and upper Snake River. Thought to be extirpated in this area. The only colonies known to be extant occur in birch Creek. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	No record
Shortspire pondsnaill	<i>Stagnicola idahoensis</i>	Outside known range. Endemic to Little Salmon River and little Salmon River in Idaho. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	No record
Mountain marshsnail	<i>Stagnicola montanensis</i>	Outside known range. Nevada, Idaho, Montana, Wyoming and Utah. In Idaho a number of populations have been extirpated and the only remaining are thought to exist in southeastern Idaho the lower Salmon River drainage. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	No record
Widelip pondsnaill	<i>Stagnicola traski</i>	Unknown. NatureServe lists for California, Idaho, Montana, Utah, Washington, Wyoming, and Alberta. No global or state range maps available. No information in NatureServe on the species.	NatureServe explorer species report 2008	No record
Idaho amphipod	<i>Stygobromus idahoensis</i>	Outside known range. Known only from middle fork Salmon River. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Oregon ambersnail	<i>Succinea oregonensis</i>	Unknown. NatureServe lists for California, Idaho, Oregon, Washington and BC. No global or state range maps available. No information in NatureSE5ve on the species.	NatureServe explorer species report 2008	
Rustic ambersnail	<i>Succinea rusticana</i>	Unknown. NatureServe lists for California, Idaho, Oregon, Utah, Washington, Alberta and BC. No global or state range maps available. No information in NatureSE5ve on the species.	NatureServe explorer species report 2008	
A freshwater snail	<i>Taylorconcha inseperata</i>	Outside known range. NatureServe lists for Idaho and Oregon. No global or state range maps available. Newly described with extremely limited and broadly disjunct distribution. Known from sites along the Owyhee River and Snake River.	NatureServe explorer species report 2008	
Bliss rapids snail	<i>Taylorconcha serpenticola</i>	Outside known range. Endemic to Snake river and associated springs in Idaho. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Lyre mantleslug	<i>Udosarx lyrata</i>	Outside species range. Known only from northern ID and western MT. In Idaho found at scattered sites in the Bitterroot Mtms and upper Clearwater and Clark Fork river drainages. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	No record
Lyre mantleslug	<i>Udosarx lyrata lyrata</i>	Outside known range. Historical range, Bitterroot Mtms. Upper Clearwater River and Clark Fork drainages. Clearwater NF, ID. Lolo NF.	NatureServe explorer species report 2008	No record
Russell mantleslug	<i>Udosarx lyrata russelli</i>	Outside known range. Known from single locality on Lolo NF. Not found in MNHP fieldguide.	NatureServe explorer species report 2008	No record
Salmon valvata	<i>Valvata sp. 1</i>	Not considered a species	NatureServe explorer species report 2008	
Desert valvata	<i>Valvata utahensis</i>	Outside known range. Utah and Idaho. the only extant populations exist in Idaho in the Snake River. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Idaho vertigo	<i>Vertigo idahoensis</i>	Outside known range. Washington and Idaho. Historical range thought to have included Payette NF and Little Salmon River drainage. No current populations known. May be extirpated. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	No record
Artemesian rams horn	<i>Vorticifex effusa</i>	Outside known range. Subspecies <i>dalli</i> and <i>diagonalis</i> Restricted to upper Klamath Lake Area in Oregon. Subspecies <i>effusa</i> is in the Sacramento River. Other populations ascribed to the nominate subspecies remain fairly widespread in the Willamette River in Oregon, the lower Columbia River in Washington and Oregon and the Snake River and a few tributary	NatureServe explorer species report 2008	

Species common name	Scientific name	Species Range	Reference	Observations on the forest
		springs in Idaho.		
Sheathed slug	<i>Zacoleus idahoensis</i>	Yes. Idaho and Montana. In Idaho lower Salmon, little Salmon, Selway, Lochsa, and Coeur d'Alene river drainages. Scattered locations within their original range. (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	Yes
Invertebrate - other				
A cave obligate mite	<i>Flabellorhagidia pecki</i>	Outside of species range. Believed to be endemic to single cave in Craters of the Moon National Monument.	NatureServe explorer species report 2008	No record
A cave obligate harvestman	<i>Speleomaster lexi</i>	Outside known range. Endemic to Idaho. Single lava tube cave complex in Lincoln county.	NatureServe explorer species report 2008	No record
A cave obligate harvestman	<i>Speleomaster pecki</i>	Outside of species range. Endemic to Idaho. Single cave in Craters of the Moon National Monument, Butte county.	NatureServe explorer species report 2008	No record

The NatureServe database, species range maps, the Montana Field Guide, the Montana Comprehensive Fish and Wildlife Conservation Strategy, and the Montana Natural History Program tracker program were all used to identify species ranges and whether the range included any portion of the Kootenai National Forest.

Occurrence/observations

Seasonal – species migrates into Idaho and is normally present only part of the year.

Yearlong – species is present yearlong (may be inactive or rarely detected during some seasons).

Suspected – species may occur on the Forest but there are no documented sightings.

No record – there are no documented sightings on the Forest, nor are there any expected.

Extirpated – historical species no longer present on the Forest.

Introduced – species is not native to the Forest but has been brought onto the forest and is known to reproduce

The following table displays all species identified in the NatureServe database for G1, G2, and G3 and T1, T2, and T3 species for the state of Idaho whose range includes the IPNF. Also included are those species whose range could not be determined. These species will be evaluated further for the possibility of occurring on the forest. The table gives a brief description of the species habitat, where the species and/or habitat are secure on the forest, whether there is enough information on the species and/or habitat to address the species and whether any management activities on NF lands have the potential to impact the species.

Table 13. Information on Species of Concern whose range includes the Idaho Panhandle National Forest

Species common name	Habitat?	Habitat abundance and distribution	Population abundance and distribution	Major Risks	Conservation needs
Amphibians					
Idaho giant salamander	Clear, cold streams, but are also found in mountain lakes and ponds. Adults found under rocks and logs in humid forests, near mountain streams, or on rocky shores of mountain lakes. Generally found in moist coniferous forests. Headwaters of a mountain stream, a spring or a mountain lake.	Populations in the Clearwater and South fork Salmon river drainages may be declining. Carstens et al. (2005) were unable to detect the species at 7 historically occupied sites.		Habitat destruction and fragmentation from logging in riparian habitat. Reduced cover availability. Increased sedimentation, affect bank undercutting necessary for successful breeding (Parker 1991 in IdCWCS). Water pollution from pesticides.	Habitat protection. Maintain water quality. Protect riparian habitat including interconnecting riparian corridors.
Mammals					
Peregrine falcon	High cliffs, preys on small birds.	Cliffs occur mostly along major river corridors and Cabinet Mtns wilderness. Although a minor component, well distributed across the forest.	Seasonal KNF & IPNF.	Disturbance at nest sites.	Provide habitat for prey – small (generally migratory) bird species. Provide secure habitat conditions around active nest sites.
Bald eagle	Nests in large trees generally within ¼ mile of large lakes, rivers	yes		Disturbance at nest sites.	Provide secure habitat conditions around active nest locations.
Columbian sharp-tailed grouse	Grassland.	Grasslands are a very minor component of the forest, mostly occurring on private lands. FS lands provide little habitat for this species. Not enough contiguous habitat is available to support viable populations over the long term.		Disturbance at breeding sites (leks). Mortality. Historic lek surrounded by major	Provide secure habitat conditions at known leks.
Fish					
Yellowstone cutthroat trout <i>Oncorhynchus clarki bouvieri</i>					
Westslope cutthroat trout <i>Oncorhynchus clarki lewisi</i>					
Invertebrates – insects					
Butterflies					
Western sulphur <i>Colias occidentalis</i>					
Gillette's checkerspot <i>Euphydryas gillettii</i>	Valleys, glades, open wooded areas in mountains, often near streams.	Unknown. Although twinberry habitats common across the forest.	Unknown. Very local and stays near larval foodplants, primarily twinberry (<i>Lonicera involucrata</i>) and speedwell. Unknown. Globally rare. Occurs mostly as very widely scattered colonies. Populations could be very quickly (one season) eradicated if grazing were severe enough.	Isolation of colonies (extirpation), grazing. Isolation of colonies makes species vulnerable to permanent local extirpation from any kind of temporary habitat disruption including browsing by large ungulates.	Provide secure habitat conditions at known locations. Maintain ecosystem components, especially fire disturbance. Aquatic/riparian protection.
Mayflies					
A mayfly <i>Ameletus tolae</i>	No description of the habitat in Idaho is documented. In generally nymphs of mayflies of the genus <i>Ameletus</i> are inhabitants of running waters, generally in mountainous areas, from headwater spring brooks to large rivers where they occur in		Known from one location in Idaho. No data are available to suggest population trend.	Specific threats to Idaho populations have not been identified. In general, mayfly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and	

Species common name	Habitat?	Habitat abundance and distribution	Population abundance and distribution	Major Risks	Conservation needs
	littoral vegetation (Zloty 1996 in Id CWCS).			water quality. Alteration and degradation of aquatic habitats.	
Stoneflies					
Cascades stripetail <i>Cascadoperla trictura</i>	Szczytko and Stewart (1979 in Id CWCS) summarized “the life history and general biology of this species are unknown”. Based on material examined, emergence occurs from mid-May until July in Creeks and Rivers. Baumann et al. (1977 in Id CWCS) noted that the adults emerge from April to July. No additional information has been documented since that time.	Baumann et al. (1977 in Id CWCS) considered this species to be rare. No data are available to suggest population trend.		Specific threats to the species have not been identified. In general stonefly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality. Degradation of riparian and aquatic habitats.	
Autumn springfly <i>Pictetiella expansa</i>	High quality small rocky higher elevation pristine mountain aquatic eco system. Occur in small, fast moving streams and require high water quality. Adults emerge from July through October (Baumann et al. 1977 in Idaho CWCS).	High elev. rocky mtns. Of CO, ID, MT, UT, WY.	Boundary, Bonner, Shoshone, Clearwater, Benewah, Bonneville and Teton counties. Widespread in the Idaho panhandle but sparsely known from the remainder of the state. Baumann et al. (1977 in Id CWCS) considered this species to be uncommon although nymphs can be locally abundant in some areas. No data are available to suggest population trend.	Specific threats to the species have not been identified. In general stonefly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality. Degradation of riparian and aquatic habitats.	
Invertebrates - Mollusks					
Pygmy slug <i>Kootenai burkei</i>	Western hemlock forests, western red cedar, grand fir, Douglas-fir, black cottonwood, paper birch, and red alder. Near perennial water. Down wood, moss mats, and deciduous tree leaves as substrate.		Loss and degradation of habitat. Little is known about the threats to this species. May include logging, development, roads, grazing.	Limit surface disturbance at known sites (Idaho CWCS). Provide secure habitat conditions at known locations.	
Humped coin <i>Polygyrella polygyrella</i>	Undisturbed open spruce and Douglas-fir forests having diverse forbs, mosses, and deciduous shrubs in the understory. Near basalt, schist, or limestone outcroppings and permanent or persistent water. Forested talus. Canopy includes western redcedar, western hemlock, grand fir, Douglas-fir, alder, black cottonwood, and mountain maple.	Present in adjacent Washington and Oregon. Known to occur in mineral and Sanders counties on the Kootenai and Lolo NF.	Logging, grazing, roads, severe fires. Development. Quarry expansion.	Provide secure habitat conditions at known locations.	
Smokey taildropper <i>Prophysaon humile</i>	Low-medium elevation pine and spruce forest. sites with perennial moisture and much downed wood are preferable. Especially if accompanied by a diverse understory with a strong deciduous and forb component. Canopy includes western redcedar, western hemlock, grand fir, Douglas-fir, subalpine fir, Engelmann spruce, lodgepole pine, alder, paper birch and cottonwood.	Known to occur in Flathead, Lake, Lincoln, Mineral, Missoula, and Sanders counties on the Flathead, Kootenai and Lolo NF.	Loss and degradation of habitat. Surface disturbance from activities such as mining and timber harvest. Development, mining and smelting, roads, habitat loss and degradation	Limit surface disturbance at known sites (Idaho CWCS). Aquatic/riparian protection. Provide secure habitat conditions at known locations.	
Sheathed slug <i>Zacoleus idahoensis</i>	Kootenai falls. Absent from sites disturbed by timber harvest and livestock grazing. Include as a group with other aquatic associated mollusks.	Douglas-fir, spruce, and ponderosa pine forests that have a diverse understory of forbs and bryophytes. Typically in moist valleys, gorges, ravines, and talus fields near permanent water.	Loss and degradation of habitat. Logging, grazing, fires, and roads. (Hendricks 2003)	Limit surface disturbance at known sites (Idaho CWCS). Aquatic/riparian protection.	

Species of Interest

Table 14. Information on potential wildlife species of interest range and status for the Idaho Panhandle National Forest

Species common name	Scientific name	Range within forest	Reference	Observation on the forest
Vertebrates				
Amphibians				
Western toad	<i>Bufo boreas</i>	Yes - Widely distributed in Idaho and found in appropriate habitat throughout most of the state.		
Woodhouse's toad	<i>Bufo woodhousii</i>	Outside species range. Western portion of Idaho, particularly along the Snake River and associated drainages. Id CWCS 2005	NatureServe explorer species report 2008, Id CWCS 2005)	
Coeur d'Alene salamander	<i>Plethodon idahoensis</i>	Yes - Found in the northern part of the state. Id CWCS 2005	NatureServe explorer species report 2008, Id CWCS 2005)	
Northern leopard frog	<i>Rana pipiens</i>	Yes - found throughout much of the southern portion of the state following the Snake River plain. Populations also exist in the northern portion of the Panhandle. Id CWCS 2005	NatureServe explorer species report 2008, Id CWCS 2005)	
Wood frog	<i>Rana sylvatica</i>	Historical/unknown at present. Rare in Idaho. Found in the two northernmost counties (Nussbaum et al. 1983). Found historically at 3 sites in Boundary and Bonner counties. No records since 1970 are known and Idaho populations may have been extirpated. Id CWCS 2005	NatureServe explorer species report 2008, Id CWCS 2005)	
Reptiles				
Great basin collared lizard	<i>Crotaphytus bininctores</i>	Outside of species range. Occurs from southwest Idaho and eastern Oregon south across the Great Basin to northern Arizona and southeastern California. Id CWCS 2005	NatureServe explorer species report 2008, Id CWCS 2005)	
Ring-necked snake	<i>Diadophis punctatus</i>	Outside of species range. Widespread throughout NA, but the distribution in the western part of the range is sparse and discontinuous. Detected in 2 parts of Idaho; west central Idaho from the Clearwater and Potlatch river drainages and lower Salmon river drainage, and also in southeastern Idaho in the Portneuf River drainage and the Bear River range (Linder and Fichter 1977 in Id CWCS). Id CWCS 2005	NatureServe explorer species report 2008, Id CWCS 2005)	
Northern alligator lizard	<i>Elgaria coerulea</i>	Yes - Restricted to northern part of the state. Id CWCS 2005	NatureServe explorer species report 2008, Id CWCS 2005)	Yearlong
Long-nosed snake	<i>Rhinocheilus lecontei</i>	Outside of species range. Occurs across western NA from Mexico north to Idaho. Idaho populations represent the northern most range limit of the species and are disjunct from the nearest populations in central Utah and northwest Nevada. In Idaho occurs at lower elevations along the Snake River in Canyon, Ada, Elmore, and Owyhee counties. Id CWCS 2005	NatureServe explorer species report 2008, Id CWCS 2005)	
Ground snake	<i>Sonora semiannulata</i>	Outside of species range. Occurs across the arid and semi-arid regions of southwestern US and northern Mexico. The northern most populations are in southwest Idaho. Id CWCS 2005	NatureServe explorer species report 2008, Id CWCS 2005)	
Birds				
Clark's grebe	<i>Aechmophorus clarkia</i>	Outside of species range. Occur seasonally through most of western half of NA. Winter along the Pacific coast. In Idaho breeding distribution is primarily associated with extensive Snake River drainage.	NatureServe explorer species report 2008, Id CWCS 2005)	
Western grebe	<i>Aechmophorus occidentalis</i>	Yes. Occur seasonally throughout most of the western half of NA. Winter along Pacific coast. In Idaho breeds along the Snake River in the southern and southeastern parts of the state, and at several locations in the Panhandle (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Boreal owl	<i>Aegolius funereus</i>	Yes - boreal and montane forests across northern Eurasia, Canada and Alaska southward through the Cascade, Blue Mtns, and Rocky Mtn ranges of the western US into Colorado and New Mexico. In Idaho they occupy high elevation mixed conifer forests in the north, central, and southeast portions of the state.	NatureServe explorer species report 2008, Id CWCS 2005)	
Wood duck	<i>Aix sponsa</i>	Yes -		
Leconte's sparrow	<i>Ammodramus leconteii</i>	Outside of species range. Northeastern BC and southern Mackenzie to central Quebec, south to southern Alberta, northern Montana, southern Saskatchewan, North Dakota, central Minnesota, northern Wisconsin, and northern Michigan, casually to South Dakota and Ontario (Lowther 1996 in Id CWCS).	NatureServe explorer species report 2009	No record.
Grasshopper sparrow	<i>Ammodramus savannarum</i>	Yes - breeds in much of the US and southern Canada. In Idaho locally abundant throughout the Snake River plain in the south and the Palouse in the north.	NatureServe explorer species report 2009, Id CWCS 2005)	Seasonal. No direct evidence of breeding

Species common name	Scientific name	Range within forest	Reference	Observation on the forest
Black-throated sparrow	<i>Amphispiza bilineata</i>	Outside of species range. Breeds eastern Washington, southern Oregon, northeastern California, southwestern Idaho, southwestern Wyoming, southeastern Colorado, northwestern Oklahoma, and north central Texas south to southern Baja, California.		No record
Northern pintail	<i>Anas acuta</i>	Yes – breeds throughout most of NA and Canada in the prairie pothole region. In Idaho breeds in the Panhandle and along the Snake River plain ID CWCS 2005). Wintering birds are similarly distributed.	NatureServe explorer species report 2008, Id CWCS 2005)	
Northern shoveler	<i>Anas clypeata</i>	Yes -		
Eurasian widgeon	<i>Anas penelope</i>	Outside of species range. Breeds Eurasia, from Iceland, British Isles, and Scandinavia east to eastern Siberia and Kamchatka, south to northern Europe, central Russia, and Transcaucasia.	NatureServe explorer species report 2009	
Western scrub jay	<i>Aphelocoma californica</i>	Outside of species range. Resident southwestern Washington to southwestern Wyoming, Colorado, and central Texas south through the southwestern US to southern Baja, California and Mexico.	NatureServe explorer species report 2009	
Golden eagle	<i>Aquila chrysaetos</i>	Yes		Yearlong
Short-eared owl	<i>Asio flammeus</i>	Yes – Northern edge of species range in Idaho. One of the worlds most widely distributed owls, occurring throughout much of NA, Europe, and Asia, portions of SA, and on several islands including Iceland, the Hawaiian chain, and the Galapagos (Holt and Leasure 1993 in Id CWCS). In NA they breed from northern Alaska south to northern California and east across all of Canada and the northern approximately 1/3 of the lower US.	NatureServe explorer species report 2008, Id CWCS 2005)	
Great egret	<i>Ardea alba</i>	Outside of species range. Breeds in NA locally from southern Oregon an southern Idaho south through California, Nevada, and southwestern Arizona, and from southeastern Saskatchewan, southwestern Manitoba, central Minnesota, southwestern Wisconsin, central Illinois, southern Indiana, southern Ontario, northern Ohio, Vermont, and Maine south through the Gulf states.	NatureServe explorer species report 2009	
Burrowing owl	<i>Athene cucularia</i>	Outside of species range. Western half of NA and Canada from as far north as BC east to south central Manitoba and as far south as central Mexico Id CWCS 2005). In Idaho patchily distributed throughout the southern half of the state.	NatureServe explorer species report 2008, Id CWCS 2005)	Accidental. No direct evidence of breeding.
Lesser scaup	<i>Aythya affinis</i>	Yes – breeds throughout interior Alaska and Canada and locally in western US. Specifically in northeastern Washington, possibly Puget sound, Klamath marshes of southern Oregon and northern California. Breeding range also extends from extreme northern Idaho east across northern portions of Montana and North Dakota to northeastern Minnesota. Year-round resident of the Panhandle and south central regions of Idaho.	NatureServe explorer species report 2008, Id CWCS 2005)	
Canvasback	<i>Aythya valisineria</i>	Yes		
Juniper titmouse	<i>Baeolophys ridgwayi</i>	Outside of species range. Resident south central Oregon, Nevada, southeastern Idaho, southwestern Wyoming, and south central Colorado south to southeastern California, central and southeastern Arizona, extreme northeastern Sonora, southern New Mexico, and extreme western Texas (AOU 1998 in Id CWCS).		
Upland sandpiper	<i>Bartramia longicauda</i>	Yes – north America from north central Alaska southeast to central Maine and southern New Brunswick, south to Virginia, west to central Colorado and patchy locations in eastern Washington, northeastern Oregon and Idaho. Most breeding in the great plains. Populations west of the Rockies rare and patchy (Id CWCS 2005). Discovered in Kootenai county in 1897 reported to breed in small colonies. Breeding reported in the Panhandle and is suspected in western central Idaho. No recent records of the upland sandpiper in Idaho. Breeds in NA from north central Alaska southeast to central Maine and southern New Brunswick, south to Virginia, west to central Colorado and patchy locations in eastern Washington, northeastern Oregon and Idaho. Most breeding populations concentrated in the Great Plains. Populations west of the Rockies are rare and patchy (McAllister and Demers 1993 in Id CWCS). Winters in SA. Discovered in Kootenai county in 1897 and have been reported to breed in small colonies, precariously from the 1950s (Thieman 1988, McCallister and Demers 1993, Taylor and Trost 1997 all in Id CWCS). Not seen every year breeding has been confirmed in the Panhandle (Kootenai county) and is suspected in the west central region (Stephens and Sturts 1997 in Id CWCS). There have been no recent breeding records of the upland sandpiper in Idaho (S. Sturts in Id CWCS).	NatureServe explorer species report 2008, Id CWCS 2005)	Transient/accidental. No evidence of breeding.
Bohemian waxwing	<i>Bombycilla garrulous</i>	Yes		
Cattle egret	<i>Bubulcus ibis</i>	Outside of species range. Breeds in Western Hemisphere locally from California, southern		

		Range within forest	Reference	Observation on the forest
Species common name	Scientific name			
		Idaho, Colorado, North Dakota, southern Saskatchewan, Minnesota, Wisconsin, southern Ontario, northern Ohio, and Maine south, primarily in coastal lowlands, through Middle America and West Indies to South America (northern Chile, northern Argentina, southeastern Brazil). Breeding range is expanding with deforestation in Central America. NORTHERN WINTER: throughout much of breeding range, north to the southern U.S. In the U.S., most abundant in winter in Florida, around the Salton Sea (California), on the coastal plains of southern Texas, and around the mouth of the Mississippi River in Louisiana (Root 1988). Introduced in Hawaii. Old World species that has spread from populations introduced in South America (NGS 1983); some have concluded that the species colonized South America on its own.		
Ferruginous hawk	<i>Buteo regalis</i>	Outside of species range. Breeds throughout western NA from southernmost Canada between the Great plains and Rocky Mtns. South to northern Arizona and New Mexico. Absent from most of northern and northeastern Idaho. Mostly absent from Idaho during the non-breeding season.	NatureServe explorer species report 2008, Id CWCS 2005)	Transient/no record
Swainson's hawk	<i>Buteo swainsoni</i>	Outside of species range. Migratory. Breeds in portions of Alaska and western Canada, east to Minnesota and Illinois, south to southern California, Mexico, Texas, and Missouri. Winters in southwestern US and southeastern Florida to south America. In Idaho breeds throughout the southern half of the state, as well as in the Palouse region of the northwest. Generally absent from the Panhandle except as an uncommon fall transient (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	Transient/accidental. No direct evidence of breeding.
Lark bunting	<i>Calamospiza melanocorys</i>	Outside of species range. No evidence of breeding. BREEDING: southern Alberta, southern Saskatchewan, and southeastern North Dakota south, east of Rockies, to eastern New Mexico, northern Texas, western Oklahoma, eastern Kansas, and northwestern Missouri (AOU 1998). NON-BREEDING: central California, southern Nevada, central Arizona, southern New Mexico, central Texas, southwestern Kansas, and western Oklahoma south to southern Baja California, Jalisco, Guanajuato, Hidalgo, Tamaulipas, and southern Texas (AOU 1998).		Transient/accidental.
McGown's longspur	<i>Calcarius mccownii</i>	Outside of species range.		No record
Sanderling	<i>Calidris alba</i>	Outside of species range. Migrant.		
Baird's sandpiper	<i>Calidris bairdii</i>	Outside of species range. Migrant. Breeds northeastern Siberia, northwestern Alaska, arctic Canada, northwestern Greenland.	NatureServe explorer species report 2009	Migrant/no record
Western sandpiper	<i>Calidris mauri</i>	Outside of species range. Migrant breeds islands in Bering sea, along coasts of western and northern Alaska, northeastern Siberia.	NatureServe explorer species report 2009	
Least sandpiper	<i>Calidris minutilla</i>	Outside of species range. Migrant. Breeds western Alaska and northern Yukon east through southern Keewatin and Southampton Island to northern Quebec and northern Labrador, south to southern Alaska, northwestern BC, northern Saskatchewan, northeastern Manitoba, northern Ontario, eastern Quebec, Nova Scotia and Newfoundland, also at Monomoy Massachusetts.	NatureServe explorer species report 2009	
Semipalmated sandpiper	<i>Calidris pusilla</i>	Outside of species range. Migrant. Breeds western and northern Alaska, northern Yukon, northern Mackenzie, Canadian arctic islands, and northern Labrador south to western Alaska, east central Mackenzie, southeastern Keewatin, northeastern Manitoba Southampton Island, northern Ontario, northern Quebec, and coastal Labrador.	NatureServe explorer species report 2009	
Common redpole	<i>Carduelis flammea</i>	Outside breeding range. Circumpolar in Arctic and Subarctic. BREEDS: in North America, from western and northern Alaska, northern Yukon, east to northern Ontario, Quebec, and Newfoundland. WINTERS: central Alaska, southern nesting range in Canada to northern California, northern Nevada, northern Utah, central Colorado, Kansas, Missouri, Kentucky, South Carolina (AOU 1983).		
Lesser goldfinch	<i>Carduelis psaltria</i>	Outside of species range. Resident from southwestern Washington, western Oregon, northeastern California, northern Nevada, northern Utah, northern Colorado, south to northwestern Oklahoma, north-central and central Texas, south through Mexico to northern South America (northern Venezuela, western Colombia, locally in western Ecuador and northwestern Peru; Ridgely and Tudor 1989). Introduced and established on Cuba, at least formerly). Mainly migratory in Rocky Mountains region.		
Greater sage grouse	<i>Centrocercus urophasianus</i>	Outside of species range. RESIDENT: locally from central Washington, southern Idaho,		No record

Species common name	Scientific name	Range within forest	Reference	Observation on the forest
		Montana, southeastern Alberta, southwestern Saskatchewan, southwestern North Dakota, and western South Dakota south to east-central California, south-central Nevada, southern Utah, and northwestern Colorado; extirpated in southern British Columbia, western Nebraska, and possibly northern Arizona (USFWS 2005). Current distribution is estimated at 668,412 sq km or 56 percent of the potential pre-settlement distribution (see USFWS 2005).		
Snowy plover	<i>Charadrius alexandrinus</i>	Outside of species range. BREEDING: along Pacific coast of North America from Washington south (most numerous from San Francisco Bay south) to southern Baja California and the Pacific coast of Oaxaca; locally in interior of North America from Oregon and California (especially the San Joaquin Valley, Mojave Desert, and Salton Sea regions) east to Saskatchewan, Montana, Kansas and Texas and south to southeastern California, southern Arizona, southern New Mexico, north-central Texas, and central Mexico, with the largest concentration around the Great Salt Lake, Utah (subspecies <i>nivosus</i>); along Gulf coast from Florida west to northeastern Tamaulipas; West Indies in the Bahamas, Greater Antilles (including Puerto Rico and the Virgin Islands where uncommon to rare), Lesser Antilles (St. Martin and St. Kitts), and islands off the north coast of Venezuela (subspecies <i>tenuirostris</i>); and in Eurasia from Sweden, Russia, Siberia, and Japan south to Cape Verde Islands, northern Africa, Red Sea, northwestern India, Sri Lanka, Java, southeastern China, and the Ryukyu Islands (<i>alexandrinus</i> group) (Page et al. 1995, AOU 1998). NONBREEDING: islands and on coast from Washington, Gulf coast, and Bahamas south to southern Mexico and the Greater Antilles (subspecies <i>nivosus</i>); and in Old World from Mediterranean and breeding range in Asia south to Africa, Arabia, Sri Lanka, Southeast Asia, Indonesia, the Philippines, Taiwan, and the Bonin Islands (<i>alexandrinus</i> group) (AOU 1998). RESIDENT: along Pacific coast of South America from Ecuador to Chile (subspecies <i>occidentalis</i>) (Page et al. 1995, AOU 1998).		No record
Semipalmated plover	<i>Charadrius semipalmatus</i>	Outside of species range. Migrant. BREEDS: western and northern Alaska across low arctic and boreal areas of northern Canada, south to Queen Charlotte Islands, James Bay, and Nova Scotia; also recorded nesting in Oregon. NORTHERN WINTER: from central California, coastally along Gulf of Mexico, and South Carolina south, including West Indies, to southern Argentina and Chile (Godfrey 1966); also Hawaiian Islands (uncommon). Nonbreeders often summer in wintering areas south at least to Panama and Colombia.		
Snow goose	<i>Chen caerulescens</i>	Outside of species range. Migrant BREEDS: northeastern Siberia, northern Alaska, arctic Canada, and northern Greenland. WINTERS: mainly from southern British Columbia south to California; along Gulf coast from Veracruz, Mexico, and Texas to western Florida; on Atlantic coast, New Jersey to South Carolina; casual in Hawaii (Godfrey 1966, Pratt et al. 1987). In recent years, a growing segment of western arctic population wintered in middle Rio Grande valley and Pecos River valley in New Mexico and to lakes in northern Chihuahua (and in southeastern Colorado in some mild winters) (Johnson and Herter 1989, Taylor and Kirby 1990).		
Black tern	<i>Childonias niger</i>	Yes - Localized breeders in northern US through central Canada. In Idaho Kootenai National Refuge and Westmond Lake appear to be fairly consistent nesting locations for 30 and 15 pairs respectively.	NatureServe explorer species report 2008, Id CWCS 2005)	Seasonal. No direct evidence of breeding
Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>	Outside of species range. BREEDING: east-central and southeastern Alberta east to Prince Edward Island and Nova Scotia, south, at least locally, to Montana, southeastern Wyoming, eastern Colorado, north-central Texas, northern Alabama, and the Carolinas (AOU 1998). NON-BREEDING: northern Venezuela and northern Colombia south to central Bolivia (AOU 1998). MIGRATION: southeastern United States, Bermuda, Mexico (mostly Gulf-Caribbean lowlands), and Middle America (AOU 1998).		
Yellow rail	<i>Coturnicops noveboracensis</i>	Outside of species range. BREEDING: locally from northwestern Alberta to central Saskatchewan, Manitoba, northern New York (Gibbs, pers. comm.), Maine, and New Brunswick, south to southern Alberta, northeastern Montana, North Dakota, Michigan,		No record

Species common name	Scientific name	Range within forest	Reference	Observation on the forest
		southern Wisconsin, northern Minnesota, southern Ontario, and New England; formerly south to southern Ohio and northern Illinois (Bookhout 1995). Nested formerly in eastern California, where current nesting is a possibility. Recently rediscovered nesting in southern Oregon (Stern et al. 1993). Formerly occurred in State of Mexico, Rio Lerma Valley (subspecies GOLDMANI) where last reported in 1964 (Bookhout 1995). NON-BREEDING: mostly on Coastal Plain in southeastern U.S. from Texas to North Carolina; scattered records in California from Humboldt to Riverside Counties (Bookhout 1995).		
Blue jay	<i>Cyanocitta cristata</i>	Outside of species range .Non native		
Trumpeter swan	<i>Cygnus buccinator</i>	<p>Outside of species range. BREEDING: Formerly throughout North America from central Alaska to western Hudson Bay (James Bay), southeast to Nova Scotia, with the southern limit extending to northwest Mississippi and eastern Arkansas in the east and possibly California in the west. Present breeding range includes Alaska (Interior, Southcentral, Gulf of Alaska, and Chilkat basin), Yukon, British Columbia, Alberta, Washington, Oregon, Nevada, Montana, Idaho, Wyoming, South Dakota, Minnesota, Wisconsin, Michigan, Saskatchewan, and Ontario (Mitchell 1994). Alaska contains over 85% of the world's breeding population, and breeding areas outside of Alaska are very localized (Mitchell 1994).</p> <p>NONBREEDING: Formerly from the present range in southeast Alaska (a few small flocks along the Gulf of Alaska), along the British Columbia coast, Washington, Oregon, and occasionally California but historically extending to southern California, possibly Arizona and New Mexico, along Gulf Coast to central Florida, and along Atlantic coast as far as ice free waters existed (Mitchell 1994). Present range includes the Gulf of Alaska coast, southeast Alaska, British Columbia, western Washington, western Oregon, occasionally California, eastern Nevada, western Utah, southern Montana, eastern Idaho, northwestern Wyoming, southwestern South Dakota, and small resident populations in the midwestern states, Saskatchewan, and Ontario (Mitchell 1994). In the contiguous United States and adjacent Canada, the highest winter densities occur in western Wyoming, western British Columbia (coast and interior lakes), southeastern Oregon, and southwestern Montana, mainly on wildlife refuges (Root 1988).</p>		No record
Tundra swan	<i>Cygnus columbianus</i>	Outside of species range. BREEDS: Alaska and Canadian low Arctic; northern Russia east along Arctic coast to northern Siberia. WINTERS: mainly on Pacific and Atlantic coasts of North America from southern British Columbia to California and from New Jersey to South Carolina; Eurasia south to British Isles, northern Europe, southeastern Asia. Accidental in Hawaii, Puerto Rico, and elsewhere (AOU 1998). In the U.S., primary wintering areas include the Atlantic coast from northern South Carolina to southern New Jersey, the vicinity of the Great Salt Lake, and central and northern California (Root 1988).		
Black swift	<i>Cypseloides niger</i>	Yes – breeds in isolated pockets in western NA from southeastern Alaska and western Canada, south to southern California, northern Idaho, northwest Montana, Colorado, Utah, northern New Mexico and southeastern Arizona (Id CWCS 2005). In Idaho confirmed breeding along the north fork of the Coeur d'Alene river, Shoshone county. Summer sightings in boundary, Bonner, Shoshone, Clearwater, and Idaho counties.	NatureServe explorer species report 2008, Id CWCS 2005)	Seasonal
Snowy egret	<i>Egretta thula</i>	Outside of species range. BREEDING: northern California, southern Idaho, Kansas, lower Mississippi Valley, and Gulf and Atlantic coasts north to Maine, south through Mexico and the Antilles to South America (to southern Chile and central Argentina). See Spendelov and Patton (1988) for information on the distribution and abundance of coastal U.S. breeding colonies. NON-BREEDING: northern California, southwestern Arizona, Gulf Coast, and South Carolina southward through the breeding range. In the U.S., areas with the highest densities in winter include the Gulf Coast along the Texas-Louisiana border, the mouth of the Mississippi River, the lower Colorado River, and Florida (Root 1988). Wanders irregularly outside usual range; rare straggler to Hawaii.		
Gray flycatcher	<i>Empidonax alnorum</i>	Outside of species range. BREEDING: extreme southern British Columbia (Cannings 1992) and south-central Idaho south to southern California, southern Nevada, central Arizona, south-central New Mexico, and locally western Texas (Terres 1980, AOU 1983). NON-BREEDING: southern California, central Arizona, south to Baja California and		

Species common name	Scientific name	Range within forest	Reference	Observation on the forest
		south-central mainland of Mexico (Terres 1980).		
Merlin	<i>Falco columbarius</i>	Yes. Breeds throughout most of Canada, Alaska, eastern Washington, in the Cascade Mtns of Oregon, locally in Idaho, Montana, northern Colorado, and east to central Dakotas. In Idaho, common migrant, and locally abundant winter resident, but a rare breeder (Id CWCS 2005). Eight nests verified in Idaho.	NatureServe explorer species report 2008, Id CWCS 2005)	
Prairie falcon	<i>Falco mexicanus</i>	Outside species range. Winter use. BREEDING: southeastern British Columbia, southern Alberta, southern Saskatchewan, and northern North Dakota south to Baja California, southern Arizona, southern New Mexico, western and northern Texas, Chihuahua, Coahuila, Durango, and San Luis Potosi (AOU 1983, Lanning and Hitchcock 1991, Steenhof 1998); formerly also northwestern Missouri. NON-BREEDING: from breeding range in southern Canada south to Baja California and central Mexico (AOU 1983, Steenhof 1998). Most abundant in winter in the Great Basin and the central and central-southern latitudes of the Great Plains (Root 1988). Permanent resident and non-breeding resident.		Transient/accidental.
Common loon	<i>Gavia immer</i>	Yes – breeds from north central Alaska, across most of Canada. Southern breeding range from south east Maine west to Minnesota, northwest Wyoming, northwest Montana and northwest Washington. Winter along coasts. Breeding uncommon although loons with flightless chicks reported in Bonner county on the northern end of Priest Lake, upper Priest Lake, and Clark Fork delta of Pend Oreille (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	Seasonal
Sandhill crane	<i>Grus canadensis</i>	Outside species breeding range. : northeastern Siberia, northern Alaska, and middle arctic Canada (to Baffin Island) south locally to northeastern California, Nevada, Wyoming, Colorado, South Dakota, Illinois, and Michigan, formerly south to Nebraska, Indiana, and Ohio; also from southern Mississippi, Alabama, and Georgia south through Florida to Cuba and Isles of Pines. WINTERS: southern U.S. south to northern Mexico and Cuba. See Johnsgard (1983, 1991) for a fairly detailed maps of the breeding and wintering ranges. See Pogson and Lindstedt (1991) for information on specific wintering areas in California. See files for subspecies.		Seasonal
Pinyon jay	<i>Gymnorhinus cyanocephalus</i>	Outside of species range. Resident: central Oregon, east-central Montana, western South Dakota, south to northern Baja California, Nevada, Arizona, New Mexico, and western Oklahoma. Occurs irregularly to southern Washington, northern Idaho, southwestern Saskatchewan, throughout Great Basin, Nebraska, Kansas, central Texas, and northern mainland of Mexico (Terres 1980).		
Black-necked stilt	<i>Himantopus mexicanus</i>	Outside of species range. Large range but localized. BREEDS: locally on Atlantic coast from mid-Atlantic states south to southern Florida, and from southern Oregon, Idaho, northern Utah, southern Colorado, eastern New Mexico, central Kansas, Gulf Coast of Texas, and southern Louisiana and the Bahamas south through Middle America, Antilles, and most of South America to southern Chile and southern Argentina (AOU 1983); may breed also in eastern Montana and western South Dakota; resident in Hawaii (all main islands except Lanai). Mainly resident south of U.S. Some authors treat populations at the southern end of the range from central to southern South America as a distinct species (H. MELANURUS). NORTHERN WINTER: mostly southern California, southern coastal Texas, and Florida south through breeding range (AOU 1983).		
Harlequin duck	<i>Histrionicus histrionicus</i>	Yes – northeastern and northwestern US and Canada, Iceland, Greenland, and eastern Siberia. Winter along both coasts off the shores of Iceland, western Greenland, Kamchata peninsula, sea of Japan, east coast of Korea. In Idaho breed along streams from Canadian border to the Selway River and in southeast Id (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	Seasonal
Caspian tern	<i>Hydroprogne caspia</i>	Outside of species range. BREEDS: Eastern U.S.: locally on Atlantic and Gulf coasts, from Virginia to northern Florida (very few), also recently in New Jersey, on the central Gulf Coast of Florida, and in southeastern Louisiana, Alabama, Mississippi, and Texas; and around the Great Lakes. Canada: Labrador, southeastern Quebec, and Newfoundland; Great Lakes region in southern Ontario; southern Manitoba and central Saskatchewan, along		No record

Species common name	Scientific name	Range within forest	Reference	Observation on the forest
		shores of Lake Winnipeg, Lake Winnipegosis, and Dore Lake; in Lake Athabasca in northeastern Alberta; and vicinity of Great Slave Lake in southern Mackenzie. In western North America: locally (mostly in interior but on coast in Washington and California) in Washington, eastern Oregon, northern Utah, northwestern Wyoming, Idaho (recent range expansion), and North Dakota, south to southern California and western Nevada; also Baja California and Sinaloa. WINTERS: southern U.S. (mainly coastal areas north to California and North Carolina) south to Mexico; sometimes to northern South America (Colombia, Venezuela), rarely in the West Indies. Casual in Hawaii. Breeds and winters extensively also in the Old World (Africa, Eurasia, Australian region).		
Scott's oriole	<i>Icterus parisorum</i>	Outside of species range. : Nevada, Utah, north-central Arizona, north-central New Mexico, western Texas, south through southeastern California to southern Baja California, southeastern Sonora, Durango, southeastern Coahuila, locally to Michoacan and western Oaxaca. NON-BREEDING: southern California (rare), northern Baja California and south to Oaxaca (Terres 1980; AOU 1983).		
Loggerhead shrike	<i>Lanius ludovicianus</i>	Outside of species range. BREEDING: California, eastern Oregon, eastern Washington, and central Alberta eastward across southern Canada to southwestern New Brunswick and Nova Scotia, and south to southern Baja California, throughout Mexico to Oaxaca and Veracruz, the Gulf Coast, and southern Florida (AOU 1983). Recently has been disappearing from the northeastern portion of the breeding range. In the northeastern U.S., breeds in in western Maryland, extreme eastern West Virginia, and Virginia (perhaps several dozen pairs); extirpated elsewhere (Bartgis 1992, R. W. MacDonald pers. comm.). NON-BREEDING: central Washington, eastern Oregon, California, southern Nevada, northern Arizona, northern New Mexico, and (east of the Rockies) the southern half of breeding range south to the Gulf Coast, southern Florida, and Mexico (AOU 1983).		Transient/accidental. No direct evidence of breeding.
Herring gull	<i>Larus argentatus</i>	Outside of species range. BREEDING: northern Alaska across northern Canada (including southern Baffin Island) to northern Labrador, south to British Columbia, central Saskatchewan, northern Wisconsin, northern Ohio, and northern New York, and along coast to North Carolina or South Carolina. NON-BREEDING: Aleutians, Great Lakes, and Newfoundland south to Panama (increasingly regular in southern Central America), West Indies; occasional to frequent in Hawaii. Nonbreeders widespread in summer throughout range. Also occurs in Old World.		
California gull	<i>Larus californicus</i>	Outside of species range. BREEDS: interior North America from southern Mackenzie, Saskatchewan, and Manitoba south to east-central North Dakota, central Montana, northwestern Wyoming, eastern Idaho, northwestern Utah, northwestern Nevada, eastern California, southeastern southern Washington. The largest nesting concentration (about 130,000-150,000 in 1988-1991) occurs around the Great Salt Lake, Utah (Paton et al. 1992). WINTERS: southern Washington, eastern Idaho, south along Pacific coast to southern Baja California northwestern Mexico; rare in Hawaii.	NatureServe explorer species report 2008, Id CWCS 2005)	
Ring-billed gull	<i>Larus delawarensis</i>	Yes - Breed in scattered locations throughout the great basin, northwest great plains, and south central taiga of NA. In the great basin and northern Rocky Mtns. half of breeding pairs bred in southern Idaho.		
Franklin's gull	<i>Larus pipixcan</i>	Outside of species range. Breed from east Alberta, east through Manitoba and west Minnesota, south to northeast south Dakota, west to northcentral Montana. Scattered through eastern Idaho, northern Utah, and central Montana.	NatureServe explorer species report 2008, Id CWCS 2005)	No record
Black rosy finch	<i>Leucosticte atrata</i>	Outside of species range. BREEDS: mountains from central Idaho, southwestern and south-central Montana, and northwestern and north-central Wyoming south to southeastern Oregon, northeastern and east-central Nevada (south to the Snake Mountains), and central Utah (to the Tushar and La Sal mountains). Beartooth Mountains have more than 30% of the global population. WINTERS: central Idaho and western and southeastern Wyoming south to eastern California (at least casually), southern Nevada, northern Arizona, and northern New Mexico (AOU 1983).		No record
Long-billed dowitcher	<i>Limnodromus scolopaceus</i>	Outside of species range. BREEDS: northeastern Siberia, northwestern and northern Alaska, northern Yukon, and northwestern Mackenzie, east to Franklin Bay, Northwest Territories. WINTERS: from central California, southern Arizona, southern New Mexico, central		

		Range within forest	Reference	Observation on the forest
Species common name	Scientific name			
		Texas, Gulf Coast, and southern Florida south to Guatemala, rarely to Costa Rica, casually to Panama; occasionally in Hawaii.		
Marbled godwit	<i>Limosa fedoa</i>	Migrant : largest breeding population: southern Prairie Provinces of Canada south to central Montana, central North Dakota, northeastern South Dakota and northwestern Minnesota (AOU 1983); smaller isolated populations at James Bay, Canada, and vicinity of Ugashik Bay, Alaska, on northern coast of Alaskan Peninsula (Gibson and Kessel 1989). NON-BREEDING: southern U.S. (central California, western Nevada, Gulf coast, coastal South Carolina south to Florida) south to Colombia, Ecuador, Peru, and northern Chile (AOU 1983). Accidental in Hawaii. Nonbreeders occur in summer in winter range. MIGRATION: primarily through interior North America and along California coast, regularly north to British Columbia and southern Alaska, and, primarily in fall, along Atlantic coast from southeastern Canada to Greater Antilles (AOU 1983). Previously (mid-1800s) an abundant migrant along Atlantic coast from New England south; now rare. Common on west coast.		Migrant/no record
Hooded merganser	<i>Lophodytes cucullatus</i>	Yes – breeds from southern portions of eastern Canada, eastern US pacific northwest, and southern BC. Winters primarily in southeastern US and the northwest Pacific north of California. Year-round resident in the Panhandle and Snake River regions of Idaho.	NatureServe explorer species report 2008, Id CWCS 2005)	
White-winged crossbill	<i>Loxia leucoptera</i>	Yes – boreal coniferous forests from Alaska to Newfoundland and south into the Washington Cascades the central rocky Mtns. (Including northern and extreme eastern Idaho) and northeastern states.	NatureServe explorer species report 2008, Id CWCS 2005)	
South hills crossbill	<i>Loxia ssp. (undescribed)</i>	Not identified as a species.		
Lewis's woodpecker	<i>Melanerpes lewis</i>	Yes – western states closely follow the distribution of ponderosa pine. Breeding range as far north as southern BC south to Washington into California. East to Colorado, and Black Hills, SD. Breed throughout Idaho except in the southeastern portion of the state (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	Seasonal
Northern mockingbird	<i>Mimus polyglottos</i>	Outside of species range. Shown as a permanent resident.		
Long-billed curlew	<i>Numerius americanus</i>	Yes – great basin Montana, western Wyoming, and shortgrass prairie of North and South Dakota, Nebraska, Kansas, and northern New Mexico.	NatureServe explorer species report 2008, Id CWCS 2005)	Seasonal
Whimbrel	<i>Nutterinus phaeopus</i>	Outside of species range. BREEDS: northern Alaska east to northwestern Mackenzie, south to western and central Alaska and southwestern Yukon, and along western side of Hudson Bay from southern Keewatin south to northwestern James Bay; Iceland, Faroes, and northern Eurasia east to Ob River, and from Yana River east across northeastern Siberia. NORTHERN WINTER: central California, Gulf Coast, and South Carolina south through Middle America, West Indies, and South America to Galapagos Islands, southern Chile, southern Brazil (important wintering areas in Suriname, north-central coast of Brazil, and Chiloe Island in Chile; Morrison and Ross 1989); south to southern Africa, Australia, islands of South Pacific (AOU 1983). Nonbreeders may summer in winter range.		No record
Black-crowned night heron	<i>Nycticorax nycticorax</i>	Outside of species range. BREEDS: Washington, southern Idaho, Saskatchewan, Michigan, and Nova Scotia south to southern South America, including Antilles; also Hawaii (Niihau to Hawaii). See Spendelow and Patton (1988) for information on distribution and abundance of coastal U.S. breeding populations (most coastal breeders are along Gulf Coast and Atlantic coast north of Florida). NORTHERN WINTER: north to Oregon, Utah, New Mexico, Texas, lower Ohio Valley, Gulf Coast, and southern New England. In the U.S., the highest winter densities occur in the vicinity of inland wildlife refuges near the California-Oregon border, along the northern California coast (Humboldt Bay), in the San Joaquin Valley of California, along the lower Colorado River, near Galveston Bay in Texas, and along the coast near Jacksonville, Florida (Root 1988). Also occurs in the Old World and on other Pacific islands.		No record
Mountain quail	<i>Oreortyx pictus</i>	Outside of species range. Year-round resident in the mountain ranges of far western NA. Sierra Nevada and Cascade mtns. And coastal mtn ranges from Washington state to California. In Idaho currently restricted to areas of west central Idaho.	NatureServe explorer species report 2008, Id CWCS 2005)	1 observation. accidental

Species common name	Scientific name	Range within forest	Reference	Observation on the forest
Flammulated owl	<i>Otus flammeolus</i>	Yes – montane forests from southern BC to southern Mexico. Generally west of the Rocky Mtns. One of the most highly migratory owls in NA. Winters from central Mexico south to the highlands of Guatemala and El Salvador (Id CWCS). In Idaho widely distributed throughout the montane forests of the state.	NatureServe explorer species report 2008, Id CWCS 2005)	Seasonal
Blue grosbeak	<i>Passerine caerulea</i>	Outside of species range. BREEDS: central California, southern Nevada, Utah, southern Colorado, Dakotas, central Illinois, southern Ohio, western Pennsylvania, and New Jersey south to northern Baja California, southern Arizona, Costa Rica, Gulf Coast, and central Florida. WINTERS: southern Baja and northern Mexico to Panama, rarely northern Colombia and northeastern Ecuador; rare in West Indies east to St. John.		
Double-crested cormorant	<i>Phalacrocorax auritus</i>	Outside of species range. BREEDING: southeastern Bering Sea and southern Alaska; southern British Columbia eastward through Manitoba to coastal Quebec and Newfoundland, south (in isolated colonies) to Baja California, coastal Sonora, central Chihuahua, central Durango, south-central Arizona, southern New Mexico, southern Texas, Gulf Coast, Florida, northern Bahamas, Cuba, Yucatan Peninsula, and Belize (Johnsgard 1993, AOU 1998). Breeding range in North America has expanded in recent years (Johnsgard 1993). Extirpated from Amchitka Island, Alaska, perhaps due to predation by arctic fox (ALOPEX LAGOPUS; Siegel-Causey et al. 1991). Occurs throughout most of the coastal breeding range and beyond when not breeding. NON-BREEDING: Pacific coast from Aleutians and southern Alaska south to Baja California and Nayarit; inland from Washington and Montana south to California and northeastern Colorado, southern Minnesota, and the Great Lakes south to northwestern Mexico, Oklahoma, Texas, and the Gulf states; and along the Atlantic coast, from Lake Ontario and New England south to Florida, Bermuda, the Bahamas, Greater Antilles, Yucatan Peninsula, and northern Belize (AOU 1998).		
Red-necked phalarope	<i>Phalaropus lobatus</i>	Outside of species range. BREEDS: across low Arctic or Subarctic of the Northern Hemisphere, south to southern Alaska, northwestern British Columbia, northern parts of southern Canadian provinces, Labrador, northern British Isles, Scandinavia, and northern Asia. WINTERS: at sea, mainly south of equator (Godfrey 1966); abundant off coast of Peru, in Indian Ocean, and in South China Sea; accidental in Hawaii; winter range of birds seen in migration in southeastern Canada is not known (Duncan 1996).		
Wilson's phalarope	<i>Phalaropus tricolor</i>	Yes – breeds in wetland habitats from southern Yukon territories through BC south central Alberta, and southern Manitoba, south to central California, southern Nevada, and Colorado, northern New Mexico, and Texas, east to central Kansas, northwest Iowa and Minnesota. Nests in isolated wetlands throughout Idaho.	NatureServe explorer species report 2008, Id CWCS 2005)	Migrant/accidental.
White-headed woodpecker	<i>Picoides albolaryvatus</i>	Yes – resident in mountainous regions of the west from south central BC south through eastern Washington, northeast/central/and southcentral Oregon, and in California. East into western Idaho and west central Nevada. Uncommon to rare in Idaho.	NatureServe explorer species report 2008, Id CWCS 2005)	Accidental. Seen fewer than 20 times in the state.
Black-backed woodpecker	<i>Picoides arcticus</i>	Yes		Yearlong
American three-toed woodpecker	<i>Picoides dorsalis</i>	Yes – distribution generally follows the boreal forest region. The only species of woodpecker to occur in both the Nearctic and Palearctic. Occur as far north as Alaska, and extend through the boreal forests of Canada south into the lower 48 states.	NatureServe explorer species report 2008, Id CWCS 2005)	
White-faced ibis	<i>Plegadis chihi</i>	Outside of species range. Transient. BREEDING: locally from central California, eastern Oregon, southern Idaho (Taylor et al. 1989), Montana, southern North Dakota, and (formerly) southwestern Minnesota south into Mexico (to Colima, Zacatecas, state of Mexico, Veracruz), Texas, and southwestern Louisiana, southern Alabama, Florida (occasionally or formerly); also locally in South America in Bolivia, Paraguay, Uruguay, southern Brazil, northern and central Chile, and northern and central Argentina (AOU 1983). The world's largest nesting aggregation occurs probably in the marshes around the Great Salt Lake, Utah (D. Paul, in Paton et al. 1992). NON-BREEDING: north to southern California, Baja California, southern Texas, and Louisiana, south through lowlands to Guatemala and El Salvador, and in generally in breeding range in South America (AOU 1983). In the U.S., the highest winter densities occur near San Diego in California and on the coast of Texas and western Louisiana (Root 1988). Wanders outside usual range; rare straggler to Hawaii.		Accidental

Species common name	Scientific name	Range within forest	Reference	Observation on the forest
Black-bellied plover	<i>Pluvialis squatarola</i>	Outside of species range. BREEDING: northern and western Alaska, northern Canada (north to Melville, Bathurst, and Devon islands, east to Southampton and western Baffin islands, west to arctic shore); northern Eurasia (AOU 1983). NON-BREEDING: southwestern British Columbia south along Pacific coast to Chile; Atlantic coast from New Jersey south to northern Argentina; important wintering areas in South America are Suriname and north-central coast of Brazil between Belem and Sao Luis (see Johnson and Herter 1989, Morrison and Ross 1989; see latter for details on other South American sites); West Indies; British Isles, Mediterranean region, southern China, and Hawaii (uncommon, irregular) south to southern Africa, Australia, New Zealand (AOU 1983). Nonbreeders frequently summer in winter range (AOU 1983).		
Horned grebe	<i>Podiceps auritus</i>	Outside of species range. BREEDS: central and southern Alaska and Canada south to Idaho, northern South Dakota, northern Iowa, and central Wisconsin, with the highest breeding densities in southwestern Manitoba; Iceland, Faroes, Eurasia. WINTERS: in North America, mainly along the coast south to California, Texas, Florida (less commonly interiorly, from the Great Lakes south); in Old World south to Mediterranean Sea, Iran, and Japan. Areas of highest winter density include northwestern Washington and the Gulf Coast near Pensacola (Florida); to a lesser degree, various national wildlife refuges along the Atlantic coast from South Carolina to southeastern Canada (Root 1988).		
Red-necked grebe	<i>Pluvialis grisegena</i>	Yes. Breed in northern US, Alaska, and western Canada. Winter along both coasts. In Idaho occur in the Panhandle, upper Snake region, and isolated wetlands in the vicinity of Lake Cascade (Id CWCS 2005).	NatureServe explorer species report 2008, Id CWCS 2005)	
Boreal chickadee	<i>Poecile hudsonica</i>	Yes. Southern edge of species range		Yearlong
American golden plover	<i>Pluvialis dominica</i>	Outside of species range. Migratory. BREEDS: northern North America, from Baffin Island in Canada west to western Alaska. NORTHERN WINTER: Bolivia, Uruguay, and southern Brazil south to northern Chile and northern Argentina (some present in Central and South America in northern summer).		Migrant/no record.
Purple martin	<i>Progne subis</i>	Outside of species range. BREEDING: west of Cascades and Sierra Nevada from southwestern British Columbia south to northwestern Mexico and Arizona; east of Rocky Mountains from northeastern British Columbia, central Alberta, east through northern Minnesota, northern Wisconsin, southern Ontario, to Nova Scotia, south to Gulf coast and southern Florida. NON-BREEDING: locally from northern South America south to northern Bolivia, northern Argentina, and southern Brazil, east of Andes; apparently mainly in southern Brazil (Hilty and Brown 1986, Stiles and Skutch 1989, Ridgely and Tudor 1989).		
Common grackle	<i>Quiscalus quiscula</i>	Outside of species range. BREEDS: northeastern British Columbia and southern Mackenzie to Newfoundland, south to southern Texas, Gulf Coast, and southern Florida, west to Wyoming, Colorado, and New Mexico. WINTERS: Kansas, southern Great Lakes region, New England and Nova Scotia south to southeastern New Mexico, south Texas, Gulf Coast, Florida.		
American avocet	<i>Recurvirostra americana</i>	Outside of species range. Migrant. Breed primarily in the Great Basin, central Midwest, from south Alberta and Saskatchewan south through central Nebraska, west Kansas, an Oklahoma and north Texas west to central New Mexico. In Idaho nests in the southern half of the state.	NatureServe explorer species report 2008, Id CWCS 2005)	
Pygmy nuthatch	<i>Sitta pygmaea</i>	Yes – year-round resident of ponderosa pine and similar pines from south central BC and mountains of western US to central Mexico. In northern Idaho occur locally as a common resident.	NatureServe explorer species report 2008, Id CWCS 2005)	Yearlong
Red-naped sapsucker	<i>Sphyrapicus nuchalis</i>	Yes		Seasonal
Williamson's sapsucker	<i>Sphyrapicus thryoideus</i>	Yes		Seasonal
Brewer's sparrow	<i>Spizella breweri</i>	Outside of species range. NatureServe identifies as a permanent resident. Id CWCS identifies the species not known to breed on the forest.		Seasonal. Direct evidence of breeding.
Caspian tern	<i>Sterna caspia</i>	Outside of species range. BREEDS: Eastern U.S.: locally on Atlantic and Gulf coasts, from Virginia to northern Florida (very few), also recently in New Jersey, on the central Gulf Coast of Florida, and in southeastern Louisiana, Alabama, Mississippi, and Texas; and around the Great Lakes. Canada: Labrador, southeastern Quebec, and Newfoundland; Great		

Species common name	Scientific name	Range within forest	Reference	Observation on the forest
		Lakes region in southern Ontario; southern Manitoba and central Saskatchewan, along shores of Lake Winnipeg, Lake Winnipegosis, and Dore Lake; in Lake Athabasca in northeastern Alberta; and vicinity of Great Slave Lake in southern Mackenzie. In western North America: locally (mostly in interior but on coast in Washington and California) in Washington, eastern Oregon, northern Utah, northwestern Wyoming, Idaho (recent range expansion), and North Dakota, south to southern California and western Nevada; also Baja California and Sinaloa. WINTERS: southern U.S. (mainly coastal areas north to California and North Carolina) south to Mexico; sometimes to northern South America (Colombia, Venezuela), rarely in the West Indies. Casual in Hawaii. Breeds and winters extensively also in the Old World (Africa, Eurasia, Australian region).		
Forster's tern	<i>Sterna forsteri</i>	Outside of species range. BREEDS: central Prairie Provinces of Canada (Lake Winnipeg, Manitoba, to southeastern British Columbia) south to southern California, western Nevada, southern Idaho, northern Utah, northern and eastern Colorado, central Kansas, western Nebraska, northern Iowa, northwestern Indiana, to eastern Michigan; coastally from northeastern Mexico (Tamaulipas), southeastern Texas to southern Alabama; along the Atlantic coast from Long Island to (rarely) South Carolina. WINTERS: central California and Baja California to Oaxaca and Guatemala, casually to Costa Rica; northern Veracruz to western Florida; Virginia to northern Florida; Bahamas and Greater Antilles. Migrant.		No record
Common tern	<i>Sterna hirundo</i>	Outside of species range. BREEDING: northern Alberta across central Ontario and southern Quebec to southern Labrador, south to eastern Washington, southeastern Alberta, northeastern Montana, North Dakota, northeastern South Dakota, central Minnesota, northeastern Illinois, northwestern Indiana, southern Michigan, northern Ohio, northwestern Pennsylvania, central and northern New York, and northwestern Vermont, locally along coast to North Carolina, and locally on Gulf Coast and Bermuda, Greater Antilles, and Netherlands Antilles (AOU 1983, van Halewyn and Norton 1984). In Old World. Nonbreeders occur in summer at James Bay, throughout Great Lakes region, along Atlantic-Gulf coast, south in Middle America to Costa Rica, and throughout West Indies. NON-BREEDING: Baja California and South Carolina to Peru and northern Argentina (AOU 1983); rare in Hawaii. In Old World.		Migrant/accidental. No evidence of breeding.
Lesser yellowlegs	<i>Tringa flavipes</i>	Outside of species range. Breeding range extends from north-central Quebec to western Alaska and from the southern portions of the Prairie Provinces to northern Mackenzie (Tibbitts and Moskoff 1999); unconfirmed breeding reported south to southern Wisconsin and northern Illinois. During the nonbreeding season, this species occurs mainly from the southern United States (Texas, Louisiana, Florida, South Carolina) south through Middle America, West Indies (present all year in Puerto Rico and Virgin Islands), and South America (to Tierra del Fuego); the major coastal nonbreeding areas in South America are the Guyanas, especially Suriname (Morrison and Ross 1989); uncommon but regular in Hawaii. Nonbreeders may summer in the winter range.		
Greater yellowlegs	<i>Tringa melanoceua</i>	Outside of species range. BREEDING: from southern Alaska, central British Columbia, and southern Mackenzie east across northern and central parts of Canadian Provinces to Labrador, northeastern Nova Scotia, southern Quebec, and Newfoundland. NON-BREEDING: from Oregon, central California, Arizona, New Mexico, Texas, southern South Carolina through Mexico and Central America to Tierra del Fuego, including West Indies; rare in Hawaii. The Guyana's are the major coastal nonbreeding areas in South America (Morrison and Ross 1989). Nonbreeders sometimes summer in winter range, especially in coastal U.S. and West Indies (AOU 1983). Fairly common throughout most of range.		
Solitary sandpiper	<i>Tringa solitaria</i>	Outside species range. Breeding range extends from central and south-coastal Alaska, northern Yukon, Mackenzie, northern Saskatchewan, northern Manitoba, and northern and central Ontario east through central Quebec to central and southern Labrador, and south to northwestern and central British Columbia, central Alberta, central Saskatchewan, southern Manitoba, and northern Minnesota; probably west-central Oregon (AOU 1983). During the nonbreeding season, the range extends from Baja California, Gulf Coast, southeastern Georgia, Florida, and Bahamas south through Middle America and South America to Peru, south-central Argentina, and Uruguay (accidental in Hawaii) (AOU 1983, Moskoff		Migrant/accidental. No evidence of breeding.

Species common name	Scientific name	Range within forest	Reference	Observation on the forest
		1995). Considered a transient species in MT.		
Plumbeous vireo	<i>Vireo plumbeus</i>	Outside of species range. Mountains from southern Idaho, Wyoming, southeastern Montana, and southwestern South Dakota south through the southwestern US and Mexico.		
Virginia's warbler	<i>Vermivora virginiae</i>	Outside of species range. Breeds in Great Basin from southeastern Idaho, northeastern Utah, and central Colorado, south to southeastern California, southern Nevada, southeastern Arizona and central New Mexico. In Idaho breeds from about Twin Falls county to Bingham county.	NatureServe explorer species report 2008, Id CWCS 2005)	No record
Mammals -				
Pallid bat	<i>Antrozous pallidus</i>	Outside of species range.		No record
American bison	<i>Bison bison</i>	Outside of species range. Western North America from south-central British Columbia (Okanagan Valley; low numbers, perhaps strays) south through western U.S. to southern Baja California, central Mexico, southern Kansas, and southern Texas; also Cuba. The following subspecies distributions are from Martin and Schmidly (1982). Subspecies PACIFICUS: Pacific Coast Ranges of western Oregon and California south to Los Angeles and San Bernadino counties. Subspecies PALLIDUS: east of the range of PACIFICUS from southern British Columbia and east of the Cascade Range throughout much of the Columbia Plateau and Great Basin, throughout the southwestern U.S. west of central Texas, and south to western and south-central Mexico north of the Transverse Volcanic Cordillera. Subspecies BUNKERI: Barber County, Kansas, south to the western end of the Wichita Mountains in Greer County, Oklahoma. Subspecies MINOR: s. Baja California north through the Colorado Desert of southeastern California and southwestern Arizona, thence northward into southern Nevada. Subspecies PACKARDI: western slopes of the Sierra Madre Occidental in southwestern Zacatecas, Jalisco, northeastern Nayarit, and southern Sonora. Subspecies KOOPMANI: several scattered localities in Cuba.		No record
Pygmy rabbit	<i>Brachylagus idahoensis</i>	Outside of species range. Oregon (Verts and Carraway 1998) to east-central California, east to western Utah, western Wyoming (Campbell et al. 1982), and southwestern Montana; isolated population in east-central Washington. Range apparently decreased in eastern Washington during the last 3,000 years as the extent of sagebrush-dominated steppe diminished (Lyman 1991). Within its range the distribution is not continuous but patchy, primarily in areas of Great Basin big sagebrush (<i>Artemisia tridentata</i>)-dominated plains and alluvial fans where plants occur in tall and dense clumps, and the soil is relatively deep and friable (Orr 1940; Green and Flinders 1980a, b; Weiss and Verts 1984). Also reported to frequent areas in Idaho supporting greasewood (<i>Sarcobatus</i> spp.) (Davis 1939).		No record
Rocky Mountain elk	<i>Cervus canadensis</i>	Yes		
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	Yes		Seasonal
Pale lumped-nosed bat	<i>Corynorhinus townsendii pallascens</i>	Outside species range. No global range map available/data incomplete.		
Spotted bat	<i>Euderma maculatum</i>	Western North America from southern British Columbia (north to Fraser River basin near Williams Lake) (Cannings et al. 1999) south through eastern Oregon, Idaho, south-central Montana, western Colorado, central Wyoming western Nevada, California (Pierson and Rainey 1998), southwestern Arizona, central New Mexico, western Texas, and central Mexico (Queretaro) (Verts and Carraway 1998). Winter range not known. An echolocation monitoring survey of distribution has been conducted (Fenton et al. 1987). Ranges from below sea level to 2450 m. Apparently widespread but rarely abundant		
North American wolverine	<i>Gulo gulo luxos</i>	Yes		Yearlong
Fisher	<i>Martes pennanti</i>	Yes		Yearlong
Dark kangaroo mouse	<i>Microdipodops megacephalus</i>			
California myotis	<i>Myotis californicus</i>	Western North America, from extreme southern Alaska south through British Columbia and western U.S. to southern Baja California and Guatemala (Koopman, in Wilson and Reeder 1993). In U.S. found throughout desert Southwest, and in lowlands to Montana, Utah, and Colorado. Winters in California, Nevada, Utah, Arizona, and Texas; full extent of winter range not known (Barbour and Davis 1969). To elevations of 6000 ft. permanent resident.		
Fringed myotis	<i>Myotis thysanodes</i>	Yes		Seasonal

Species common name	Scientific name	Range within forest	Reference	Observation on the forest
Cliff chipmunk	<i>Neotamias dorsalis</i>			
Red-tailed chipmunk	<i>Neotamias ruficaudus</i>			
Uinta chipmunk	<i>Neotamias umbrinus</i>	Outside of species range		No record
Mountain goat	<i>Oreamnos americanus</i>	Yes		
Little pocket mouse	<i>Perognathus longimembris</i>			
Pinon deer mouse	<i>Peromyscus truei</i>	Outside of species range		
Western pipistrelle	<i>Pipistrellus Hesperus</i>	Outside of species range		
Coast mole	<i>Scapanus orarius</i>	Outside of species range		
American pygmy shrew	<i>Sorex hoyi</i>			
Merriam's shrew	<i>Sorex merriami</i>	Outside of species range		
Dwarf shrew	<i>Sorex nanus</i>	Outside of species range		
Columbia plateau ground squirrel	<i>Spermophilus canus</i>	Outside of species range		
Wyoming ground squirrel	<i>Spermophilus elegans nevadensis</i>	Outside of species range		
Great basin ground squirrel	<i>Spermophilus mollis</i>	Outside of species range		No record
Rock squirrel	<i>Spermophilus variegatus</i>	Outside of species range		
Northern bog lemming	<i>Synaptomys borealis</i>	Yes		Yearlong
Idaho pocket gopher	<i>Thomomys idahoensis</i>	Outside of species range		
Townsend's pocket gopher	<i>Thomomys townsendii</i>	Outside of species range		
Kit fox	<i>Vulpes macrotus</i>	Outside of species range		
Fish				
Lake chub	<i>Couesius plumbeus</i>	Outside of species range		
Bluehead sucker	<i>Catostomus discobolus</i>	Outside of species range		
Pacific lamprey	<i>Lampetra tridentate</i>	Outside of species range		
Burbot	<i>Lota lota</i>			
Bonneville cutthroat trout	<i>Oncorhynchus clarki utah</i>	Outside of species range		
Inland redband trout	<i>Oncorhynchus mykiss gairdneri</i>	Yes		Known
Kokanee	<i>Oncorhynchus nerka</i>			
Sand roller	<i>Percopsis transmontana</i>	Outside of species range		
Pygmy whitefish	<i>Prosopium coulterii</i>	Outside of species range		
Leopard dace	<i>Rhinichthys falcatus</i>	Outside of species range		
Umatilla dace	<i>Rhinichthys umatilla</i>	Outside of species range		
Invertebrates - insects				
Butterflies				
Silver bordered fritillary	<i>Boloria selene atrocostalis</i>	Outside species range. Rocky Mtns of Alberta and MT. BC and WA. Known range includes Glacier NP only.		No record
Stoneflies				
A spring stonefly	<i>Cascadoperla trictura</i>			
Mollusks				
Pale jumping slug	<i>Hemphilia camelus</i>	Yes -		
Sheathed slug	<i>Zacholeus idahoensis</i>	Yes. Local endemic. Lake and Lincoln Co.		Known
Mussels				
Western pearlshell	<i>Margaritifera falcata</i>	Yes -		

NatureServe databases – accessed 2005, 2006, 2007, 2008

Species ranges – range maps from the NatureServe databases, the Montana Animal Field Guides, and Montana Natural Heritage Program bird distribution maps were reviewed for each individual species in the list of possible species of interest. For those species whose ranges included the Kootenai National Forest, additional screening was conducted, as displayed below.

No information is available on invertebrate species in the Montana animal field guides. Invertebrate species were not included in the Montana Comprehensive Fish and Wildlife Conservation Strategy (2006). There is only limited information available on invertebrate mollusks in the MNHP and no information on other invertebrates.

* species considered rare in the state of MT. Seen fewer than 20 times (NHP, 2004).

** species considered rare and local in the state. None considered local for the KNF. (NHP, 2004)

for those species selected as potential species of interest based on the Montana comprehensive fish and Wildlife conservation Strategy and/or the Montana Species of concern report (2006) the following are not considered, based on direction in the Montana SOC (2006);

for vertebrate species

species below S3 i.e. S3S4 species or less

species ranked SU

for invertebrate species

species below S2 i.e. S2S3 with a global rank of less than G1-G3

*GU/SU – species currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

GX/SX – believed to be extinct; historical records only

SNA – species is not acceptable as a conservation target

Table 15. Information on species of interest habitats and major risks and threats

Species common name	Habitats		Major risk factors/threats
Vertebrates - Amphibians			
Western (Boreal) toad <i>Bufo boreas</i>	Largely terrestrial but generally found within a fair proximity of water. Habitats range from mountain meadows to brushy desert flats. Ponds, lakes, moist forests and grasslands. Low elev. beaver ponds, reservoirs, streams, marshes, lake shores, potholes, wet meadows, and marshes. And high elev. ponds, fens, and tarns at or near treeline. (MNHP 2008). Utilizes a variety of habitats, prefer shallow areas with mud bottoms. Remain fairly close to wet area during the day but may range widely at night. No info specific to migration in MT. Elsewhere migrates between aquatic breeding and terrestrial nonbreeding habitats.		Habitat loss and degradation. Disease and parasites. Invasive species. Roadkill mortality.
Coeur d'Alene salamander <i>Plethodon idahoensis</i>	Springs and seeps, waterfall spray zones, and edges of streams. seepages and streamside talus, deep talus mixed with moist soil on well shaded north facing slopes. 3 major types of habitat: springs or seepages, spray zones of waterfalls, and edges of streams, often associated with fractured rock formations. Moist talus, seeps and splash zones which may be situated in open forests, meadows, or riparian areas. eggs deposited terrestrially under rocks or logs.	Irregularly distributed across northern ID, western Mt, and southeastern BC. Populations in Idaho comprise the core of the range. Majority of the records are from the St JNoe and North fork Clear river basins, but also occurs in the Selway, Kootenai, and Moyie drainages.	Population size has not been estimated. Groves (1988) who reported relative abundance at 34 Idaho sites during 1987, found small numbers (< or equal to 5 individuals observed) at 68% of the sites. population trend uncertain, 95% of the known occurrences in Idaho and Montana have been verified extant since 1987 (Cassirreer et al. 1994.). but population trend data have not been collected.
Northern leopard frog <i>Rana pipiens</i>	Permanent water sources during all life stages. A variety of wetland situations, including marshes, pond margins, and slow moving sections of streams and rivers. (Idaho CWCS). Low elev. and valley bottom ponds, spillway ponds, beaver ponds, stock reservoirs, lakes, creeks, intermittent streams, warm water springs, potholes and marshes. Require a mosaic of habitats. separate sites are used for breeding and overwintering, although they may occur in the same location. Heavily vegetated marshes, ponds, streams etc. breed in areas that are also heavily vegetated. Ponds, lakes, marshes.	Widely distributed across much northern and central NA. Populations are sparsely distributed in the western portion of its range. In northern Idaho found in the Kootenai, Pend Oreille, and Clark Fork rivers prior to 1955 but populations may no longer persist in this region.	Populations have declined from historical levels (Groves and Peterson 1992). Lack of recent sightings suggests a population decline and possible extirpation of the species in Idaho. Declines also reported in eastern WA, and western MT.
Reptiles			
Northern alligator lizard <i>Elgaria coerulea</i>	Dry open forest to cool moist areas near streams. Hides under logs and rocks. Areas with bushes, trees, and grassy areas needed to provide cover and foraging sites. little specific info. on habitat associations in MT. Several observations on south facing slopes in fine to coarse talus. Secretive. Forest clearings or edges, under logs and other surface debris. Also found in talus slopes associated with forests.	Few records for this species, possibly due to lack of surveys.	Habitat loss and degradation. Disease and parasites. Invasive species.
Birds			
Northern goshawk <i>Accipiter gentilis</i>		Wide variety of cover types but nests usually in mature forest stands >25 acres with high canopy. goshawks in MT tend to nest predominantly in mature large tract conifer forests with a high canopy cover (69%), relatively gentle slope (21%) and little to sparse undergrowth. All nest trees were either LP or DF with an average dbh of 33.6 cm and average height of 21.9 meters. In another study in MT DF, PP and GF were the trees most selected for nesting. Nests usually located near water or clearings. Hunt in closed canopy habitats as more open generalists in terms of prey selection.	Loss and degradation of habitat. Disturbance near nest sites. Fire exclusion.
Western grebe <i>Aechmophus occidentalis</i>	Colonial waterbirds that nest on freshwater lakes or marshes with extensive open water, where they feed primarily on fish (Storer and Nuechterlein 1992 in Id CWCS). Floating platform nest in emergent vegetation.	Two subspecies are recognized; A.o.occidentalis occurring throughout most of the range and A.o.ephemeralis which breeds on the Mexican plateau. (Id CWCS). Population trend include both the western and Clarks grebes. BBS data for the US indicate no changes or potential slight increases during the period 1966-2004 and 1980-2004 and significant increases (+3.3% [per year] during the period 1966-1979 (Sauer et al. 2005 in Id CWCS). BBS data for Idaho indicate sharp declines during the period 1966-2004 (-9.3% per year) and 1980-2004 (-11.8% per year)(Sauer et al. 2005 in Id CWCS). Trend data for the period 1966-1979 for Idaho are not available. However interpretation of BBS trend data for colonial waterbirds should be done cautiously.	Water quality and water level fluctuations (Troost and Gerstall 1994 in Id CWCS). Disturbance by humans at nesting colonies. Gill nets and oil spills cause mortality on wintering grounds. Pesticides. Close off important breeding areas to recreational activities during the nesting period. Intermountain West Waterbird Conservation Plan (Ivey and Herziger 2005 in Id CWCS).
Boreal owl <i>Aegolius funereus</i>	Boreal and subalpine forested habitats of the Rocky Mtn states (Hayward et al. 1993 in Id CWCS). Mature, mixed stands of subalpine fir, and Engelmann spruce are favored, with nesting associated with deciduous (primarily aspen) and mixed deciduous conifer habitats (Ibid). also uses Douglas-fir, lodgepole	7 recognized subspecies of which 6 are from Eurasia (Hayward and Hayward 1993 in Id CWCS). A.f.richardsoni is the only recognized subspecies found in NA. State abundance is estimated at 1,000-3,000 individuals based on the extent of spruce-fir habitat in Idaho.	Intensive timber harvest (e.g. clearcutting), which often eliminates large diameter snags and live trees used for nesting, reduces primary prey populations, and removes forest structure needed for foraging and roosting (Hayward

Species common name	Habitats	Major risk factors/threats	
	pine, and mature mixed conifer. In Idaho and Montana 75% of sites are above 5184 feet elevation. Nest in natural cavities and old woodpecker holes in snags and live trees, favoring cavities created by large woodpeckers (Mansell and Low 1980 in Ida CWCS). Prey mainly consists of red-backed voles (<i>Clethrionomys gapperi</i>), deer mice (<i>Peromyscus</i> spp.), shrews (<i>Sorex</i> spp.), and pocket gophers (<i>Thomomys talpoides</i>).	1997 in Id CWCS). Maintain overall forest structure and composition. Management should involve retention of large diameter snags, protection and restoration of aspen, and retention of subnivean structural features important to the small mammal prey base.	
Grasshopper sparrow <i>Ammodramus savannarum</i>	Grasslands of intermediate height often associated with clumped vegetation interspersed with patches of bare ground. Prefers open prairies with intermittent brush although not particular to heavy brush cover. Prairies, old fields, open grasslands, cultivated fields, and savannas. Prefer moderately open grasslands and prairies with patchy bare ground, occupying lush areas with shrub cover in arid grasslands of the west (Vickery 1996 in Id cWCS0).	Twelve subspecies are recognized altogether four of which breed in NA. <i>A.s. Perallidus</i> is the subspecies that breeds in Idaho (Vickery 1996 in Id CWCS0. in Idaho locally abundant wherever suitable habitat occurs throughout the Snake River plain in the south and Palouse in the north (Groves et al. 1997a in Id cWCS). And is estimated to have a population size of approximately 68000 individuals (Rosenberg 2004 in Id cWCS). Undergoing significant population declines throughout its range. BBS data reveal statistically significant declines at the level of the US (-3.7% per year) the western BBS region (-6.9% per year) and in Idaho (-7.3% per year) during the period 1966-2004 (Sauer et al. 2005 in Id cWCS0. trend analyses indicate steeper declines during the more recent period 1980-2004).	Loss, degradation and incompatible management of grassland habitat. Cultivation, urban sprawl, and reforestation. Termination of CRP program. no info for MT.
Northern pintail <i>Anas acuta</i>	In Idaho this species breeds in the Panhandle and along the Snake River Plain (IBIS). Wintering birds are similarly distributed but in higher numbers. Lakes, marshes, rivers, and ponds in grasslands, barrens, dry tundra and open boreal forests (Groves et al. 1997). Typically nests in open country with shallow, seasonal, or intermittent wetlands and low vegetation.	The average number of pintail in Idaho detected on mid winter waterfowl counts during the 20 year period 1983-2003 is approximately 1,800 birds (Hemker 2004 in Id CWCS). BBS data indicate widespread population declines for the northern pintail, especially in the west. In the western BBS region numbers have declined at a rate of 4.4% per year during the period 1966-2004, 4.8% per year during the period 1966-1979, and 3.6% per year during the period 1980-2004 (Sauer et al. 2005 in Id CWCS). Similar results were reported for Idaho (-4.4% and -4.6%) for the same time periods. Current population numbers continent wide are 30-40% below the 1955-2004 average (Wilkins and Otto 2005 in Id CWCS).	Hunting, habitat degradation on both breeding and wintering grounds. Drainage of wetlands. In Idaho wintering populations are of primary concern, especially as ducks on winter wetlands compete against agricultural and urban users for limited water and space as human populations escalate (Austing and Miller 1995 in Id CWCS). North American waterfowl Management Plan (1986), Idaho PIF/Idaho steering committee of the Intermountain West Joint Venture for wetland restoration.
Golden eagle <i>Aquila chrysaetos</i>	Occurs primarily in Dry, open and semi-open areas. Prairies, tundra. Nests on cliffs and large trees and hunt over prairie and woodlands.		Disturbance at nest sites. Access management (road kills). Habitat loss and degradation. Powerlines. Lead poisoning.
Short eared owl <i>Asio flammeus</i>	Typically associated with marshes, grasslands, tundra, and agricultural lands (e.g. pastures, stubble fields, and hay fields). Utilize wooded areas in winter but rarely breed in forests (except in areas that have been cleared of trees (Johnsgard 2002 in Id CWCS). Breeding habitat typically supports sufficient vegetation (primarily grasses and forbs) to provide ground nesting and roosting cover and are in close proximity to productive and open hunting areas with abundant supplies of small mammals (Ibid).	Up to 9 subspecies designated worldwide, 5 or 6 of which are island endemics. All NA birds are within the race <i>A.f. flammeus</i> . the most widely distributed subspecies. Short eared owl populations were "down in numbers" or "greatly down in numbers" in all 7 NA regions (Holt and Leasure 1993 in Id CWCS). BBS data from 1966-2004 shows a -3.6% per year downward trend in Idaho and a -4.8% downward trend for the U.S. and Canada combined (Sauer et al. 2005 in Id CWCS). These trend estimates are to be interpreted with caution (Ibid). The estimate of population size in Idaho is about 32,000 individuals (Rosenberg 2004 in Id CWCS).	Habitat loss and degradation and human disturbance (Holt and Leasure 1993 in Id CWCS). Agricultural activities. mortality – vehicle collisions.
Lesser scaup <i>Aythya affinis</i>	Fresh to moderately brackish seasonal, and semipermanent wetlands and lakes with emergent vegetation such as bulrush and cattail. Prefers smaller bodies of water. Nests on dry ground usually close to water but also in native prairie, hayfields, or even sparse shrub patches.	A year-round resident in the Panhandle and south central regions. The average number of scaup (both lesser and greater) in Idaho detected on mid winter waterfowl surveys during the 20 year period 1983-2003 is approximately 6,000 birds (Hemker 2004 in Id CWCS). Knowledge of population size, trends, and to some extent geographic distribution is confounded by the inability to distinguish between lesser and greater scaup on surveys. BBS data indicate population declines for the long term period 1966-2004 (-4.0% per year) and statistically significant declines for the more recent short term period 1980-2004 (-4.0% per year). (Sauer et al. 2005 in Id CWCS). Current population numbers continent wide approximately 35% below the 1955-2004 average (Wilkins and Otto 2005 in Id CWCS). Throughout the western BBS region population trends also appear to be declining, whereas in the US as a whole numbers are apparently stable.	Loss or degradation of wetlands. Many threats elsewhere throughout its range do not apply to Idaho (over harvest, oil spills, organochlorine contamination, mercury and lead poisoning, getting caught in fishing nets). Id CWCS). North American waterfowl Management Plan (1986), Idaho PIF/Idaho steering committee of the Intermountain West Joint Venture for wetland restoration.
Upland sandpiper <i>Bartramania longicauda</i>	Nest in upland prairie habitat. preferred habitat includes a wide variety of croplands, pastures, wet or high elevation meadows, and native prairie types over relatively smooth topography (McAllister and Demers 1993 in Id CWCS). Surveys at historical locations turned up no nests or sightings. Whether nesting still occurs in Washington and Idaho is unknown.	No subspecies. Declined dramatically at the turn of the century as a result of intensive market hunting (Bolster 1980 in Id CWCS). The populations rebounded when hunting was prohibited with the Migratory Bird Treaty Act of 1916 yet has made another decline, mostly in the northeast and northwest, due to modern farming methods, conversion of prairie to croplands,	Loss of habitat to agriculture and urban development and heavy grazing. In northern Idaho grassland habitat in the Rathdrum prairie and Spokane Valley area has been largely lost to housing and commercial developments (Thieman 1988, McAllister and Demers 1993 in Id CWCS).

Species common name	Habitats	Major risk factors/threats	
		<p>fragmentation, and housing developments. BBS data report a significant increase from 1966-1979 (+3.1% per year) in the US and then a significant decline from 1980-2004 (-1.0% per year) (Sauer et al. in Id CWCS). Population east of the Rockies are in steep decline or are already extirpated (McAllister and Demers 1993). In Idaho trend data are not available.</p>	
<p>Black tern <i>Chlidonias niger</i></p>	<p>Wetlands, marshes, prairie potholes, and small ponds. Semi-colony breeders in shallow freshwater marshes with emergent vegetation. Approximately 30-50% of wetland complex is emergent vegetation. Breed semicolonally (clusters of 11-50 nests) in shallow freshwater marshes with emergent vegetation (e.g. margins of lakes, ponds, rivers, islands, or sloughs) (Dunn and Agro 1995 in Id CWCS).</p>	<p>Population size of this species is unknown, although the US breeding population is estimated to be in the low hundreds of thousands (Shuford 1999 in Id CWCS). In Idaho the breeding population of terns is approximately 200 individuals (Ivey and Herziger 2005 in Id CWCS). Nesting in 5-10 different locations per year. In northern Idaho Kootenai National Wildlife Refuge and Westmond Lake appear to be fairly consistent nesting locations for 30 and 125 pairs respectively (Moulton in Id CWCS). Experienced a 61% decline during the 30 year period between 1966-1996 with fairly recent stabilization or slight increases (Ibid). BBS data which indicate sharp declines during the period 1966-1979 in the US (-10.1% per year) and during the periods 1966-1979 (-5.4% per year) and 1980-2004 (-3.3% per year) for the western BBS region. (Sauer et al. 2005 in Id CWCS). In contrast BBS data suggest increases in the US during the period 1980-2004 (+7.7% per year) and 1966-2004 (+2.8% per year) (Sauer et al. 2005 in Id CWCS).</p>	<p>Loss or degradation of wetlands for breeding and migration. Pesticide reduction of favored insect foods. Disturbance in nesting colonies, although tolerant of nearby human activity. Water level fluctuation. Loss of marsh habitat. Most (>90%) of breeding locations are within National Wildlife Refuge or IDFG Wildlife Management Area boundaries.</p>
<p>Black swift <i>Cypseloides niger</i></p>	<p>Cliffs, waterfalls, caves.</p>		<p>Decreases in water flow. Disturbance at nesting areas.</p>
<p>Merlin <i>Falco mexicanus</i></p>	<p>Merlins hunt in open country and feed on small to medium sized birds, rodents, insects and occasionally bats (Craig and Craig 1989 in Id CWCS). Nesting habitat has been shrub steppe dominated by sagebrush and snags were placed in juniper trees. Typically use abandoned stick nests built by raptors, corvids or other birds.</p>	<p>Ten subspecies recognized, 3 of which occur in NA and all 3 of which have been documented in Idaho; the Taiga merlin (<i>F.c.columbarius</i>), Richardson's or prairie merlin (<i>F.c.richardsonii</i>), and the black merlin (<i>F.c.suckleyi</i>). An analysis of sightings from Idaho confirms that the merlin is a common migrant and locally abundant winter resident, but a rare breeder (Craig and Craig 1989 in Id CWCS). Eight nests have been verified in Idaho, although other successful nesting attempts are suspected (Ibid). Population trends are difficult to assess as spring breeding bird surveys, autumn raptor migration monitoring, and mid winter bird counts are inappropriate for this species. BBS data, (although questionable) reveal a stable to slightly increasing population trend at the level of the US (+3.6% per year) and in the western BBS region (+5.0% per year) and stable to slightly decreasing trends in Idaho (-2.9% per year) during the period 1966-2004 (Sauer et al. 2005 in Id CWCS).</p>	<p>Increase in agricultural lands has caused losses of both nest sites and prey species for merlins (Trimble 1975 in Id CWCS). Habitat modification by humans is the greatest threat in the future (Cade 1982 in Id CWCS). Environmental contaminants.</p>
<p>Common loon <i>Gavia immer</i></p>	<p>Lowland lakes and reservoirs (generally greater than 10 acres in size). Breed in clear oligotrophic lakes (with fish) with forested, tundra or rocky shorelines bays, islands, and floating logs (McIntyre and Barr 1997 in Id CWCS). Lakes are usually larger than 22 acres in size below 5905 feet elevation with adequate fish prey, nesting and nursery habitat.</p>	<p>The population size in NA is unknown, although it is estimated that 1320 breeding adults are in the Great Basin and Northern Rocky Mts (Ivey and Herziger 2005 in Id CWCS). Despite major attempts to locate common loon nests in Idaho, nesting birds have never been confirmed except on Indian Lake in Teton county. Birds have been spotted in breeding plumage on 13 lakes in northern and southeastern Idaho during the breeding season. In northern Idaho panhandle common loons with flightless chicks have been reported in Bonner county on the northern end of Priest Lake, Upepr Priest Lake, and the Clark Fork delta of Pend Oreille Lake (Taylor 2001, Oules in Id CWCS). BBS data suggest a recent (1980-2004) statistically significant increase in the US (+2.4% per year) and western BBS regions (+1.9% per year) (Sauer et al. 2005 in Id CWCS). Trend data for Idaho is not available.</p>	<p>Human disturbance at breeding lakes, heavy metal poisoning, fluctuating water levels, increasing numbers of predators. Shoreline development. Shooting. Underwater fish traps, gill nets, oil spills, and water level instability. Degradation of habitat through shoreline development, campsites, human recreational use of nesting and nursery sites. Breeding conservation programs run mostly by dedicated volunteers have been successfully established in many northern states. Nesting platforms have been placed in Upper Priest, Priest, Pend Oreille, and Coeur d'Alene lakes in northern Idaho as part of the IBIS program.</p>
<p>Sandhill crane <i>Grus canadensis</i></p>			
<p>Harlequin duck <i>Histrionicus histrionicus</i></p>	<p>Forested mountain streams of relatively low gradient, free of human disturbance. Winters in rough, coastal waters, especially along rocky shores. Sea ducks that move inland to breed. Breeding occurs along clear, swiftly flowing streams.</p>	<p>Population size is unknown although the western NA population has been estimated at 150,000-200,000 with a wintering population of 1,000 and a breeding population of at least 1600 in the US outside Alaska (Cassirer et al. 1996). Approximately 70 pairs are estimated to breed in Idaho (Ibid). Overall population trends unknown. Nijbers breeding in Idaho declined between</p>	<p>Loss or degradation of habitat. Destruction of watershed stability and stream flow regimes. Sedimentation and toxic chemical pollution. Human disturbance near breeding areas. Hunting on wintering grounds. Protection of breeding area watersheds, and coastal</p>

Species common name	Habitats		Major risk factors/threats
California gull <i>Larus californicus</i>	Barren or sparsely vegetated islands in natural lakes, reservoirs, and rivers Winkler 1996 in Id CWCS).	1995-2004 (Cassirer 2004). Patches distribution of colony sites in the US. BBS data suggest declines during the period 1960-2004 and 1960-1979 in the US (-1.5% and -1.85 per year respectively). western BBS region (-1.3 and -1.5% per year respectively) and Idaho (-3.2% and 8.0% per year respectively) and increases during the period 1980-2004, (+0.3% US, +0.7% western region, and +1.3% Idaho per year). (Sauer et al. 2005 in Id CWCS).	molting and wintering sites.
Hooded merganser <i>Lophodytes cucullatus</i>	Year-round resident in the Panhandle and Upper Snake regions with additional birds spend the winter scattered throughout the southern part of the state. Most closely tied to forested wetland systems throughout its range when nesting (Dugger et al. 1994 in Id CWCS). In Idaho prefers wooded streams and flooded bottomlands during the summer, and open bodies of water in winter (Groves et al. 1997). Nests in tree cavities large enough to hold the incubating bird, and preferably near water.	The average number of mergansers (all species) in Idaho detected in mid winter waterfowl surveys during the 20 year period 1983-2003 is approximately 4,000 birds (Hemker 2004 in Id CWCS). BBS data indicate a stable to increasing population numbers for the hooded merganser, both in Idaho and throughout its range in the west. Sample sizes are low for all BBS analyses because this species is not well suited for detection along roads where BBS data are collected and results should be treated with caution. Citing some historical records, Burleigh (1972 in Id CWCS) notes that this species was at one time apparently much more common in Idaho than it is today.	Habitat alteration on both breeding and wintering grounds, mostly associated with changing forestry practices and especially snag removal (Dugger et al. 1994 in Id CWCS). Effects of acid rain, which changes the pH of water, although this is of greater significance in eastern US. For wintering birds that might be applicable to Idaho relates to river channelization, deforestation, and agricultural practices that reduce the size of forested floodplains and increase sediment loading in streams. NAWMP, primary action should focus on setting forest management goals that include the establishment and conservation of cavity producing trees (>100 years old, >121" dbh) as well as the maintenance of riparian forested corridors
White-winged crossbill <i>Loxia leucoptera</i>	Breeds in conifer forests of the following tree species: white spruce, black spruce, red spruce, sitka spruce, engelmann spruce, and tamarack. The critical factor influencing crossbill breeding is conifer seed availability (Benkman 1990 in Id CWCS).	Three subspecies are recognized: <i>L. l. leucoptera</i> (northern NA), <i>L. l. megalopa</i> (mtns of Hispaniola, and <i>L. l. bigasciata</i> (Palearctic) (Benkman 1992 in Id CWCS). Trend information is highly variable depending on geographic location due in part to the nomadic nature of the species. BBS data show a strong increase in numbers across the country (+11.8% per year 1966-2004) but more stable numbers for the west (+1.2% per year) for the same time period. For the more recent time period (1980-2004) data indicate increases at the US level (-6.9% per year) while populations decline in the west (-8.6% per year). No trend information is available for Idaho.	Current forest practices may be detrimental because construction and maintenance of roads eliminates habitat, shorten logging rotations (forests become shorter lived and therefore less productive), global warming. Increase rotation age.
Lewis's woodpecker <i>Melanerpes lewis</i>	Based on the geographic region, specific habitat and the intensity of the burn site occupation may range from 5-22 years post fire, though the species was abundant 2-3 years post fire in a large high intensity burn in western ID. After 2-3 decades post fire the development of young second growth forest again creates conditions unsuitable for Lewis's woodpeckers. In BC confined to relatively few habitats at lower elevations with a strong link to older aged open canopy ponderosa pine and riparian stands of large black cottonwood trees. Also abundant in a 18 year old burn of mature Douglas-fir forest.	Undergoing population declines, but caution should be used when examining localized data since birds occur sporadically within their range (Tobalske 1997 in Id CWCS). BBS data indicate statistically significant declines between 1966-2004 at the level of the US (-3.1% per year) (Sauer et al. 2005 in Id CWCS). Declines in the western US (-1.5% per year) and Idaho (-1.5% per year) follow the general trend but are not statistically significant.	Loss and degradation of habitat. Loss of large Douglas-fir and mixed conifer snags. Fire suppression. Fire exclusion. Quality and quantity of habitat in BC continues to decline for what are already small and declining populations of Lewis's. Declines of up to 90% of the historic pine forests and deciduous riparian habitats in western states have been estimated (Noss et al. 1995 in Id CWCS). And these are 2 of the major breeding habitats for Lewis woodpeckers. Fire suppression in pine forests has promoted forests that support high densities of small diameter trees, which are unsuitable for this species since the birds rely on large snags (average 18.4" dbh) in pine sites in Idaho. In general a reduction of large snags in breeding habitats may limit reproduction (Tobalske 1997 in Id CWCS). Sensitivity to human disturbance is not well understood (Ibid). Actions which result in open forests with large snags and a well developed understory will likely benefit this species.
Long-billed curlew <i>Numerius americanus</i>	Open short grass or mixed prairie with level to slightly rolling topography, generally avoid areas with trees, high density shrubs and tall, dense grasses. Prairies and grassy meadows, generally near water. Nests on ground usually in flat areas with short grass. Presence of short grass prairie is a requirement. Have adapted well to nesting in croplands if the vegetation is of the correct height. Well drained native grasslands and agricultural land with a gentle rolling topography. Require large blocks of grasslands.	Total population size is roughly estimated at 20,000 with approximately 11,200 of these along the Pacific flyway (Morrison et al. 2001 in Id CWCS). As of 1980 there were an estimated 3,000-5,000 pairs nesting in southern Idaho (Pampush 1980 in Id CWCS). Current population size of this species in Idaho is unknown. Range-wide long-billed curlews are declining particularly in the Great Plains (Brown et al. 2000 in Id CWCS). BBS data indicate slight declines in the US (-1.9% per year) during the period 1966-2004, but did not indicate any population changes in the western BBS region (Sauer et al. 2005 in Id CWCS). During this same analysis BBS data indicate an increase of curlews in Idaho of +2.8% per year. However it has been suggested that	Loss of habitat (Dugger and Dugger 2002 in Id CWCS). Cultivation of grassland. Hunting along Atlantic coast. Pesticides. Grazing. Disturbance of nest sites. protect nesting areas from detrimental disturbance. protect habitats are that are at least 104 acres in size. (enough habitat for at least 1 breeding pair, Redmond et al. 1981 in Id CWCS).

Species common name	Habitats		Major risk factors/threats
		BBS data does not cover trends for this species very well. Lack of population size.	
<p>Flammulated owl <i>Otus flammeolus</i></p>	<p>Dry montane forests with brushy understory or open grasslands nearby. Low/mid elevation multi-storied, open to semi-open mature and old ponderosa pine and dry Douglas-fir forests. Preference for mature open dry forests. breed primarily in open mature montane pine forests from southern BC to southern Mexico. Ponderosa pine and Jeffrey pine preferred habitats though mixed coniferous stands occasionally used. Considered rare until recently (1990s). Adapted to foraging in open forest conditions. Nest primarily in cavities excavated by woodpeckers in large trees and snags. Ecological factors positively affecting owls include large scale open forest, forest openings, and small patches of dense vegetation. It appears that owls use and perhaps need a limited amount of clustered dense vegetation in their breeding territory. In Idaho Groves et al. (1997) found flammulated owls occupying mid elevation old growth and mature stands of open ponderosa pine, Douglas-fir, and stands co-dominated by these 2 species. several authors have reported finding flammulated owls in clustered territories across the landscape with large unoccupied spaces in between (McCallum 1994 in Id CWCS).</p>	<p>No recognized subspecies. Groves et al. (1997) considered this species abundant in certain localized habitats of Idaho. the estimate of population size in Idaho is <1,000 individuals (Id CWCS). There are no population trend data for Idaho. population trend may be in decline due to loss of mature dry ponderosa pine/Douglas-fir/grand fir forest types to human activity (Id CWCS).</p>	<p>Loss of mature ponderosa pine and Douglas-fir forest. Fire suppression. Disturbance near breeding, nesting and rearing sites. Loss of large snags and lack of snag recruitment. Conversion and expansion of mature dry forest stands to second growth created undesirable high density vegetation conditions. Blocks of suitable habitat are rare in MT. Major restoration of ponderosa pine and Douglas-fir dominated sites in western MT. McCallum (1994) believes the most immediate threat to the species in NA may be the elimination of snags through firewood gathering and other logging. Direct habitat loss from intensive timber harvest practices, fire exclusion resulting in altered forest structure, stocking rates, and species composition, pesticides, and cutting of dead trees for firewood (McCallum 1994, Groves et al. 1997 in Id CWCS). Low reproductive potential. Forest practices that remove large diameter pine and Douglas-fir, manage for even age stands and/or remove snags (including firewood gathering) risk reducing microhabitat and landscape parameters required by this species (McCallum 1994). Lack of fire disturbance has created undesirable high density vegetation conditions generally unfavorable for owl foraging. Changes in stand structure may also impact insect populations and habitat suitability for woodpeckers, a species essential to the conservation of all cavity nesting owls (McCallum 1994). The USFS has completed a conservation assessment and developed recommendations for restoring PP ecosystems within the framework of the NFP. The Idaho PIF ponderosa pine task force is developing guidelines targeted to private and public land managers for the restoration of PP ecosystems that will benefit focal bird species including the flammulated owl.</p>
<p>White-headed woodpecker <i>Picoides albolarvatus</i></p>	<p>Montana forests dominated by ponderosa pine in the species northern range. (Garrett et al. 1996 in Id CWCS). Stands are typically multistoried and open canopied mature and old growth ponderosa pine. An indicator of the quality of large diameter ponderosa pine habitats which are used for breeding, roosting, and foraging; large diameter pine trees (with large cones and abundant seed production), relatively open canopy (50-70%) and availability of snags and stumps for nest cavities (IBID).</p>	<p>Two subspecies are recognized, <i>P.a.albolarvatus</i> occurs through most of the range of the species with <i>P.a.gravirostris</i> restricted to the higher mountains of southern California (Id CWCS) the species appears to decrease north of California and it is generally uncommon or rare in Idaho (Garrett et al. 1996 in Id CWCS). The estimate of population size for this species in Idaho is approximately 329 individuals (Rosenberg 2004 in Id CWCS). There are no population trend for Idaho (Sauer et al. 2005 in Id CWCS). This species like other woodpeckers is not well suited for population trend monitoring by the BBS.</p>	<p>Habitat conversion, including resource harvesting (e.g. clearcutting forests, even aged stand management and snag removal), logging, and changes in ecological processes such as fire suppression (which favors the replacement of fir species over pine), and forest fragmentation have contributed to local declines especially in Washington, Oregon and Idaho (Ibid. the primary threat is the loss of live and dead large diameter ponderosa pine.</p>
<p>Black-backed woodpecker <i>Picoides arcticus</i></p>		<p>Well distributed and recently burned or insect infested areas. Found in association with subalpine fir and Engelmann spruce in higher elevations and ponderosa pine, Douglas-fir and lodgepole pine at lower elevations. Closed boreal and montane coniferous forests. A Montana/Wyoming study (Hutto 1995) found they are essentially restricted to early post fire habitats. Primary excavators, they may be more limited by foraging resources than nesting or roosting resources (Montana PIF). Both Goggans et al. (1987) and Caton (1996) concluded that managing snags for nesting alone does not provide for the habitat needs of black-backed woodpeckers. Areas that have undergone disturbance or in patches in mature and old growth forests.</p>	<p>Fire suppression. Salvage harvest of post fire and insect infested areas. Human disturbance near nest sites. Loss of snags.</p>
<p>American three-toed woodpecker</p>	<p>Generally associated with spruce forests, although their occurrence in other types of coniferous forest varies geographically (Leonard 2001 in Id CWCS).</p>	<p>3 subspecies are recognized. The subspecies in Idaho is likely <i>P.d.fasciatus</i> although a zone of integration has been noted between <i>P.d.fasciatus</i> and</p>	<p>Fragmentation and habitat loss are the main issues of concern for this species. susceptible to forestry</p>

Species common name	Habitats	Major risk factors/threats	
<i>Picoides dorsalis</i>	Flake off bark to forage on bark beetles (Scolytidae), and are typically found in old growth forests and/or disturbed areas that have high densities of bark beetle larvae (Kreisel and Stein 1999, Murphy and Lenhasuen 1998 all in Id CWCS). While any disturbance that produces a large number of dead/decaying trees may be important for this species (i.e. insect outbreaks, flooding, disease) multiple studies have noted the importance of burns for this species (see Leonard 2001). Tend to occur at the highest densities in burns between 0-3 years old, which is when bark beetle densities are the highest (Hoyt and Hannon 2002 in Id CWCS). Also tend to occur in burned forests that have a high density of lightly burned trees (Ibid). old growth forests are also important and use of these forests have been noted throughout the range of this species. typically nest in snags. Goggans et al. (1988) reported that 96.7% of all nests were in snags, and that 84% occurred within unlogged plots.	P.d.dorsalis in northern Montana (Leonard 2001 in Id CWCS). Distribution generally follows the distribution of the boreal forest region. The only woodpecker to occur in both the Nearctic and Palearctic (Leonard 2001 in Id CWCS). Occur as far north as Alaska, and extend through the boreal forests of Canada south in the lower 48 states. Within the western US occur in the Cascade and Blue Mtns of Washington, the Cascade, Blue and Wallowa Mtns of Oregon, the northern and central portions of Idaho and the Rocky Mtns of western Montana (Ibid). population trends difficult to ascertain since this species is highly irruptive and colonizes disturbed forests across the landscape (Ibid). BBS detections are so low as to lend low credibility to trends assigned for this species (Sauer et al. 2005 in Id CWCS).	management practices that reduce dead and decaying trees in the landscape. The removal of dead and decaying trees may occur for a variety of reasons (i.e. salvage logging, fire suppression logging), and these activities have likely negatively influenced populations in recent years (Leonard 2001 in Id CWCS). Logging rotations that do not allow old growth forests to develop have likely been detrimental to this species (Hoyt and Hannon 2002 in Id CWCS). Retain large patches of dead and decaying trees for nesting and foraging. Goggans et al. (1988) suggest retention of 579 acres per pair in old growth mixed conifer forests. a landscape that provides suitable habitat for this species might be a matrix of old growth forests mixed with forests undergoing disturbances (i.e. fire).
Red-necked grebe <i>Podiceps grisegena</i>	Wetlands with emergent vegetation.	Population trend unknown. No statistically significant changes detected by BBS data in the US, western region, or Idaho (Sauer et al. 2005 in Id CWCS). However BBS data likely unreliable.	Pollutants, heavy metals. Susceptible to disturbance by recreationists during nesting. Draining of wetlands and/or drought.
Pygmy nuthatch <i>Sitta pygmaea</i>	Late seral, large diameter, live ponderosa pine stands, and large snags. year round resident in Ponderosa pine and similar pines. In Idaho limited in its distribution to the southern slopes of mtns at elevations of 2000-3500 feet. Although associated with ponderosa pine forests may also inhabit other dry forest habitat types such as Douglas-fir (Kingery and Ghalambor 2001 in Id CWCS). Nests in dead pines and live trees with dead sections, it prefers old growth, mature, undisturbed forests (Szaró and Balda 1982 in Id CWCS). Unlogged forests host significantly more pygmy nuthatches than logged forests (Sydeman et al. 1998 in Id CWCS). Studies suggest this species needs heterogeneous stands with a mixture of well spaced old pines and viruous trees of intermediate age (Balda et al. 1983 in Id CWCS).	Six or seven subspecies have been described. Those occurring north of Mexico are distinct and well characterized while the taxonomy of those in central Mexico remain unsettled (Kingery and Ghalambor 2001 in Id CWCS)./ the subspecies present in Idaho S.p.melanotis occurs from southern BC south into the Cascades, Sierra Nevada, throughout the Rocky Mtns, Black Hills and desert ranges of the Great Basin and southwestern US, south into Mexico (Ibid). there are estimated to be approximately 5300 individuals on a year round basis in Idaho (Rosemberg 290054 in Id CWCS). BBS data indicate statistically significant population declines in Idaho during the logn term period 1966-2004 (-41.1% per year) and the more recent short term period (1980-2004 (-48.3% per year). Across the species broader range throughout the western BBS region and the US as a whole populations appear to have remained more stable (Sauer et al. 2005 in Id CWCS).	Loss and degradation of habitat (including large snags). fire exclusion. Grazing. As a result of timber harvest, fire suppression, and grazing (SLLABANKS ET AL. 2001 IN Id CWCS). Mgmt recommendations might follow Id PIF (2000) or Id Steering Committee of the Intermountain West Joint Venture (2005) emphasizing snag recruitment and retention, return of historical fire regimes and reduced grazing pressure.
Red-naped sapsucker <i>Sphyrapicus nuchalis</i>		Mixed conifer forests. Nests in cavity in live tree, frequently near water.	Loss and degradation of habitat (including snags)
Williamson's sapsucker <i>Sphyrapicus thyroideus</i>		Mixed conifer forests. Constructs nesting cavity in standing snag/hollow tree. Mainly mature and old growth mixed conifer and ponderosa pine forests, as well as aspen stands. In MT range restricted to the main chain of the Rocky Mtns. Migrate to southwest US and Mexico. Primary excavators, seem to be severely restricted to large diameter trees and snags for their nesting (and roosting?), except when nesting in aspen. Use western larch, DF, and grand fir types as well as aspen and ponderosa pine. Prefer stands with less than 75% canopy closure, 2-3 canopy layers, and >10 snags per hectare.	Loss and degradation of habitat (including snags).
Brewer's sparrow <i>Spizella breweri</i>		Little information for Montana. Sagebrush.	Little information available. Habitat loss and degradation, grazing, invasive grasses, fire, brood parasitism, predators, pesticides. Widespread long-term decline and threats to shrub-steppe breeding habitats.
Mammals			
Rocky mountain Elk <i>Cervus canadensis</i>	Habitat generalist. Summer range – mid to high elevation. Winter range low elevation south facing slopes. Mainly coniferous forests interspersed with natural man made openings (mountain meadows, grasslands, burns and logged areas). basic habitat components include security, shelter (may use to maintain thermal equilibrium) and forage production. High open road densities affect habitat effectiveness, good winter range critical.		Loss and degradation of habitat. Access management – road and recreation impacts. Fire exclusion. Invasive species – particularly winter range. Hunting.
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	caves and abandoned mines used for maternity roosts and hibernacula, use of buildings in late summer has also been reported. Habitats in the vicinity of roosts include DF, LP, PP.		Habitat loss and degradation. Loss of large snags. Degradation of riparian habitat. very sensitive to human disturbance.
North American wolverine	High elevation roadless/wilderness. In NW MT and AK tend to		Human disturbance - especially winter rec. at denning sites.

Species common name	Habitats	Major risk factors/threats	
<i>Gulo gulo</i>	occupy higher elev. in summer and lower elev in winter. Large home range. Limited to alpine tundra and boreal and mountain forests (primarily coniferous) in the western mountains, especially wilderness areas. dens in caves, rock crevices, under fallen trees, in thickets or similar sites. avoid clearcuts and burns. Medium scattered timber, with young dense timber used least.	(heli skiers, snowmobiles, motorized vehicles can disturb or displace wolverines). Roadless area management. Trapping. Habitat loss. Limited distribution. Effects of small population size. Dependent on recruitment of dispersers from BC. Large highways and associated corridors fragment habitat and creates barriers or impediments to movement.	
Fisher <i>Martes pennanti</i>	Low/mid elevation multi-storied, mature and older forest with riparian habitat, down large wood, forest connectivity. Dens in Tree hollows, under logs, or in ground or rocky crevices, or they rest in branches of conifers. Occur primarily in dense coniferous or mixed forests, including early successional forest with denser overhead cover. Optimal conditions are forest tracts of 245 acres or more, interconnected with other large areas of suitable habitat. a dense understory of young conifers, shrubs, and herbaceous cover is important in winter. Forest structure which affects prey abundance and vulnerability and provides denning and resting sites is probably more important than tree species composition. Forest structure can be characterized by a diversity of tree shapes and sizes, understory vegetation, snags and fallen limbs and trees and tree limbs close to the ground. Large snags (>20" dbh) are important for maternal den sites.	Trapping, loss and degradation of habitat (including snags and down logs). Loss of prey habitat. small pop. size, low productivity and possible isolation leads to increased probability of extinction	
California myotis <i>Myotis californicus</i>	Little information available to describe habitat affiliations or ecology of this species in Idaho. dry conifer forest, sagebrush steppe, riparian and juniper habitats have been reported. Roost sites in Idaho are poorly known. Mines and caves are reportedly used. Elsewhere, buildings and bridges are major roost types, and individuals are also found under loose tree bark.	The distribution of the species in the state is incompletely documented, and few data indicate habitat needs. the subspecies <i>M.c.californicus</i> occurs in Idaho (Id CWCS). Population trends unknown. Characteristics of roosts used for maternity sites and hibernacula in the state are not known, elsewhere a maternity colony of 52 individuals was reported in a large diameter snag (Bringham et al. 1997 in Id CWCS).	Mine reclamation is a threat to roosting habitat in some areas. timber harvest practices that remove large diameter snags could be detrimental to maternity colonies and local populations (Bringham et al. 1997 in Id CWCS).
Fringed myotis <i>Myotis thysanodes</i>	Ponderosa pine and Douglas fir forest while foraging over willow/cottonwood areas along creeks and over pools, and in caves. Found primarily in desert shrublands, sagebrush-grassland, and woodland habitats (pp forest, oak, and pine habitat, DF). Nursery colonies in caves, mines and sometimes buildings.		
Red-tailed chipmunk <i>Neotamias ruficaudus</i>	Dense mesic coniferous forests at elevations of 2360 to 78670 feet (Best 1993 in Id CWCS). <i>N.r.ruficaudus</i> typically inhabits wetter forests at higher elevations compared to <i>N.r.simulans</i> (Bennett 1999 in Id CWCS). Engelmann spruce, ponderosa pine, and subalpine fir communities are commonly associated with the species in Idaho. forest openings and edges sustain the highest population numbers, especially where undergrowth is prevalent. Individuals use burrows associated with fallen logs, large log piles, and brush piles for nesting and overwintering.	Endemic to western NA. Two subspecies are recognized; <i>N.r. ruficaudus</i> occurs in eastern Idaho and <i>N.r. simulans</i> occurs in western Idaho. There are no trend data for Idaho.	Changes in habitat quality (Bennett 1999 in Id CWCS). Requires habitat containing both late and early successional forest tracts. Timber harvest may initially reduce population numbers, but chipmunks usually recover to numbers at or above pre cut levels. however timber harvest that eliminates mature trees may limit populations. Fires that eliminate brush piles, coarse woody debris, and standing dead and live trees may be detrimental. habitat fragmentation may result in genetic isolation and increase the risk of extinction. Changes in subalpine and montane habitats as a result of climate change is a potential threat. Maintain a juxtaposition of seral stages. Limit disturbances that result in a homogeneous environment.
Mountain goat <i>Oreamnos americanus</i>	Alpine and subalpine habitat. Usually at timberline or above. High elevation roadless/wilderness. precipitous terrain, steep south facing slopes in winter. Sometimes enter subalpine forest. snow is an important influence on winter distribution. Winter habitat: cliffy terrain, south facing canyon walls, windblown ridgetops, spring: south and west facing slopes, summer: meadows, cliffs, ravines, and forests.		Loss and degradation of habitat. Mining. Human-caused disturbance, especially winter recreation. Hunting. High quality hunting big game species by permit only. vehicle access linked to population declines. Low productivity and socio-bio characteristics combine to make sensitive to overharvest. May leave traditional areas to disturbances – logging.
Bighorn sheep <i>Ovis canadensis</i>	Mid elevation steep lands and high elevation roadless/wilderness. Cliffs, mountain slopes, rolling foothills, sometimes cross intermountain valleys. Min. snow depth important in winter, availability of high quality green forage most important in spring		Loss and degradation of habitat. Fire exclusion. Invasive species. Access management. Hunting. High quality hunting big game species by permit only.

Species common name	Habitats		Major risk factors/threats
	and summer. Semi open to open veg. types preferred.		
American pygmy shrew <i>Sorex hoyi</i>	Largely insectivorous. Nests are often in decaying logs or among root masses (Clark et al. 1989 in Id CWCS). Sphagnum moss, wet soil, mammalian tunnel networks, insect tunnel networks, leaf litter, root systems, and stumps are often present (Long 1974). Generally associated with boreal forest and riparian habitats (Ibid). habitat in Idaho includes mesic and subalpine coniferous forests. dominant tree species include western red cedar, western hemlock, engelmann spruce, grand fir, and subalpine fir (Groves 1994 in Id CWCS).	The subspecies occurring in Idaho is <i>S.h.hoyi</i> . in Idaho documented in few scattered localities north of the Clearwater River (Groves 1994 in Id CWCS). No trend data are available for Idaho.	An understanding of the status and ecology of this species has been limited by sampling effort. The lack of information regarding the distribution and habitat requirements has precluded the consideration of this species in resource management decisions.
Northern bog lemming <i>Synaptomys borealis</i>	Most populations in Idaho, Montana, and Washington have been found in peatlands (bogs and Woods 2004 in Id CWCS), particularly sphagnum moss bogs (Reichel and Beckstrom 1994 in Id CWCS). Other records have been documented in wet meadows, mesic coniferous forests, alpine sedge meadows, krummholz spruce fir forests with dense herbaceous and mossy understory and mossy streambanks (Groves et al. 1997a in Id CWCS). In Idaho this species has been found in sphagnum bogs and stands of Engelmann spruce, lodgepole pine, and subalpine fir (Groves and Jensen 1989 in Id CWCS). And occurs most frequently in second growth stands and sometimes in old growth forest (Groves 1994 in Id CWCS).	The subspecies in Idaho is <i>S.b.chapmani</i> . population trend is not known.	Habitat loss and degradation. Human disturbance may be caused by timber harvest, livestock grazing, road construction and snowmobiling (Id CWCS). Protection of bogs and fens where this species occurs is important for the conservation of this species.
Fish			
Torrent sculpin	<i>Cottus rhotheus</i>	Fast, freshwater streams of the Kootenai River drainage. Riffles of cold, clear streams but are also taken in lakes. Hide in stones on the bottom.	
Inland redband trout	<i>Oncorhynchus mukiss gairdneri</i>	Stream resident fish. Prefer cool, clean, relatively low gradient streams but in some circumstances are able to withstand wider temperature variations than westslope cutthroat trout.	Hybridization with non-native species
Lake trout	<i>Salvelinus namaycush</i>	Native to St. Mary and Missouri River drainages. Introduced elsewhere. Very deep, cold lakes and reservoirs. With some rocky bottom and abundant forage fish.	None known.
Arctic grayling	<i>Thymallus arcticus</i>	River dwelling population in upper Big Hole River last remnant of native fish in lower 48. originally widespread throughout upper Missouri river drainage. Introduced into many lakes across western half of MT. Small, cold, clear lakes with tributaries suitable for spawning.	
Invertebrates – Insects			
Butterflies			
Western sulphur	<i>Colias occidentalis</i>	Ocean bluffs, forest openings, mountain slopes, and subalpine meadows with substantial populations of various herbaceous legumes. Occurs in generally forested (especially DF) landscapes but in a variety of habitats. larval foodplants are various legumes including milk-vetches, golden banner, lotis and Oxytropis.	Clearcutting, fire suppression and resultant invasion of meadows and glades by dense woody vegetation, and invasion of aggressive alien weeds. Overgrazing and logging.
Stoneflies			
<i>Cascadoplerla trictura</i>	Szczytko and Stewart (1979 in Id CWCS) summarized: the life history and general biology of this species are unknown. Emergence occurs from mid May until July in creeks and rivers. No additional information available.	Baumann et al. (1977 in Id CWCS) considered this species to be rare. No data are available to suggest population trend.	Specific threats to Idaho populations have not been identified. Alteration and degradation of aquatic habitats. changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.
Invertebrates - Mollusks			
Pale jumping slug	<i>Hemphillia camelus</i>	No info in MNHP or NatureServe.	
Western pearlshell mussel –	<i>Margaritifera falcata</i>	Cold, clear, streams and rivers. Often in reaches having fast current and coarse substrate. Larva are parasitic on salmonids. Montana's only cold water trout stream mussel- only native mussel west of divide.	Loss and degradation of habitat. Changes in water quality. The loss of host fish populations. Collection. Found in AK, CA, ID, MT, NV, OR, WA, WY, and British Columbia. Extirpated in UT. Range Widespread in area, but spotty in viable population coverage. Montana's populations have showed significant declines, in comparison to Idaho's.

Species common name	Habitats		Major risk factors/threats
			Declining in terms of area occupied and number of sites with viable individuals. Global short term trend declining (10-30%). Global long term trend – substantial to moderate decline (25-50%).
Reticulate tailedropper	<i>Prophysaon andersoni</i>	No info in MNHP or NatureServe. MNHP shows predicted distribution in Sanders county. Moist forest floor conditions, abundant coarse woody debris	No info in MNHP or NatureServe. MNHP. Isolated populations vulnerable.
Fir pinwheel	<i>Radiodiscus abietum</i>	Most often found in moist and rocky DF forest at mid elev. in valleys and ravines. Western red cedar form the canopy in Montana locations. Often found in talus of a variety of rock types or under fallen logs.	Logging and grazing over most of the range are probably the greatest threats, through alteration of appropriate habitat. alteration of habitat from fire, highway and road construction. rural housing development and land clearing could represent threats, as could fire suppression retardants and chemical methods of weed control.
Sheathed slug	<i>Zacoleus idahoensis</i>	Most occurrences in ID are in moist microsites in relatively intact DF, PP, and ES forests. rocky substrate including sedimentary, igneous and metamorphic types.	Logging and grazing over most of the known and potential ranges. Highway construction severe forest fires. Species has lost most of its habitat at most historic sites. known from 1 site on the forest. local endemic, loss of historic sites, and loss of most habitat.

Table 16. Information on species habitat and population abundance and distribution - "In the Plan Area"

Species common name	Species scientific name	Habitat abundance and distribution	Population abundance and distribution
Vertebrates - Amphibians			
Western (Boreal) toad	<i>Bufo boreas</i>	Habitat is well distributed across the forest. breeding ponds impacted by past mgmt activities but significance unknown. Once considered the most abundant amphibian of the western third of MT, still encountered widely and frequently though be no means commonly and is no longer ranked as the most abundant amphibian. Experienced regional pop. declines in the state.	Species appears to be well distributed across the forest. pop. size unknown. Individual population decline or extirpation possible. Local extirpation due to restricted mobility and fragmentation. Invasive species. Pop sizes difficult to measure and no estimates are available.
Coeur d'Alene salamander	<i>Plethodon idahoensis</i>	Habitat occurs in small isolated locations across the forest. regional endemic, Montana is the eastern edge of range.	Occurs in several small disjunct populations across the forest. Pop. numbers unknown. Individual population decline or extirpation possible. Populations have declined from historical levels (Idaho CWCS-northern leopard frog). small pop. size, low productivity and possible isolation leads to increased probability of extinction no estimates of population size available for the state
Northern leopard frog	<i>Rana pipiens</i>	Habitat rare on NFS lands. known from 1 active location on NFS lands. historically known from several sites. occurs in all but 7 Montana counties, all west of the continental divide. Formerly present in intemountain valleys, especially in the Flathead and lower Clark Fork river drainages. Recently documented in only 2 western sites near Kalispell and Eureka.	Small range in North Idaho, western Montana and B.C. rare on the forest. In northern Idaho, populations were found in the Kootenai, Pend Oreille, and Clark Fork Rivers prior to 1955, but populations may no longer persist in this region. Little information on this species available. Northern Idaho and northwestern Montana. Individual population decline or extirpation possible. Effects of small isolated population
Reptiles			
Northern alligator lizard	<i>Elgaria coerulea</i>	Habitat fairly common and well distributed across the forest. reduction in down wood, especially in warm/dry habitat types. likely further reduction with emphasis on reduction in the wildland urban interface. may be locally abundant in some areas. range restricted to NW counties.	Known from only a few observations. Pop. numbers unknown. Secretive. Life history not well known. Uncommon. On edge of primary range. restricted to NW counties in MT.
Western skink	<i>Emeces skiltonianus</i>	Habitat fairly common and well distributed across the forest. reduction in down wood, especially in warm/dry habitat types. likely further reduction with emphasis on reduction in the wildland urban interface.	Known from only a few observations. Pop. numbers unknown
Birds			
Northern goshawk	<i>Accipiter gentilis</i>	Habitat common and well distributed across the forest. Considered to be declining in numbers near Fortine (Weydemeyer 1975). Maj reports northern goshawk populations in region 1 are increasing or stable in many forests. habitat abundant and wide spread throughout the forest. use of known historic nest sites very uncommon (less than 10% use of known nest sites).	Nesting common across the forest, although small portion of historical nests active. Of 20 potential nesting territories only 4 confirmed active. Found region wide. No downward trend in population or habitat availability found during evaluations conducted to determine sensitive species status, 1988-1991 and currently (Montana PIF, version 1.1, 2000).
Grasshopper sparrow	<i>Ammodramus savannarum</i>	Grasslands rare on the forest. mostly on private lands in the Tobacco Valley and Pleasant Valley areas. Habitat and species rare on the forest. prefers open prairies. edge of species range. Known only from Tobacco Valley area-grassland habitats on private lands.	Rare. Not known to occur on NFS lands. Large range, significant population declines in NA and probably elsewhere. BBS data indicate a significant decline in NA between 1966 and 1989. experienced rangewide population declines including the northern rockies physiographic area which includes the Kootenai NF. Does well in many CRP plantings but is sensitive to grazing.
Golden eagle	<i>Aquila chrysaetos</i>	Habitat rare on the forest. Prefers open prairies. Rare on the forest. known to nest only on private lands. not considered a species of concern for MT.	Rare. Not known to occur on NFS lands. locally very uncommon to rare. 3-4 known nests on the forest on private land.
Black tern	<i>Childonias niger</i>	Habitat rare on the forest. known only from the Noxon reservoir area of the forest. Rare on the forest. known to occur only in Noxon reservoir area on private lands. breeding not known to occur on the forest habitat on NFS lands rare.	Rare on the forest. seasonal. pop. numbers unknown. Not known to occur on NFS lands. Black terns are limited to breeding locations with appropriate habitat, size, and vegetation composition. Appropriate habitat in Montana is patchy at best. Threats not related to activities on FS lands.
Olive-sided flycatcher	<i>Coturnicops noveboracensis</i>	Common. Moderate threats. Post fire species. Known or strongly suspected serious declines.	Uncommon. Seasonal
Black swift	<i>Cypseloides niger</i>	Habitat rare on the forest. known in 1 location associated with wilderness. Habitat rare on the forest. Known only from 1 location on the forest associated with wilderness area. species of continental concern but not regional concern. No management activity ongoing in MT but increased recreation use at breeding sites should be discouraged.	1 population known to occur. Numbers unknown but considered uncommon. Little information available. Casey 2000. Uncommon. On edge of primary range.
Bobolink	<i>Dolichonyx oryzivorus</i>	Grasslands rare on the forest. mostly on private lands in the Tobacco Valley and Pleasant Valley areas. Prefer tall and mixed grass prairies. Habitat rare on the forest, - mostly on private lands. no known breeding on NFS lands.	Rare on the forest. known from the Tobacco Valley area of the forest. not known to occur on NFS lands. Breed widely throughout Montana. Nests locally in wheat fields in Idaho. Still widespread and fairly common, but declining due to changing agricultural practices. BBS data indicate a significant population decline in NA in recent decades, particularly in central NA.
Common loon	<i>Gavia immer</i>	Breeding/rearing habitat uncommon. Mostly on private lands. Uncommon seasonal, nests on several lakes, only a few with adjacent NF lands.	Uncommon. Nesting not known to occur on NFS lands. but FS lands adjacent or surround nesting areas.

Species common name	Species scientific name	Habitat abundance and distribution	Population abundance and distribution
Harlequin duck	<i>Histrionicus histrionicus</i>	Habitat uncommon on the forest.	Uncommon to rare. Known to breed and rear on several streams across the forest. seasonal. Pop. trend considered to be stable.
White-tailed ptarmigan	<i>Lagopus leucura</i>	Extremely rare. On edge of primary range. Edge of species range. Known from 1 location in Ten Lakes area.	Rare. Known from 1-2 observations.
Gray crowned rosy finch	<i>Leucosticte tephrocotis</i>	Habitat rare on the forest. Not known but suspected to occur on the forest. Habitat abundant and well distributed on the forest.	Large and widespread. Apparently stable.
Lewis's woodpecker	<i>Melanerpes lewis</i>	Recorded during the breeding season in all parts of MT except the NE quarter. Current habitat conditions in MT are significantly inferior in quantity and quality to historic conditions. Opportunities in dry forests are present to significantly improve habitat over coming decades. Opportunities in burned and riparian cottonwood habitat however will require major shifts in policies and actions before benefits can be realized. Dry forest - The conversion and expansion of mature dry forest stands to second growth throughout the range of Lewis has created undesirable high density vegetation conditions. Currently blocks of appropriate pp habitat are rare in Mt. Major restoration of xeric forest ecosystems is currently underway, within region 1 project that 50% of dry pp and df habitat approximately 2 million acres will be restored in the next 20 years to more natural open parkland conditions dominated by large mature trees (USDA FS 1998). Once restored the FS has an opportunity to manage these areas to meet habitats of identified wildlife species including Lewis. Post fire - areas now burned by stand replacement fires constitute a small proportion of historic levels of post fire habitat. The results of effective fire suppression for species closely associated with stand replacement fire conditions are potentially devastating. Compounding the lack of post fire habitats 1 post fire timber harvest on those few areas that do burn. Riparian cottonwood - in a state of decline throughout American west due to the effects of human activities and the suppression of natural disturbance regimes. Cavity nesting habitat due to snag attrition historic and current logging of large cottonwoods and farmland conversion and competition with European starlings may further limit nesting opportunities. Future viability of cottonwood threatened by flood control irrigation, and grazing, that combine to thwart cottonwood regeneration dependent on periodic flooding and resultant disturbed substrates.	Rare. Seasonal Known or strongly suspected serious declines. Based on BBS data, populations in NA have declined 60% from 1966 to 1991. In MNT trends are strongly downward for the same time period but the number of survey routes is insufficient for statistical analysis. Local declines were reported in the Fortine area of Lincoln county, MT (Wedemeyer 1975) though local changes must be interpreted against the relatively uncommon status and sporadic distribution of the species. Southern BC and AB south to southern NM and AR west to southern CA and east to eastern CO. Approximating the distribution of pp in NA. Range contractions in the 20 th century have occurred in the western and southern extremes of historic range, western BC, NW sections of WA and OR, and portions of southern CA.
Long-billed curlew	<i>Numerius americanus</i>	Grasslands rare on the forest. mostly on private lands in the Tobacco Valley and Pleasant Valley areas. Habitat and species rare on the forest. prefers open prairies. edge of species range. Known only from Tobacco Valley area-grassland habitats on private lands.	Rare. Not known to occur or nest on NFS lands. Local population declines but not widespread. Extirpated from eastern U.S. north American populations have declined in the past 25 years as suitable nesting habitat has been converted to other uses. Formerly listed as a category 2 candidate for federally threatened and endangered status. Breeding habitat in the state appears to be fragmented and unprotected. In Montana they can be found breeding and migrating throughout the state, however they are more common east of the Rockies, particularly along the Rocky Mountain front. There are a few records from the extreme western edge of the state.
Flammulated owl	<i>Otus flammeolus</i>	Habitat fairly well distributed. Impacted by past and ongoing mgmt activities. Common seasonal, nesting known throughout the warm/dry portion of the forest. Habitat and species considered fairly common on the forest. considered to be a significant habitat loss - large diameter ponderosa pine, with open understories.	Uncommon. Pop. numbers unknown but appear to be fairly well distributed across the forest during seasonal use period. Seasonal. Comply with snag and down woody debris guidelines. Vegetation restoration to maintain two or more canopy layers and adjacent to forest/grass or forest/shrub ecotones.
Black-backed woodpecker	<i>Picoides arcticus</i>	Habitat amount and distribution varies	Naturally low, pop. numbers vary dependent on habitat but unknown. found in 7 of 8 planning units. irruptive species. dependent on fire habitats.
Boreal chickadee	<i>Poecile hudsonica</i>	Montana is in the southern extreme of the breeding range. Southern extreme of species range. Habitat abundant and well distributed on the forest. little information on breeding habitat available for MT.	Uncommon. Pop. numbers unknown. Considered at risk or high risk in MT due to limited or potentially declining numbers, extent or habitat making it vulnerable to global extinction or extirpation in the state.
Pygmy nuthatch	<i>Sitta pygmaea</i>	Rare on the forest. habitat loss on the forest considered significant - large diameter ponderosa pine snags.	Rare.
Red-naped sapsucker	<i>Sphyrapicus nuchalis</i>	Very little info for the KNF.	Uncommon
Williamson's sapsucker	<i>Sphyrapicus thryoides</i>	Very little info for the KNF.	Uncommon. poorly sampled by BBS so population trends unknown.
Brewer's sparrow	<i>Spizella brewerii</i>	Very little habitat on KNF, almost none on NF lands. the sagebrush form is a	Rare. Breed widely throughout Montana. Fairly large range in western NA, declining in many areas of

Species common name	Species scientific name	Habitat abundance and distribution	Population abundance and distribution
		sagebrush obligate which has shown significant population declines throughout much of its range including PA 64 which includes the Kootenai. Very little is known about distribution and habitats of the timberline form. Prefers sagebrush or grassland habitats. known only from Tobacco Valley or Pleasant Valley areas – on private lands. habitat rare on NFS lands.	the U.S. PIF watchlist. Considered at risk breeding due to very limited and potentially declining numbers, extent and/or habitat, making it vulnerable to global extinction or extirpation in the state. Scattered breeding records throughout the state with most suitable habitats concentrated in the southern half of the state and few sightings in the northwest portion. The timberline subspecies is found breeding high elevation shrubfields and krumholz, located on the east side of the divide in GNP.
Great gray owl	<i>Strix nebulosa</i>	Habitat uncommon but appears to be well distributed across the forest. Habitat appears to be well distributed across the forest. No evident population decline throughout its range. Pop. trend uncertain for MT. Known nests will be protected.	Naturally rare on the forest. Because of the owl's large home range, management must be coordinated among administrative units to maintain links between interacting biological units. No evident population decline in the vast majority of the range. Apparently stable, but actual population data are lacking for many areas.
Northern hawk owl	<i>Surnia ulula</i>	Habitat common and well distributed across the forest. Appears to be at the southern extreme for this species. Trend in Canada is stable. On the edge of primary range. No known breeding on forest. Southern edge of species range. Movements into MT may be in response to prey abundance. No documentation of known occurrence during breeding season. Considered accidental in MT (infrequent and outside usual range). The majority of the records for the state are for transient individuals (MNHP 2005). 1 observation on the forest. Habitat abundant and well distributed throughout the forest. known nests will be protected.	Rare winter visitor. Not known to breed on the forest.
Mammals			
Rocky mountain Elk	<i>Cervus canadensis</i>	Habitat well distributed across the forest. herds have large area requirements and have distinct summer and winter ranges. Crucial winter range	Common, several small populations across the forest. combination of introduced and possibly remnant. Occurs in herds of various sizes, generally less than 20 animals. Proximity to humans and roads.
Townsend's big-eared bat.	<i>Corynorhinus townsendii</i>	Natural caves rare on the forest. abandoned mines relatively common. No hibernacula or roosting sites known to occur on the forest.	Rare to Uncommon. Pop. numbers unknown. present year-round in MT.
North American wolverine	<i>Gulo gulo</i>	Denning habitat uncommon. <1% of the forest. Wilderness and roadless lands. limited distribution to high elevation remote areas.	Uncommon to rare although pop. numbers unknown. Solitary and wide ranging. Occur at relatively low densities. Were nearly extinct in MT during the 1900s and have been increasing in numbers and range since. Recovery originated in NW MT and spread to its current range. Classified as a furbearer in MT.
Fisher	<i>Martes pennanti</i>	Reintroduced or population augmented on the forest. occur mainly in remote areas. Extinct in MT by the 1930s. reintroduction efforts in 1959 and 1990 in Lincoln, Granite and Missoula counties resulted in establishment of population in those counties. Recent introduction were made in the Cabinet Mountains between 1988 and 1991. managed as a furbearer with a limited harvest of 7 animals.	Uncommon to rare. Pop. numbers unknown. Pop. augmented. Limited in abundance and extent and may be isolated from other populations
Fringed myotis	<i>Myotis thysanodes</i>		Population numbers unknown but considered uncommon to rare.
Mountain goat	<i>Oreamnos americanus</i>	Habitat uncommon, in wilderness and/or roadless areas.	Uncommon. Occur in 2 small populations.
Bighorn sheep	<i>Ovis canadensis</i>	Majority of Habitat occurs in roadless and wilderness areas. occur in 3 locations across the forest.	Uncommon. 3 small herds. Only 1 native herd.
Northern bog lemming	<i>Synaptomys borealis</i>	Habitat occurs in small isolated locations on the forest.	Uncommon to rare. Naturally rare, occur in several very small pop. Individual population decline or extirpation possible
Fish			
Torrent sculpin	<i>Cottus rhotheus</i>	Pools and glides in streams generally in small gravel and rock.	
Inland redband trout	<i>Oncorhynchus mukiss gairdneri</i>	Cool waters of lakes, rivers, and streams.	Hybridization, activities that elevate temperature, alter hydrology, increase sedimentation. Known from several small populations. Pop. numbers unknown. MFWP stocking into several areas on the forest.
Lake trout	<i>Salvelinus namaycush</i>	Known to occur in Noxon reservoir and mainstem Kootenai River.	Known to occur only in Noxon reservoir and mainstem Kootenai river. Does not occur on NFS lands.
Arctic grayling	<i>Thymallus arcticus</i>		
Invertebrates – Insects			
Butterflies			
Western sulphur	<i>Colias occidentalis</i>	Unknown. No info. for state of MT or locally.	Unknown. No info. for state of MT or locally. Lack of information, habitat not well understood.
White admiral	<i>Limenitis arthemis</i>	Unknown. No info. for state of MT or locally.	Unknown. No info. for state of MT or locally.
Indra swallowtail	<i>Papilio indra</i>	Unknown. No info. for state of MT or locally.	Unknown. No info. for state of MT or locally.
Dragonflies			

Species common name	Species scientific name	Habitat abundance and distribution		Population abundance and distribution	
Lance-tipped darner	<i>Aeshna constricta</i>	Unknown. No info. for state of MT or locally. MT predicted range includes the entire state.		Unknown. No info. for state of MT or locally.	
Zigzag darner	<i>Aeshna sitchensis</i>	Unknown. No info. for state of MT or locally. MT predicted range includes western 1/3 of the state.		Unknown. No info. for state of MT or locally.	
Subarctic draner	<i>Aeshna subarctica</i>	Unknown. No info. for state of MT or locally. MT predicted range includes western 1/4 of the state.		Unknown. No info. for state of MT or locally.	
Boreal whiteface	<i>Leucorrhinia borealis</i>	Unknown. No info. for state of MT or locally. MT predicted range includes western 1/3 of the state.		Unknown. Rare in most of the southern part of its range, but more common in the north and in parts of the northern Great Plains.	
Ringed emerald	<i>Somatochlora hudsonica</i>	Unknown. No info. for state of MT or locally. MT predicted range includes the NW portion of the state.		Unknown. No info. for state of MT or locally.	
Hudsonian emerald	<i>Somatochlora walshii</i>	Unknown. No info. for state of MT or locally. MT predicted range includes western 1/3 of the state.		Unknown. No info. for state of MT or locally.	
Brush tipped emerald	<i>Somatochlora intricatus</i>	Unknown. No info. for state of MT or locally. MT predicted range includes NW corner of the state.		Unknown. No info. for state of MT or locally.	
Red-veined meadowhawk	<i>Sympetrum madidum</i>	Unknown. No info. for state of MT or locally. MT predicted range includes the entire state.		Unknown. No info. for state of MT or locally.	
Mayflies					
A mayfly	<i>Caenis youngi</i>	Unknown. No info. for state of MT or locally. MT predicted range includes the western 1/3 of the state.		Unknown. No info. for state of MT or locally.	
Stoneflies					
	<i>Utacapnia columbiana</i>	No information available in MNHP or NatureServe. Known from location in Lincoln county. MT predicted range includes the very NW corner of the state.		No information available in MNHP or NatureServe.	
Invertebrates - Mollusks					
Striate Disc	<i>Discus shimekii</i>	Pop. sizes are not reported. Can be abundant in colonies but colony sites are relatively small in extent. Widely distributed in the Rocky Mtns. Of Arizona, NM, UT, CO, and Wy. With populations also extant in the black Hills. It is also found in MT in the Canadian Rockies. Documented from 5 MT. counties including Lincoln.		Documented in 5 counties; Gallatin, Hill, Lincoln, Park and Sweetgrass.	
Robust lancetooth	<i>Haplotrema vancouverense</i>	MNHP predicted distribution includes portions of Lincoln and Sanders counties.		No information available in MNHP or NatureServe.	
Pale jumping slug	<i>Hemphillia camelus</i>	MNHP predicted distribution includes western 1/3 of the state.		No information available in MNHP or NatureServe.	
Western pearlshell mussel	<i>Margaritifera falcata</i>	MNHP predicted distribution includes portions of Lincoln and Sanders counties. Cold, well oxygenated low gradient streams with gravel/sand bottom. Larva parasitic on salmonids.		Pollution, sedimentation, may be reduced to isolated populations	
Fir pinwheel	<i>Promenetus exacuus megas</i>	Little info available. In MT found at 13 sites in six counties; Lake, Lincoln, Mineral, Missoula, Ravalli and Sanders. All sites are west of the Continental Divide. MT predicted distribution includes western portion of the state.		Probably declining in most sites, although other sites remain stable. Existing sites should be protected. (NatureServe). widespread and somewhat common in northern ID and NW MT. Extirpated in some locations. Probably once very common and widespread. Lost most of its habitat and most of its historic sites.	
Reticulate tailedropper	<i>Prophysaon andersoni</i>	Known to occur on Kootenai in small isolated pop. MT predicted distribution includes a very small area of Sanders county.		No information available in MNHP or NatureServe. Isolated populations vulnerable.	
Sheathed slug	<i>Radiodiscus abietum</i>	Documented only in northern ID and NW MT. Recorded from 4 sites in MT in 4 counties; Granite, Lake, Lincoln, and Sanders. MT predicted distribution includes the western portion of the state.		No information available in MNHP or NatureServe. Local endemic. Loss of historic sites and loss of most habitat (NatureServe).	
Invertebrates - other					
A caddisfly – rhyacophila potteri	Small streams or seeps with abundant mosses. Moderate gradient perennially flowing headwater seeps and streams.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database. Likely that R. potteri occurs in a continuous distribution along the Montana-Idaho border north to British Columbia and Alberta. May have involved from an isolated population of the R. Verrula along the MT/ID border and southern BC and AB.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	Mismanagement of forested riparian areas including sediment and temperature increases.	
A caddisfly – rossiana	High gradient 1 st or 2 nd order	Known to occur only in western MT, WA, and	No information is available in the	Mismanagement of forested riparian	

Species common name	<i>Species scientific name</i>	Habitat abundance and distribution		Population abundance and distribution	
montana	perennially flowing forested springs and streams, especially in gravel under mossy areas.	BC. Regional endemic known only to occur in western Montana, Washington, and British Columbia. Reported from streams in Missoula, Mineral and Sanders counties.	NatureServe database or in the Montana Natural Heritage Program database. Considered a rare species due to habitat specificity and never abundant when collected.	areas including sediment and temperature increases.	
A freshwater sponge	<i>Heteromeyenia baileyi</i>	No information available in MNHP or NatureServe. Known from location in Lincoln county.		No information available in MNHP or NatureServe.	

Table 17. Information on species habitat and population abundance and distribution - “throughout its range”

Species common name	Species scientific name	Habitat abundance and distribution	Population abundance and distribution
Vertebrates			
Amphibians			
Boreal toad,	<i>Bufo boreas</i>	Small range in northern ID, western MT, southeastern BC. Regional endemic, MT is eastern limit in distribution. 45 locations in 5 counties. Range wide declines in the western U.S. Most known sites on FS lands.	Unknown but may exceed 10,000. from 97-192 documented sites (164 in ID, 28 in MT). Known from more than 30 sites on the forest. Apparently secure. Trend unknown, likely stable in extent of occurrence, stable to declining in population size, area of occupancy and number/condition of occurrences. A unique genetic resource in ID, MT, BC.
Coeur d’Alene salamander	<i>Plethodon idahoensis</i>	Large range throughout much of the US and southern Canada. Many and/or large occurrences throughout most of its range. Historically present in intermountain valleys west of the Continental Divide but in recent years documented in only two locations near Kalispell and near Eureka. Prairie regions of eastern 2/3 of state east of divide.	Still common in many areas populations have declined in some areas due to habitat loss and degradation, overexploitation, interactions with nonnative species and unknown causes. Likely in the hundreds of thousands or millions. Population trend probably declining in size, area of occupancy and condition of occurrences. 10 historic breeding sites - Known from one active site on the forest. Populations appear to have declined in MT. Where the species is no longer extant in most localities where historically it occurred. Extirpated from most of historical range in WA. Recent extirpations are reported in all of western MT and across much of the neighboring states.
Northern leopard frog	<i>Rana pipiens</i>	Widely distributed and found in appropriate habitat throughout most of the state. Mountains and intermountain valleys of the western third of the state. Known from approx. 35 breeding sites on the forest.	In previous decades considered most abundant amphibian in western third of state. No longer common. Surveys since early 1990s indicate regional population declines. Range wide declines.
Reptiles			
Northern alligator lizard	<i>Elgaria coerulea</i>	West of continental divide in northwest MT. The southern and eastern limit of distribution in the Rocky Mts. Northern portion of ID. Central CA, to southern BC. East to ID and MT.	Rarely encountered and poorly documented. Fewer than a dozen records have been reported. Population trend unknown. One of only two lizards that give birth to live young rather than laying eggs
Western skink	<i>Emeces skiltonianus</i>	Central BC to southern Baja CA. east to western MT, ID, eastern UT, north central AZ, and southern NV.	Total adult population size unknown. Locally common in many areas. secretive. Represented by large number of occurrences. Stable, trends not documented but extent of occurrence area of occupancy, number of subpopulations, and population size are large and probably relatively stable.
Birds			
Northern goshawk	<i>Accipiter gentilis</i>	Relatively abundant and widespread. Holarctic. West and central AK to eastern Canada south to central CA across the US except southeast US. Nesting range in the eastern US is currently expanding as second growth forests mature. In the west habitat reducing and thus populations.	Relatively common in the main part of its range. Conclusive data supporting the purported decline in populations in the western US is lacking. Population trends are difficult to determine. No hard evidence of a significant decline in recent decades but probably declining in some areas as a result of habitat alteration. (NatureServe)
Grasshopper sparrow	<i>Ammodramus savannarum</i>	Large range, extending from southern Canada to northern South America. Breeding eastern WA across northern ID, most of MT, southern BC across southern Canada to Manitoba, eastern ½ of US. Winters southern US, Mexico, central America.	Significant population declines in NA and probably elsewhere due to loss, degradation and incompatible management of grassland habitat. BBS data indicate a significant decline in NA between 1966 and 1989.
Golden eagle	<i>Aquila chrysaetos</i>	Widespread distribution throughout the northern hemisphere. Breeds NA, mainly western and northern AK, east across Canada, south to northern Mexico east except southeast US.	Still relatively common in some areas. local threats/declines – do not yet comprise a major conservation problem from a global perspective. Declined in early 1900s due to eradication campaigns. In eastern NA reappearing in some sites in historic nesting range. May be decreasing in the northeastern US, declines in part of range in Canada noted.
Black tern	<i>Chlidonias niger</i>	Widespread distribution and relatively abundant. Loss of breeding habitat appropriate habitat in MT is patchy.	Abundance unknown. severely to rapidly declining decline of 30% to >70%. No breeding records for the forest. Special status in several states, (state listed as endangered or threatened, special concern, watch list). Proposed for threatened listing in Canada.
Olive-sided flycatcher	<i>Coturnicops noveboracensis</i>	Large breeding range in wooded areas of Canada, AK, and the western and northeastern US. Winters mtns of SA. In MT breeds throughout mountainous areas of western portion of state.	Total population not known. Declines relatively similar across range, although they appear more severe in the central and eastern regions. Still secure in many areas, but a large significant decline (a loss of 68% from 1966-2000) has occurred in recent decades. Due probably to habitat changes in the breeding range and/or in migration and wintering areas.
Black swift	<i>Cypseloides niger</i>	In MT northwestern portion of state. Migrates south. In Idaho breeding in north fork of Coeur d’Alene river, seen in boundary, Bonner, Shoshone Clearwater counties.	Large numbers seen in migration, breed over a large area. breeding sites very localized. Stable, 81-300 occurrences. 10000 to >100000 individuals. 2 confirmed breeding records. Unconfirmed breeding in cabinet mtn range. Apparently secure (unknown). Limited breeding distribution and inaccessible breeding habitat.
Bobolink	<i>Dolichonyx oryzivorus</i>	Breed widely throughout MT. Near Fortine. Southern BC east across southern Canada to NS. South to OR, UT, portions of Midwest and NJ. Winter in central and southern SA.	Still widespread and fairly common, but declining due to changing agricultural practices. Population trend declining (10-30%).
Common loon	<i>Gavia immer</i>	Winters on coast. Breeds Iceland, Greenland, and across Canada and the northern US to Alaska, south to CA, MT ND across to New England. Winters along coasts. In MT breeding range restricted to lower elevation forested glacial lakes in the northwest corner of the state. Considered imperiled in MT. Historically believed to have nested throughout western half of state. Winter along west coast of WA to CA. Northward range contraction documented	Although no precise continent-wide estimate of populations available, some 500000 to 600000 adults probably inhabit the US and Canada. Most in Canada and Alaska. In Canada and Alaska appear to be stable. Large declines in breeding populations in northeastern US. global population secure however many local populations are small and isolated and vulnerable to extinction. several states that supported breeding loons have lost them.

Species common name	Species scientific name	Habitat abundance and distribution	Population abundance and distribution
Harlequin duck	<i>Histrionicus histrionicus</i>	within the last 100-150 years. Pacific population - Alaska and western Canada south to eastern OR, east central CA, ID and WY. Breeding Eurasia and two disjunct regions in NA. Winters Eurasia Aleutian and Pribilof islands to central CA. in MT range is small and fragmented primarily in northwest MT and parts of Yellowstone ecotype. Known to breed on several streams on the forest estimate 30 breeding pairs. Harlequin duck working group	Although globally widespread, Atlantic population may be reaching critically low levels and pacific population has experienced substantial declines. In 1990 identified as potentially imperiled in western MT. By 1991 Considered as a candidate for listing on ESA. Both breeding and wintering distribution and abundance appear to be declining in western NA. The pacific NA population appears to be stable in some areas (ID, MT, WY) and declining in others. Atlantic populations significant decline this century and continues to decline.
White-tailed ptarmigan	<i>Lagopus leucura</i>	Central AK, north Yukon, south to cascade mountains in WA and in rocky mtns from BC and Alberta south to northern NM. In MT alpine and subalpine northwestern portion of state.	
Gray crowned rosy finch	<i>Leucosticte tephrocotis</i>	Breeds western and north central AK, central Yukon, BC and southwestern Alberta south through Cascades Sierra Nevada and Rocky Mtns. To central ID, northwestern Mt.	Populations are large and widespread. Apparently stable.
Lewis's woodpecker	<i>Melanerpes lewis</i>	Large range in western US and adjacent southern Canada but distribution can be spotty. Breeding southern BC, Alberta, MT, southwestern SD and northwestern NE to south central CA central AZ southern NM and eastern CO. winters northern OR, southern ID, central CO south central NE south to northern Mexico. In MT western and southern.	Apparently declining in abundance and may have declined 60% or more since the 1960s. no estimates of population size. Declined in BC by more than 50%. Populations tend to be scattered and irregular and are considered rare, uncommon or irregularly common throughout range. Local abundance may be cyclical or irregular.
Long-billed curlew	<i>Numerius americanus</i>	In MT breeds widely throughout the state, although more common east of the Rocky Mtns. Breeds Southern BC, Alberta, Saskatchewan, Manitoba south to eastern WA, NE CA, NV, UT, CO NM and northern TX east to KA. Winters southern US Mexico etc.	Total population estimated to be 20,000. population declines in western US are local not widespread. Extirpated from eastern US by cultivation of grassland. Fall populations decimated by hunting.
Flammulated owl	<i>Otus flammeolus</i>	Widespread distribution in western NA. Total population numbers unavailable. locally common in quality habitat. for the northern Rockies the few available data indicate a significant decline. Breeding southern BC western MT and northern CO south to southern CA, southern AZ southern NM western TX to Mexico. Winters central Mexico. In MT range restricted to western portion of state.	But loss and fragmentation of mature forest habitat suggests that populations are declining. In ID widely distributed throughout montane forests. no trend data available. probably decline in population during this century, although species is poorly monitored (PIF). Population data inadequate for trend assessment. Low reproductive rate.
Black-backed woodpecker	<i>Picoides arcticus</i>	In MT northwestern portion of the state. Habitat severely reduced	
Boreal chickadee	<i>Poecile hudsonica</i>	Western and central AK to Saskatchewan and Labrador south to WA, MT, MN and northern new England. In MT northwestern portion of state.	Three confirmed breeding records including Lincoln county. Also overwintered in Lincoln county.
Pygmy nuthatch	<i>Sitta pygmaea</i>	Southern BC northern ID, western MT central WY, and southwestern SD south to northern Baja CA, southern NV central and southeastern AZ, central NM, extreme western TX. Heterogeneous stands of a mixture of well-spaced old pines and vigorous trees of intermediate age.	Known from breeding record near Fortine. In northern ID occur as common resident. BBS data – statistically significant declines in ID 1966-2004 and more recent period 1980-2004.
Brewers sparrow	<i>Spizella brewerii</i>	Breed widely throughout MT. Fairly large range in western north America.	Declining in many areas of the US. Significant decline throughout range during last 10-20 years.
Red-naped sapsucker	<i>Sphyrapicus nuchalis</i>	Breeding rocky mountain region from south central BC southwestern Alberta and western MT, south east of cascades to east central CA, southern NV central AZ southern NM and extreme western TX. Winters southern CA, NV, AZ Nm south to Mexico.	Populations appear to be stable to increasing overall with areas of local declines. Related to loss of cottonwood and aspen nesting habitats.
Williamson's sapsucker	<i>Sphyrapicus thryoideus</i>	Breeds southern BC, ID, western MT and WY, south in mtns to northern and east central CA, central AZ southern NM and northern Baja CA. winters south to Baja. .	Stable to increasing.
Great gray owl	<i>Strix nebulosa</i>	Large circumboreal range. Breeds central AK to northern Ontario south locally in mountains to CA, ID, MT WY across to northern MN and southcentral Ontario. In MT limited to mountainous region, western MT.	No decline evident in vast majority of the range, apparently stable but few data available for most areas. usually uncommon but may be locally abundant.
Northern hawk owl	<i>Surnia ulula</i>		
Mammals -			
Rocky Mtn elk	<i>Cervus canadensis</i>	Formerly widespread in Canada and the US, now mostly restricted to the west, with small reintroduced populations elsewhere.	
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	Throughout western NA from BC south to Mexico, east to the Black Hills. isolated populations in gypsum caves and limestone regions. In MT range unknown.	Apparently secure in western US and Mexico. Quite rare in other parts of the range. Very little known in MT about distribution and relative abundance. Abundant in western US and Mexico. Rare in east and northwest. Two eastern subspecies listed as endangered.
North American	<i>Gulo gulo</i>	Remote wilderness from Labrador east to Alaska, and south to mountainous	Populations in Canada and Alaska are probably in good condition. Status not well known in many portions of the

Species common name	Species scientific name	Habitat abundance and distribution	Population abundance and distribution
wolverine		regions of western US.	range. Total population size unknown. Outside of Alaska, ID and MT likely have the largest populations in the US (perhaps a few hundred in each state). May be fewer than 750 in the contiguous US. Presently extirpated from most of the southern part of the historical range including all of the northcentral and northeastern US and most of southeastern and south central Canada. Extirpated from most of range in contiguous US. Promising signs of semi-recovery in selected western states. Global long term trend – extirpated from large portions of their range in southern and eastern Canada and now considered to be endangered. Numbers declined steadily in US in latter half of 1800s. in MT rebounding from near extinction from 1920-1940. Declining in southern Mtns of BC, may be extirpated on Vancouver Island, declining throughout Alberta. Rare and possibly declining in southern boreal forest of Saskatchewan. Still trapped in MT. Poor breeding success, high juvenile mortality, and slow sexual maturity.
Fisher	<i>Martes pennanti</i>	Large range in northern NA. Quebec, maritime provinces and New England west across boreal Canada to SE Alaska, south in western Mtns to UT, WY, ID, and CA.	Extirpation from southern portion of range, due mainly to habitat loss. Adequate population data are unavailable but the species currently is regarded as secure. West coast dps – threatened with extirpation due to size and isolation. Warranted but precluded from ESA listing by higher priority actions. Total fisher population size unknown. Extinct in MT by the 1930s. Reintroductions on the forest on several occasions, did not do well. Current population unknown. global long term trend -substantial decline. Recovered in some of the central and eastern portions of their historic range through reintroductions etc. Still absent from former range southeast of the Great Lakes.
Fringed myotis	<i>Myotis thysanodes</i>		
Mountain goat	<i>Oreamnos americanus</i>	Mtns of northwestern NA from southeast AK to WA, western MT and southern ID. Introduced in other states and areas. southern portion of range.	On the forest 2 small populations, one in wilderness area.
Bighorn sheep	<i>Ovis canadensis</i>	Still widespread in western NA from Canada to Mexico, although populations are much smaller than in the past. Southwestern BC and Alberta south through rocky Mtns, Sierra Nevada, and desert Mtns to Baja CA.	CA peninsular populations listed as endangered. Sierra Nevada population listed as endangered. Several subspecies probably O. Canadensis Canadensis. In 1991 total population estimated at 71,000 (38000 Rocky Mtn sheep). No numbers for total population at this time. In 1915 there were only 1775-3400 rocky Mountain bighorn sheep in Canada. Increases occurred but devastating die offs occurred as domestic sheep were introduced. By 1960 US populations was 15,000-18,000. Long term trend substantial decline (decline of 50-75%). short term trend - recent trend seem more or less stable. Long term trend great decline, from approximately 15,000-200,000 before 1800 to a few thousand at the turn of the century. Local extirpations and reintroductions in many parts of range. Distribution naturally fragmented due to discontinuity of habitat.
Northern bog lemming	<i>Synaptomys borealis</i>	Widespread distribution extending from AK to Labrador and south to portions of the northern US. Populations are localized. Population sizes are not known for any location. Nowhere does it appear common.	In MT southern margin of global distribution in the Rocky Mtns. 18 sites mainly on FS lands.
Fish			
Torrent sculpin	<i>Cottus rhotheus</i>		
Inland redband trout	<i>Oncorhynchus mukiss gairdneri</i>		
Lake trout	<i>Salvelinus namaycush</i>		
Arctic grayling	<i>Thymallus arcticus</i>		
Invertebrates - insects			
Butterflies			
Western sulphur	<i>Colias occidentalis</i>	limited range	local and uncommon in much of its range
White admiral	<i>Limenitis arthemis</i>	New England south to central Florida, west to MT and AZ, Alaska to BC.	Extremely widespread and abundant. Globally secure (G5)
Indra swallowtail	<i>Papilio indra</i>	Widespread in western US. Some subspecies are very localized.	Globally secure (G5)
Dragonflies			
Lance-tipped darner	<i>Aeshna constricta</i>	Widespread, most Canadian provinces and US states.	Globally secure (G5)
Zigzag darner	<i>Aeshna sitchensis</i>	AK, all Canadian provinces and northern US states.	Globally secure (G5)
Subarctic darner	<i>Aeshna subarctica</i>	AK, all Canadian provinces, and northern US states	Globally secure (G5). Widespread across northern Eurasia and North America.
Boreal whiteface	<i>Leucorrhinia borealis</i>	All Canadian provinces, south to UT and CO, WA, ND and MN.	Globally secure (G5)
Ringed emerald	<i>Somatochlora hudsonica</i>	AK, all Canadian provinces, south to CA, including WA, OR, ID, and MT.	Globally secure (G5)
Hudsonian emerald	<i>Somatochlora walshii</i>	AK, all Canadian provinces, MT, WY, CO.	Globally secure (G5)
Brush-tipped emerald	<i>Somatochlora intricatus</i>	all northern US states and adjacent Canadian provinces.	Globally secure (G5)
Red-veined meadowhawk	<i>Sympetrum madidum</i>	Western Canadian provinces and US states south to CA, east to IA and MO.	No information available in MNHP or NatureServe.
Mayflies			
Caenis youngi	Caenis youngi	NW territories and Yukon south to WY, IA, and MI.	No information available in MNHP or NatureServe.

Species common name	Species scientific name	Habitat abundance and distribution	Population abundance and distribution
Stoneflies			
Utacampia columbiana	Utacampia columbiana	AK, MT, Yukon, and Manitoba.	No information available in MNHP or NatureServe.
Invertebrates - Mollusks			
Striate disc	Discus shimekii	Distribution data known to be incomplete or has not been reviewed. NatureServe. Widely distributed in Rocky Mountains of AZ, NM, UT, CO, and WY. Populations also extant in Black Hills. Also found north of Montana in the Canadian Rockies.	No information available in MNHP or NatureServe. Globally secure (G5)
Robust lancetooth	<i>Haplotrema vancouverense</i>	Distribution data known to be incomplete or has not been reviewed. BC, AK south to CA, ID and MT.	No information available in MNHP or NatureServe. Globally secure (G5)
Pale jumping slug	<i>Hemphillia camelus</i>	WA, ID, AB, BC.	No information available in MNHP or NatureServe.
Western pearlshell mussel	<i>Margaritifera falcata</i>	AK, south to CA, east to UT, WY and MT.	Widespread and maintains hundreds of occurrences with perhaps hundreds of thousands of individuals, but is declining in terms of area occupied and number of sites and individuals. Global short term trend – declining (10-30%), likely extirpated from parts of OR and UT. Global long term trend – moderate decline (25-50%). Now extirpated along much of the Snake and Columbia rivers, and remnant populations show few signs of reproduction. Widespread declines, formerly abundant.
Fir pinwheel	<i>Promenetus exacuus megas</i>	Known from extreme northeastern OR, extreme NE and SE WA, northern ID, and NW MT. Widespread and somewhat common in northern ID and northwest MT with several new locations for 2005. nowhere abundant. Most old ID sites unsuccessfully checked, with species being extirpated in all but one. Distribution data known to be incomplete or not been reviewed.	Known to survive in several of original sites, extirpated in others. Current distribution and abundance unknown. Probably declining in most sites, other sites remain viable. Species was probably once very common and widespread, it has lost most of its habitat and most historic sites. but a fair number of other sites probably remain viable.
Reticulate tailedropper	<i>Prophysaon andersoni</i>	BC, AK south to CA, ID and MT.	Globally secure (G5).
Sheathed slug	<i>Radiodiscus abietum</i>	ID, MT WA.	Local endemic, loss of historic sites and loss of most habitat. global short term trend (10-30%) once very common and widespread, has lost most of its habitats and most historic sites due to threats.
Invertebrates - other			
A Freshwater sponge	Heteromeyenia baileyi	MT. Known only from Lincoln county. Incomplete.	No information available in MNHP or NatureServe.

The forest has very little information on population numbers for most species. Information from other sources is used to determine numbers or trends in populations. (Montana fish, Wildlife and Parks, Montana Natural Heritage Program, etc.).

Appendix C: Comprehensive Evaluation Report Wildlife, Fish and Plants Species Diversity Kootenai National Forest¹⁵

Introduction

This report documents the process used to assess species diversity for the Kootenai National Forest. It includes the identification and selection of terrestrial and aquatic wildlife and plant species that are federally listed threatened and endangered species, species of concern (SOC) and species of interest (SOI) designated by the responsible official (Forest Supervisor). The report provides a link to the Forest Plan for species conservation and restoration and is intended to support planning for ‘Ecological Sustainability’ in the revised Kootenai National Forest Land and Resource Management Plan.

The information and process described in this paper is intended as supporting documentation for the planning record (the project file and proposed forest plan) in the Land and Resource Management Plan revision for the Kootenai National Forest (the plan area).

This is a working document subject to revision and updating until a Final Forest Plan is complete. Revision and updating will be based on additional knowledge, analysis results, or additional modeling. This report will be revised periodically because of potential changes in the status of federally listed species, NatureServe global ranks, Montana State ranks, Montana Species of Greatest Conservation Need or Montana Species of Interest and continued refinement of ecological process models.

Area of Consideration

The Area of Analysis is defined as (36 CFR 219.16) the geographic area within which ecosystems, their components, or their processes are evaluated during analysis and development of one or more plans, plan revisions, or plan amendments. The area of analysis may: vary in size depending on the relevant planning issue; may be larger than the “plan area” (i.e. the forest); may be smaller than the “plan area”, and may include multiple ownerships (FR Vol. 73, No. 77, p.21512).

Forest Service handbook 1909.12 section 43.11 (p. 18) further states that the area of analysis for ecosystem diversity includes non-National Forest System lands and is larger than the plan area. Evaluation should generally extend to this larger area of analysis to understand the environmental context and opportunities and limitations for NFS lands to contribute to the sustainability of social, economic, and ecological systems.

¹⁵ The majority of this diversity analysis was done while the forests were working under previous planning rules. The appendices contain terminology from the 2008 planning rule directives, which is no longer in effect; however, the concepts are still valid: The forests conducted an analysis that considered the species that occurred on the forests, determined which of those species had conservation needs, narrowed down which species could be affected by management on the forests, screened the risks to species through a coarse filter (ecosystem diversity) and developed additional plan components where necessary through a fine filter approach (species diversity).

The Kootenai National Forest is located primarily in the northwestern corner of Montana with a small portion in the northeastern corner of Idaho. There are over 2.2 million acres of NFS lands and 0.5 million acres of private lands within the forest boundaries. The majority of the forest is located in Lincoln and Sanders counties in Montana with small portions in Flathead County, Montana and Bonner and Boundary Counties, Idaho. The forest is bordered on the north by British Columbia, Canada; on the east by the Flathead National Forest, on the west by the Idaho Panhandle National Forests and on the south by the Lolo National Forest.

Major drainages include the Kootenai River and the Clark Fork River. The Kootenai River begins in British Columbia, Canada traverses through the KNF into the IPNF in Idaho and back north into BC where it eventually ties into the Columbia River. The Clark Fork River travels through the southern portion of the forest into Lake Pend Oreille in Idaho. Both of these drainages are included in the Interior Columbia River Basin.

For most species and/or their habitats, National Forest System lands within the boundaries of the Kootenai National Forest were considered for analysis purposes. For more specific habitat components or individual species the area of analysis may include only a portion of the forest, may include all lands within the forest boundaries or may be larger than the forest.

2008 planning rule and Associated Directives

The 2008 planning rule (FR Vol. 73, No. 77, 21468-21512) contains requirements for protecting important resources such as soil, water, wildlife habitat and aesthetics. It requires that NFS lands contribute to the sustainability of ecosystems within the capability of the land and requires species specific plan components be developed in situations where broader ecosystem diversity components might not meet the needs of threatened and endangered species, species of concern and species of interest.

The 2008 rule sets forth the goal for the ecological element of sustainability to contribute to sustaining native ecological systems by sustaining ecological systems as well as by providing appropriate ecological conditions to support diversity of native plant and animal species in the plan area. To carry out this goal the rule adopts a hierarchical and iterative approach to sustaining ecological systems; ecosystem diversity and species diversity. The intent of this hierarchical approach is to contribute to ecological conditions appropriate for biological communities and species by developing effective plan components (desired conditions, objectives) for ecosystem diversity and supplementing it with species specific plan components as needed. The rule contains substantive requirements for protecting important resources such as soil, water, wildlife habitat and aesthetics. It requires NFS lands contribute to the sustainability of ecosystems within the capability of the land, and requires species specific plan components be developed in situations where broader ecosystem diversity components might not meet the habitat needs of threatened and endangered species, species of concern and species of interest (2008 rule at 21471).

The final rule and directives are explicitly designed to work together and provide for ecological sustainability through the combination of ecosystem diversity and species diversity approaches.

FSH 1909.12 (Land Management Planning handbook) - chapter 40 (Science and Sustainability)

Section 43 - Ecological sustainability

The initial focus of Ecological Sustainability is to provide for ecosystem diversity (regional coarse filter approach) within the plan area and for diversity of plant and animal species within their ranges in the plan area (36 CFR 219.10 (b)). In an ecosystem approach, the plan provides a framework for maintaining and restoring ecosystem conditions necessary to conserve most species. The primary approach to evaluate ecosystem diversity involves identifying selected ecosystem characteristics and considering their natural variation under historic disturbance regimes (Ecosystem Diversity 43.1). For purposes of discussion throughout this analysis the plan area has been defined as the National Forest System lands covered by a plan (FR Vol. 73. No. 77 page 21512).

A complementary and necessary approach focuses on provisions for specific threatened and endangered species, species of concern, and species of interest (36 CFR 219.10 (b)(2)). In these cases a species-specific (fine filter) approach to evaluation and establishment of plan components may be necessary (FSM 1921.7).

The following process was developed to identify species which merit consideration as Species of Concern and Species of Interest, determine which species or groups of species are adequately conserved by plan components for ecosystem diversity and develop plan components for those species or groups of species that are not. One of the criteria used in the selection of species was “will the plan components for ecosystem diversity provide ecological conditions to provide species diversity”. Where it is determined that the ecosystem approach does not provide an adequate framework for maintaining and restoring conditions to support specific federally listed threatened or endangered species, species of concern and species of interest then the plan must include additional provisions for these species.

43.2 - Species Diversity Analysis

Under the 2008 National Forest Systems Land Management Planning Rule (2008 rule) released in April 2008, the USDA Forest Service is directed to “focus evaluation and development of plan components for species diversity (species specific assessments and recovery plans) (Jensen 2005) on those species for which the responsible official determines that provisions in plan components are needed” (36 CFR part 219). Procedures described in FSH 1909.12 section 43 are used to discuss species diversity for the Forest.

The process for determining species diversity and its contribution to ecological sustainability includes the following 6 components (FSH 1909.12):

43.21 Ecosystem context for species

43.22 Identification and screening of species

43.23 Information collection

43.24 Species Groups and surrogate species

43.25 Plan components for species diversity

43.26 Evaluation of Plan Components on Species Diversity

43.21 - Ecosystem Context for Species

43.22 - Identification and Screening of Species

Within the plan area, it is FSM 1921.7 policy that consistent with the limits of agency authorities, the capability of the plan area, and overall multiple use objectives, that plan components provide for appropriate ecological conditions contributing to: conserving federally listed species, supporting self-sustaining populations of species of concern, and supporting species of interest as deemed appropriate by the Forest Supervisor.

The 2008 planning rule and directives (FSH 1909.12, Chapter 40) contain information and direction for identifying species of concern and species of interest. The identification of species includes the use of information from objective and scientifically credible third parties, including the U.S. Fish and Wildlife Service and NatureServe. Federally listed species, species of concern and species of interest are identified below for the species diversity evaluation.

The directives (FSH1909.12 chapter 40_43.2) emphasize that those species whose range includes the plan area be identified and considered. All federally threatened and endangered species, species of concern, and species of interest whose range includes the plan area (NFS lands covered by the plan) were identified using established criteria (FSH 1909.12 chapter 40). For vertebrate species identified as Species of Greatest Conservation Need the Montana CFWCS provides range maps and/or locations that were used to identify those species whose range includes the Kootenai National Forest. For all other vertebrate and invertebrate species considered in this evaluation the Montana Natural Heritage Programs (animal field guides and TRACKER) provide information on species ranges and or observations, in particular for Montanan species of concern (MNHP 2008). The NatureServe and Columbia River Basin Assessment (Wisdom et al. 2000, Vol. 1-3) also provide information on species distribution, and other databases were used as available. In many cases (for invertebrates and plants) information on species ranges is lacking or unknown. The inclusion of invertebrate species is based on observation data from the Montana Natural Heritage Program databases or forest information. Those species whose ranges are unknown, or have not been delineated in either NatureServe or the Montana Natural Heritage Program databases, and where no observations have occurred in the plan area, were dropped from further consideration as species of concern and interest.

The state of Montana in its Comprehensive Fish and Wildlife Conservation Strategy (MTCFWCS 2005) provides a list of all fish and vertebrate wildlife species considered as highest priority for conservation (Species of Greatest Conservation Need). The state of Montana also has a Species of Concern (2009) list of all vertebrate and invertebrate species considered to be of concern in the state. These documents provide the best available information on the status, distribution, and abundance of the state's natural communities and species. All species that are included as Species of Greatest Conservation Need or Species of Concern for the state of Montana were considered in this analysis for species of concern and species of interest.

In addition to the various state conservation strategies, the identification of species known or suspected to occur on the Kootenai National Forest was completed using data collected for the Forest, information from the State of Montana (Montana Fish, Wildlife and Parks and Montana Natural Heritage Program), recent subbasin reports such as the Kootenai River Subbasin Assessment and Inventory (Kootenai Tribe of Idaho and Montana Fish, Wildlife and Parks 2004) and the Canadian Rocky Mountains Ecoregional Assessment (Rumsey et al. 2003). The forest also worked with representatives of these various agencies, in addition to the Regional Office; and other state and private organizations, as well as incorporating public input in identifying species of concern and species of interest. A complete list of all vertebrate species known or thought to occur on the Kootenai National Forests is included in the AMS (USDA 2003).

The list of threatened and endangered species, species of concern and species of interest is dynamic and subject to change until a final list of species is determined. The criteria for establishing the species lists are given below, as described in the planning directives (FSH 1909.12_40).

43.22a – Federally listed species

These are species that are listed by the Department of the Interior, U.S. Fish and Wildlife Service or the National Oceanic and Atmospheric Administration, National Marine Fisheries Service as threatened or endangered. The Forest Service has a legal requirement to maintain or improve habitat conditions for threatened, endangered, and proposed species under the Endangered Species Act (ESA). Species listed under the ESA fall into four categories based on viability concerns: threatened, endangered, proposed, and candidate.

FSH 1909.12 (43.22a) states that species identified as candidate and proposed under the ESA should be considered as species of concern. Species that are candidate or proposed for listing under ESA for the Kootenai NF are included in the discussion of species of concern under section 43.22b.

A list of federally listed species for the Kootenai NF was obtained from the USFWS web site (<http://montanafieldoffice.fws.gov>) on 5/16/09. The FWS concurred with potential listed species distribution maps and resulting consultation areas for the Kootenai NF in 2001 (USDI FWS Wilson). Threatened and endangered species that occur on the KIPZ and their status are described in Table 2.

Table ESA.1. Federally listed wildlife, fish, and plant species for the Kootenai National Forest (USFWS 2008).

Species common name	Scientific name	Status	
Wildlife			
Canada lynx	<i>Lynx canadensis</i>	Threatened, proposed critical habitat	Known to occur
Grizzly bear	<i>Ursus arctos horribilis</i>	Threatened, proposed critical habitat	Known to occur
Fish			
Bull trout	<i>Salvelinus confluentus</i>	Threatened	Clark Fork and Kootenai River basins
White sturgeon	<i>Acipenser transmontanus</i>	Endangered	Kootenai River population
Plants			
Water Howellia	<i>Howellia aquatilis</i>	Threatened	Suspected to occur
Spalding's campion	<i>Silene spaldingii</i>	Threatened	Suspected to occur

43.22b Species of concern and 43.22c Species of interest

The criteria established for selection of species of concern and species of interest are a means to identify all species on the forest for which there are conservation concerns. It is assumed that species for which there are no conservation concerns would be adequately conserved through the ecosystem diversity approach (2008 rule at FR 21489). The forest worked with the Regional Office; state wildlife agencies; local tribes, other state and private organizations, additional planning zones, as well as public input to identify species of concern and species of interest.

An initial list of wildlife species and their habitat associations was completed for the Analysis of the Management Situation (2003) and included in the Technical Report (2003). Those lists included all vertebrate species known or suspected to occur on the forest. While conducting

analyses for this project these lists have been updated to reflect current information on species occurrences and status on the forest, including invertebrate species, based mainly on information in the NatureServe explorer database and the Montana Natural Heritage Program databases (Animal Field Guides and Tracker).

The 2008 planning rule and directives (FSH 1909.12, Chapter 40) contain information and direction for identifying species of concern and species of interest. The identification of species includes the use of information from objective and scientifically credible third parties, including the U.S. Fish and Wildlife Service and NatureServe. All federally threatened and endangered species, species of concern and species of interest whose range includes the plan area were identified. The plan area (as defined in the Federal Register 73. N0. 77, page 21512) includes NFS lands covered by a plan.

The first step in identifying species of concern and interest includes a query of the NatureServe database for all species that meet specific criteria in FSH 1909.12_40. This query provides lists of all species for the state of Montana that meet the criteria established for species of concern and species of interest (1909.12_40, 43.22b and 43.22c below) (see appendix A). For most species the NatureServe database identifies if a species could potentially occur within a given state, in this case Montana. The purpose of the combined criteria for species of concern and species of interest is to identify all species for which there are conservation concerns. Species for which there is no conservation concerns would be adequately conserved through the ecosystem diversity approach (2008 rule at FR 21489). From these lists all species whose ranges include the Kootenai National Forest were identified and those species whose ranges are known not to include the forest were dropped from consideration as species of concern or interest.

There are many invertebrate wildlife species and plant species whose ranges are unknown and/or have not been identified in the NatureServe or MNHP databases. For those species the NatureServe database (2009) states “distribution data for U.S. states and Canadian provinces is known to be incomplete or has not been reviewed for this taxon and No Range map available”. For those species, additional sources were reviewed, principally the Montana Natural Heritage Program (2009) but also other sources as available. As with the NatureServe database, for most of these species the MNHP database states that “information for the species is not complete” and no range map or information is provided. In most cases these species have been given a state ranking of SNR (species not rated) or they are identified as not occurring in the MNHP database for wildlife or plants. In general these are species reported in Montana but without a basis for either accepting or rejecting the report, or the report has not yet been reviewed locally. Some of these are very recent discoveries for which the program has not yet received firsthand information while others are old obscure reports. These species were dropped from consideration as species of concern or interest.

For those species whose ranges could not be determined, a review of the MNHP database was used to identify any species with observations that include the forest. Additional sources were also reviewed including those identified below. Those species whose ranges could not be determined and/or there are no observations for the forest were dropped from consideration as species of concern and interest for the forest.

There are instances where the NatureServe database identifies a species distribution that includes the state of Montana; however the species is not listed in any of the Idaho databases as occurring in the state. Those species were dropped from consideration as species of concern or interest.

Birds – a list of all bird species known or suspected to occur on the Kootenai and Idaho Panhandle National Forests (KIPZ) was reviewed by the Heritage Program (Casey 2003). The Montana and Idaho Bird Conservation Plans (PIF 2000) prioritize bird species and habitat associations and provides information and management recommendations for associated birds. For all birds on the list a determination was made whether a species was known to occur on the forest or not, and if the species occurred during a particular period of the year (i.e. seasonal, migratory). Birds identified as transient or accidental are dropped from consideration as species of concern or interest. Those species whose range has been identified as migratory only for the forest, there is no record of the species occurring on the forest, and the species is being considered because of concerns on its breeding range are dropped from further consideration as species of concern and interest.

Invertebrates – a review was made of analyses conducted for the ICBEMP for invertebrates (Niwa et al. 2001) and mollusks (Frest and Johannes 1995). The region and the forest worked with the Heritage Program (personal communication, Hendricks and Maxell 2005) in the identification of and potential management strategies for terrestrial mollusks. The Heritage Program provided habitat associations and distribution by forest for land mollusks in the region (MNHP 2005, Hendricks et al. 2006, 2007) and for aquatic invertebrates (Stagliano et al. 2007).

Plants - All of the plant species identified in the query of the NatureServe database for the state and whose range was determined to be unknown, were further reviewed in the Montana databases. MNHP (2009) provides a list of all plant species considered to be of concern in the state (Montana plant species of concern). All of those plant species listed as species of concern were reviewed by the regional and forest botanists to ensure that all of the plant species of concern that are either known or suspected to occur on the forest were included in the analysis. All plant species whose range is known and includes the forest and/or all of those whose range is unknown but observation data suggests they are known or suspected to occur on the forest were included in the analysis for species of concern and species of interest.

After eliminating species based on the discussions above, the forest considered 22 wildlife species and 18 plant species for species of concern and 52 species of wildlife and 93 species of plants for species interest.

In order to identify, screen, and select all of the species considered for species of concern and species of interest for the Kootenai NF information was gathered for each species, including species global, national, and state conservation status and the species range and occurrence data on the forest. For those species whose range includes the KNF and/or are suspected to occur on the forest, additional review and screening (section 43.22d) was conducted based on information gathered for each species including but not limited to those listed below (FSH 1909.12 section 43.23). All of this information is included in various tables in the appendices.

- current taxonomy,

- distribution (including historic and current trends)
- abundance (including historic and current trends)
- demographics and population trend
- diversity (phenotypic, genetic, and ecological)
- habitat requirements at appropriate spatial scales
- habitat amount, distribution, and trends
- ecological function
- key biological interactions
- limiting factors
- risk factors including various human disturbances (trails, roads, dams)
- population effects resulting from hunting, fishing, and trapping and natural population fluctuations.

43.22b - Species of concern

Species of concern are species for which the Responsible Official determines that management actions may be necessary to prevent listing under the Endangered Species Act (ESA). A glossary is included as an appendix that will describe all of the terms used in this analysis. The 2008 rule (FR 73, No. 77, pg. 21473) states that guidance is included in the FS directives for providing self-sustaining populations of species of concern. A self-sustaining population is one that is sufficiently abundant and has appropriate population characteristics to provide for its persistence over many generations (Ibid). The following criteria were used in identifying species to be considered for species of concern for the Kootenai NF.

5. Candidate and proposed species under the ESA (1973).

See <http://www.NatureServe.org/explorer> for a list of candidate and proposed species for the state of Montana.

See <http://www.fws.gov/endangered/wildlife.html> for a list of all candidate and proposed species in the U.S. Fish and Wildlife Service database.

6. Species ranked G-1 through G-3 or subspecific taxa ranked T-1 through T-3 in the NatureServe ranking system.

See <http://www.NatureServe.org/explorer> for a list of species for the state of Montana.

Because of the scientific uncertainty in the status of any particular species or infraspecific taxon, the following guidance (USDA 2006, NatureServe 2007) was used to help in the selection of species of concern for the forest:

- d. Taxa that have not been identified to “named” species (e.g. *Amnicola* sp. 2) but may have been ranked, do not meet the planning rules definition of a species, do not satisfy the G3/T3 criteria, and are dropped from further consideration.
- e. Species with a Q (questionable taxonomically) in the ranking (e.g. G3Q, T3Q) do not meet the planning rule definition of a species, do not satisfy the G3/T3 criteria, and were dropped from further consideration.
- f. Species with a ranking of G3G4 (T3T4) or G3G5 (T3T5) do not meet the G3/T3 criteria for species of concern. Species in this category whose range is known to include the forest were considered for identification of species of interest. These include: western sulphur butterfly, cascades striptail stonefly, sheathed slug, and the following plants; *Calicium adequatum*, *Chaenotheca sobrisida*, *Podostroma alutaceum*, *Ramalina thrausta*, and *Botrychium hesperium*.

7. Species petitioned for Federal listing (with positive 90 day finding). (A 90 day finding is a preliminary finding that substantive information was provided indicating that the petition listing may be warranted and a full status review is conducted).

See <http://www.fws.gov/endangered/wildlife.html> for a list of all species proposed for listing.

No species were identified for the Kootenai NF.

8. Species that have been recently delisted (these include species delisted within the past five years and other delisted species for which regulatory agency monitoring is still considered necessary).

See <http://www.NatureServe.org/explorer> for a list of species for the state of Montana.

This includes the bald eagle and the gray wolf which were delisted within the past five years (2007 and 2009 respectively). The peregrine falcon was also included although it was delisted more than 5 years ago (2000). The regulatory agencies continue to monitor this species in Montana.

Table SOC.1 displays wildlife and plant species of concern for the Kootenai National Forest. Based on the above criteria the list contains 22 wildlife and 18 plant species whose range includes the forest, they are known to occur on the forest, and/or suitable habitat occurs on the forest.

Table SOC.1. Potential Species of Concern for the Kootenai National Forest

Species common name	Species scientific name	Species common name	Species scientific name
Vertebrates – birds		Plants	
Gray wolf	<i>Canis lupus</i>	Fungi/lichen	
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>		<i>Anthoceros fusiformis</i>
Peregrine falcon	<i>Falco peregrinus</i>		<i>Collema curtisporum</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>		<i>Hypogymnia inactiva</i>
Columbian sharp-tailed grouse	<i>Tympanachus phasianellus columbianus</i>		<i>Pilophorus clavatus</i>
Fish			<i>Platismatia stenophylla</i>
Burbot	<i>Lota lota</i>		<i>Pseudocypbellaria anomala</i>
Westslope cutthroat trout	<i>Oncorhynchus clarkia lewisi</i>	Non vascular Mosses	
Invertebrates – insects			<i>Grimmia brittoniae</i>
Butterflies			<i>Tripterocladium leucocladulum</i>
Gillette's checkerspot	<i>Euphydryas gillettii</i>	Ferns and relatives	
Caddisflies			<i>Botrychium ascendens</i>
An agapetus caddisfly	<i>Agapetus montanus</i>		<i>Botrychium crenulatum</i>
A caddisfly	<i>Rhyacophila potteri</i>		<i>Botrychium lineare</i>
Mayflies			<i>Botrychium montanum</i>
Northern Rocky Mtn Refugium mayfly	<i>Caudatella edmundsi</i>		<i>Botrychium paradoxum</i>
Stoneflies			<i>Botrychium pendunculosum</i>
Autumn springfly	<i>Pictitiella expansa</i>	Vascular flowering plants	
A stonefly	<i>Setvana bradleyi</i>		<i>Calochortus nitidus</i>
Cordilleran forestfly	<i>Zapada cordillera</i>		<i>Cardamine constancei</i>
Millipedes		Howell's gumweed	<i>Grindelia howellia</i>
A millipede	<i>Corypus cochlearis</i>	Spribillei's groundsel	<i>Senecio spribillei</i>
A millipede	<i>Orophe cabinetus</i>		
A millipede	<i>Orthogmus oculatus</i>		
A millipede	<i>Taiyutyla curvata</i>		
Invertebrates – molluscs			
Pygmy slug	<i>Kootenai burkei</i>		
Magnum mantleslug	<i>Mangipelta mycophaga</i>		
Humped coin	<i>Polygyrella polygyrella</i>		
Smoky tailedropper	<i>Prophysaon humile</i>		

Screening species of concern for further inclusion in the analysis process

Screening was conducted on all species of concern to identify those that will be carried forward for more detailed consideration in the planning process. Criteria used in the screening process include the following (FSH 1909.12 section 43.22d) and is based in part on the information gathered in items a thru l above. Further direction associated with the screening process is included in: (USDA 2007) - Identifying and tracking threatened and endangered species, species of concern and species of interest in the NFMA plan revision process.

1. Are there known occurrences or suitable habitat of the species on National Forest Lands on the KNF?
The initial assessment identified that the species range includes the forest but a more detailed assessment was conducted to show those species and its habitat that are absent from NFS lands (USDA 2007). If suitable habitat occurs but there are no known occurrences an answer of suitable habitat is given, if both the habitat and species occur on the forest an answer of known is given.
2. Is the species secure on National Forest Lands on the KNF?
The determination of “secure” is based on knowledge of species occurrence, distribution, availability of habitat, and responses to any management or natural disturbances that might occur (USDA 2007). Where information on species populations or trends on NFS lands on the forest is available that information was used to answer this question. Where information for species on NFS lands is lacking (which includes most of the species on this list) population or trend data from Montana Natural Heritage Program or other available databases was used; because most of these species are identified as G1-G3/T1-T3 they are considered not to be secure globally. Where no information was available an answer of unknown (unk) was given.
3. Is the species or its habitat affected by management or potential plan components on National Forest Lands on the forest?
Those species which are not affected by any current or potential form of management or lack of management on NFS lands are identified (USDA 2007). Management can have either a positive or negative effect on species or its habitat.
4. Is there adequate knowledge or information available about the species to conduct a credible assessment? Where it was determined that substantive information about the habitat or management needs of a species was considered to be lacking, one of the following were considered (USDA 2007):
 - a. Treat the species as part of a larger taxonomic group with which it is likely to share habitat requirements and risk factors.
 - b. Provide appropriate management to known sites of the species in the plan area but do not attempt a detailed evaluation.
 - c. Do not consider the species further in the planning process. If the species is not further considered collection of information about the species should become a high priority in monitoring programs (FSH 1909.12_40, sec. 43.23).

Table SOC.2 Review of potential species of concern for further consideration in the planning process.

Species common name	Species scientific name	Is there Known Occurrence or suitable habitat on NFS lands on the forest	Is the species Secure on NFS lands on the forest	Is the species potentially affected by management or potential plan components on NFS lands on the forest	Is there adequate knowledge or info to conduct a credible assessment	Further Analysis Needed
Wildlife						
Vertebrate species						
Birds						
Gray wolf	<i>Canis lupus</i>	Yes	Yes	Yes	Yes	Yes
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	No known occurrence/Suitable summer habitat	Not known to occur on the forest/habitat secure	Not known to occur on the forest	Yes	Yes
Peregrine falcon	<i>Falco peregrinus</i>	Yes	Yes	Yes	Yes	Yes
Bald eagle	<i>Haliaeetus leucocephalus</i>	Yes	Yes	Yes	Yes	Yes
Columbian sharp-tailed grouse	<i>Tympanachus phasianellus columbianus</i>	Historical occurrence/Suitable habitat	Not known to occur on the forest/habitat not secure	Not known to occur on the forest at the present time	Yes	Yes
Fish						
Burbot	<i>Lota lota</i>	No	Does not occur on NFS lands	No	No	No
Westslope cutthroat trout	<i>Oncorhynchus clarkia lewisi</i>	Yes	Unk	Yes	Yes	Yes
Invertebrate species						
Insects - Butterflies						
Gillette's checkerspot	<i>Euphydryas gillettii</i>	No known occurrence/Suitable summer habitat	Not known to occur on the forest	Not known to occur on the forest	Yes	Yes
Insects - Caddisflies						
An agapetus caddisfly	<i>Agapetus montanus</i>	Yes	Unk	Yes	Yes	Yes
A caddisfly	<i>Rhyacophila potteri</i>	Suitable habitat	Not known to occur on the forest	Not known to occur on the forest	Yes	Yes
Insects - Mayflies						
Northern Rocky Mtn Refugium mayfly	<i>Caudatella edmundsi</i>	Yes	Unk	Yes	Yes	Yes
Insects - Stoneflies						
Autumn springfly	<i>Pictitiella expansa</i>	Suitable habitat	Not known to occur on the forest	Not known to occur on the forest	Yes	Yes
A stonefly	<i>Setvena bradleyi</i>	Yes	Unk	Yes	Yes	Yes
Cordilleran forestfly	<i>Zapada cordillera</i>	Suitable habitat	Not known to occur on the forest	Not known to occur on the forest	Yes	Yes
Millipedes						
A millipede	<i>Corypus cochlearis</i>	Yes	Unk	Unk	No	No
A millipede	<i>Orophe cabinetus</i>	Yes	Unk	Unk	No	No
A millipede	<i>Orthogmus oculatus</i>	Yes	Unk	Unk	No	No
A millipede	<i>Taiyutyla curvata</i>	Yes	Unk	Unk	No	No
Mollusks						
Pygmy slug	<i>Kootenai burkei</i>	Yes	Unk	Yes	Yes	Yes
Magnum mantleslug	<i>Mangipelta mycophaga</i>	Yes	Unk	Yes	Yes	Yes
Humped coin	<i>Polygyrella polygyrella</i>	Yes	Unk	Yes	Yes	Yes
Smoky taildropper	<i>Prophysaon humile</i>	Yes	Unk	Yes	Yes	Yes

Species common name	Species scientific name	Is there Known Occurrence or suitable habitat on NFS lands on the forest	Is the species Secure on NFS lands on the forest	Is the species potentially affected by management or potential plan components on NFS lands on the forest	Is there adequate knowledge or info to conduct a credible assessment	Further Analysis Needed
Plants						
All included in SOC 1.						

Species eliminated from further review in the analysis process

Further analysis in the planning process is considered not necessary for the following species. The remaining species of concern in table SOC.2 will be grouped according to species habitat needs and/or risks and threats and addressed further in this analysis process, in addition to species of interest.

Burbot

Because of the discrepancy in rankings in Montana: (1) Montana species of greatest conservation need and (2) a Montana status rank (SNA) that identifies the species is not a suitable target for conservation activities in the state; discussions were held with representatives of the Montana Natural Heritage Program (Maxell personal communication 2008) and Montana Fish, Wildlife and Parks (Hensler personal communication 2008) to determine the appropriate conservation status for this species on the forest. The species overall is given a ranking of SNA, however, there are portions of the state where the species is considered to be at risk and given the ranking of species of greatest conservation need (Maxell 2008). Discussions with the local MNHP fisheries biologist (Hensler 2008) identified that burbot are of concern and considered to be of conservation need on the forest. however, it was determined that burbot occur only in the mainstem Kootenai River. It was also determined that the major impact to burbot was the construction and subsequent management of Libby Dam and associated reservoir. No specific management recommendations are required for activities on NFS lands (Ibid) i.e. activities on NFS lands are not likely to have an impact on aquatic species in the mainstem Kootenai River.

Millipedes

Neither the NatureServe nor the Montana Heritage Program databases provide information on habitat requirements, population trends or sizes, or risks and threats to these species. There is very little information provided to identify species habitats, with the exception that they occur in mixed conifer forests. Mixed conifer habitats are and will continue to be very common on the Kootenai. As a result no specific management recommendations are required for activities on NFS lands.

43.22c - Species of interest

Species of Interest are those species for which the Responsible Official (Forest Supervisor) determines that management actions may be necessary or desirable to achieve ecological or other multiple use objectives. The following sources were used to identify potential species of interest for the Kootenai NF. These sources provide a list of potential species on interest which were then screened to identify those to be considered as species of interest.

1. Species with rank of S-1 and S-2, or N-1 and N-2 on the NatureServe ranking system. The NatureServe database @ <http://www.NatureServe.org/explorer> provides a list of all wildlife and plant species that are considered to meet these criteria for the state of Montana (2009). Table SOI.1 includes those species that meet these criteria for the state and displays species NatureServe rankings (G and S ranks) as well as the actual ranking given by the state of Montana (S rank). For state rankings for wildlife and plants see <http://fwp.mt.gov/specieshabitat/strategy/default.html> (Montana CFWCS 2005), <http://mtnhp.org/SpeciesOfConcern/> (Montana species of concern), or <http://fieldguide.mt.gov/> (Montana animal field guides).

In addition to S1/S2 or N1/N2 species, there are several species that were initially considered in the identification for species of concern but were removed because they did not meet the criteria for species of concern based on their ranks (G3G4). These species are known to occur on the forest and/or their range is known to include the forest and they are included here for consideration as species of interest.

2. State listed threatened and endangered species that are not within the criteria as species of concern.

see <http://fwp.mt.gov/wildthings/tande/default.html> to access species that meet these criteria (accessed in 2009).

Montana has no species, other than those listed under the ESA, that meet these criteria.

3. Species identified as species of conservation concern in State Comprehensive Wildlife Strategies (MT CFWCS 2005). See <http://fwp.mt.gov/specieshabitat/strategy/default.html> to access the Montana Comprehensive Fish and Wildlife Conservation Strategy. This includes all vertebrate wildlife species, crayfish and mussels identified as species of greatest conservation need (tier 1) in the Montana comprehensive strategy (2005). The Montana Comprehensive Fish and Wildlife Conservation Strategy (MNHP CFWCS 2005) provides a list of species of greatest conservation need for the state.
4. Species identified as Montana species of concern (MNHP 2009). See <http://fwp.mt.gov/wildthings/concern/default.html> for a list of Montana species of concern. This includes all vertebrate and invertebrate wildlife species and all plant species considered to be of conservation concern in Montana.
5. Birds on the U.S. Fish and Wildlife Birds of Conservation Concern National Priority List (USFWS 2008). See <http://www.fws.gov/migratorybirds/reports/BCC02/BCC2002.pdf> The Kootenai NF is in Bird Conservation Region (BCR) 10. All bird species in BCR 10 were considered in the initial screening process for potential species of interest.
6. Species on the Regional Foresters sensitive species list (2007) identified for the forest, and not already included as SOC or one of the other categories above. See <http://www.fs.fed.us/r1/projects/wwfrp> for region one sensitive species.
7. Additional species where valid, existing information is available that indicates species are of regional or local conservation concern due to factors that may include;
 - a. significant threats to populations or habitat,
 - b. declining trends in populations or habitat,
 - c. rarity
 - d. restricted ranges (for example, narrow endemics, disjunct populations, or species at the edge of their range).

These species of local concern were identified during public scoping, meetings with Montana Fish, Wildlife and Parks, and meetings with the Salish/Kootenai tribe of Montana (2003-2008 included in the project files).

8. Additional Species that may need plan components established for them. These include species of public interest including hunted, fished, and other species. Species of public concern were identified during public scoping and meetings.

All of the species that meet one or more of the above criteria were included on the list for consideration as species of interest (see Appendix C1). Of those, 72 species of wildlife and 93 species of plants were identified as potential species of interest (see table SOI.1), whose range is known to include the forest, they are known to occur on the forest, and/or suitable habitat exists on the forest. Each of these species were then analyzed further for inclusion as species of interest for the forest in accordance with 1909.12 FSH 43.22 (a-i).

Table SOI.1 Potential species of interest for the Kootenai National Forest

Species common name	Species scientific name	Species common name	Species scientific name
Wildlife		Plants	
Amphibians		Fungi/lichen	
Tiger salamander	<i>Ambystoma tigrinum</i>		<i>Albatrellus ellisii</i>
Western toad	<i>Bufo boreas</i>		<i>Calicium adequatum</i>
Coeur d'Alene salamander	<i>Plethodon idahoensis</i>		<i>Chanotheca subroscida</i>
Northern leopard frog	<i>Rana pipiens</i>		<i>Lobaria hallii</i>
Reptiles			<i>Podostroma alutaceum</i>
Northern alligator lizard	<i>Elgaria coerulea</i>		<i>Polyozellus multiplex</i>
Western skink	<i>Emeces skiltonianus</i>		<i>Ramalina thrausta</i>
Birds			<i>Tuckermannopsis subalpina (Cetraria subalpina)</i>
Northern goshawk	<i>Accipiter gentilis</i>	Non vascular mosses	
Grasshopper sparrow	<i>Ammodramus savannarum</i>		<i>Aloina brevirostris</i>
Golden eagle	<i>Aquila chrysaetos</i>		<i>Andreaea blytii</i>
Great blue heron	<i>Ardea herodias</i>		<i>Brachythecium reflexum</i>
American bittern	<i>Botaurus lentiginosus</i>		<i>Chanotheca subroscida</i>
Swainson's hawk	<i>Buteo swainsoni</i>		<i>Hygrohypnum cochlearifolium</i>
Cassin's finch	<i>Carpodacus cassinii</i>		<i>Leucolepsis acanthoneuron</i>
Veery	<i>Catharus fuscescens</i>		<i>Meesia longiseta</i>
Brown creeper	<i>Certhia americana</i>		<i>Meesia triquetra</i>
Black tern	<i>Chionias niger</i>		<i>Meesia uliginosa</i>
Olive-sided flycatcher	<i>Contopus noveboracensis</i>		<i>Neckera douglasii</i>
Black swift	<i>Cypseloides niger</i>		<i>Oligotrichum aligerum</i>
Bobolink	<i>Dolichonyx oryzivorus</i>		<i>Platyhypnidium riparoides</i>
Pileated woodpecker	<i>Dryocopus pileatus</i>		<i>Racomitrium pygmaeum</i>
Willow flycatcher	<i>Empidonax traillii</i>		<i>Scorpidium scorpioides</i>
Common loon	<i>Gavia immer</i>		<i>Sphagnum wulfianum</i>
Sandhill crane	<i>Grus canadensis</i>	Vascular plants	
Harlequin duck	<i>Histrionicus histrionicus</i>	Conifers and relatives	
Loggerhead shrike	<i>Lanius ludovicianus</i>	Dwarf birch	<i>Betula pumela</i>
Gray crowned rosy finch	<i>Leucosticte tephrocotis</i>	Whitebark pine	<i>Pinus albicaulis</i>
Lewis woodpecker	<i>Melanerpes lewis</i>	Vascular ferns and relatives	
Clarks nutcracker	<i>Nucifraga columbiana</i>		<i>Blechnum spicant</i>
Long-billed curlew	<i>Numerous americanus</i>		<i>Blechnum hesperium</i>
Flammulated owl	<i>Otus flammeolus</i>		<i>Botrychium minganense</i>
Black-backed woodpecker	<i>Picoides arcticus</i>		<i>Dryopteris cristata</i>
Horned grebe	<i>Podiceps auritus</i>		<i>Lycopodium inundatum</i>
Boreal chickadee	<i>Poecile hudsonica</i>		<i>Lycopodium dendroideum</i>
Williamson's sapsucker	<i>Sphyrapicus thryoideus</i>		<i>Lycopodium lagopus</i>
Brewer's sparrow	<i>Spizella breweri</i>		<i>Ophioglossum pusillum</i>
Calliope hummingbird	<i>Stellula calliope</i>		<i>Polystichum kuckerbergii</i>
Great gray owl	<i>Strix nebulosa</i>		<i>Polystichum scopulinum</i>
Winter wren	<i>Troglodytes troglodytes</i>		<i>Thelypteris phegopteris (Phegopteris connectilis)</i>
Mammals		Vascular flowering plants	
Rocky mountain elk	<i>Cervus Canadensis</i>		<i>Ageratina occidentalis (Eupatorium occidentale)</i>
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>		<i>Allium acuminatum</i>
Porcupine	<i>Erethizon dorsatum</i>		<i>Allium fibrillum</i>
North American wolverine	<i>Gulo gulo luxos</i>		<i>Alnus rubra</i>
Hoary bat	<i>Lasiurus cinereus</i>		<i>Amerorchis rotundifolia (Orchis rotundifolia)</i>
Hoary marmot	<i>Marmota monax</i>		<i>Arctostaphylos patula</i>
Fisher	<i>Martes pennanti</i>		<i>Boisduvalia densiflora</i>
Fringed myotis	<i>Myotis thysanodes</i>		<i>Brasenia schrebri</i>
American pika	<i>Ochotona princeps</i>		<i>Calochortus macrocarpus</i>
Mountain goat	<i>Oreammus americanus</i>		<i>Camassia quamash</i>
Northern bog lemming	<i>Synaptomis borealis</i>		<i>Carex amplifolia</i>
Fish			<i>Carex chordorrhiza</i>
Torrent sculpin	<i>Cottus rhotheus</i>		<i>Carex livida</i>
Inland redband trout	<i>Oncorhynchus mykiss gairdneri</i>		<i>Carex prairea</i>
Lake trout	<i>Salvelinus naymayscush</i>		<i>Carex rostrata</i>
Invertebrates – butterflies			<i>Carex sychnocephala</i>
Western sulphur	<i>Colias occidentalis</i>		<i>Carex vaginata</i>
White admiral	<i>Limenitis arthemis</i>		<i>Cirsium brevistylum</i>
Indra swallowtail	<i>Papilio indra</i>		<i>Clarkia rhomboidea</i>
Wildlife			<i>Clinopodium douglasii (Satereja douglasii)</i>

Species common name	Species scientific name	Species common name	Species scientific name
Invertebrates-dragonflies		Plants	
Zigzag damer	<i>Aeshna sitchensis</i>		<i>Corydalis sempervirens</i>
Subarctic damer	<i>Aeshna subarctica</i>		<i>Cyperus acuminatus</i>
Boreal whiteface	<i>Leucorrhinia borealis</i>		<i>Cypridium fasciculatum</i>
Ringed emerald	<i>Somatochlora albicincta</i>		<i>Cypridium parviflorum</i>
Hudsonian emerald	<i>Somatochlora hudsonica</i>		<i>Cypridium passerinum</i>
Brush-tipped emerald	<i>Somatochlora walshii</i>		<i>Drosera anglica</i>
Red-veined meadowhawk	<i>Sympetrum madidum</i>		<i>Drosera linearis</i>
Invertebrates - mayflies			<i>Eleocharis rostellata</i>
A mayfly	<i>Caenis youngi</i>		<i>Epipactis gigantea</i>
Invertebrates-stoneflies			<i>Eriophorum gracile</i>
A stonefly	<i>Cascadoperna trictura</i>		<i>Eriophorum viridicarinatum</i>
Columbian stonefly	<i>Utacapnia columbiana</i>		<i>Gentianopsis simplex</i>
Invertebrates - molluscs			<i>Githopsis specularioides</i>
Striate disc	<i>Discus shimkii</i>		<i>Hetercodon rariflorum</i>
Robust lancetooth	<i>Haplotrema vancouverense</i>		<i>Lagophylla ramosissima</i>
Pale jumping slug	<i>Hemphilia camelus</i>		<i>Lathyrus bijugatus</i>
Western pearlshell mussel	<i>Margaritifera falcate</i>		<i>Lesquerella douglasii</i>
Reticulate tailedropper	<i>Prophysaon andersoni</i>		<i>Lewisia rediviva</i>
Sheathed slug	<i>Zacoleus idahoensis</i>		<i>Lomatium geyerii</i>
Invertebrate - other			<i>Mahonia nervosa</i>
A freshwater sponge	<i>Heteromeyenia baileyi</i>		<i>Megaladonta beckii (Bidens beckii)</i>
			<i>Mimulus breviflora</i>
			<i>Mimulus patulus (Mimulus washingtonensis)</i>
			<i>Psilocaraphus brevissimus</i>
			<i>Ribes cognatum</i>
			<i>Ribes laxiflorum</i>
			<i>Scheuchzeria palustris</i>
			<i>Scirpus cespitosus (Tricophorum caespitosum)</i>
			<i>Scirpus subterminalis (Schoenoplectus subterminalis)</i>
			<i>Spiraea pyramidata</i>
			<i>Sporobolus neglectus</i>
			<i>Stellaria crassifolia</i>
			<i>Tellima grandiflora</i>
			<i>Utricularia intermedia</i>
			<i>Vaccinium myrtilloides</i>
			<i>Viola renifolia</i>
			<i>Viola selkirkii</i>

Review of potential species of interest for further analysis in the planning process

FSH 1909.12 (page 27), identifies eight factors that were used in the selection of species of interest from the list of potential species of interest in table SOI1. Seven of the factors (discussed below) provide information for “in the plan area” and are determined only for NFS lands on the forest while the eighth criteria provides information for “throughout its range” which includes all lands that make up the species range.

In the plan area (includes only National Forest System Lands on the forest)

1. Species habitat or population has declined significantly.

Species population - Where information on species populations on National Forest system lands on the forest is available, that information was used for this factor. Where information on species populations on NFS lands is lacking, information for the state of Montana was considered.

Species habitat - Information from the vegetation analysis (including the HRV analysis) was used to determine if there have been significant reductions in habitat. Those habitats or ecosystem components that are considered to be well below the desired condition are considered to have declined significantly.

A determination was made for both species and habitat. If both are considered to have declined significantly an answer of yes is given. If neither are considered to have declined significantly an answer of no is given. If a determination could be made for one (i.e. habitat) but the other is unknown (i.e. species) an answer of yes is given.

(2) Species and their habitats are well-distributed.

Species distribution - Whether a species is “well distributed” is based on the species natural history and historical distribution and on the potential distribution of its habitat (FSH 1909.12_40). This determination recognizes that habitat and population distribution will be dynamic over time.

Habitat distribution - A well distributed pattern is one that allows interaction within and across species populations, within the constraints of the species natural history, and within the capability of the plan area (USDA 2007). It is not expected that management of NFS lands would provide broadly or evenly distributed habitat for all species.

For purposes of this analysis, distribution is based on both species observations (numbers) and/or suitable habitat on the forest. Although numbers of most species are unknown, based on local observation data, including surveys conducted throughout the forest, a subjective determination of distribution is made. If both species and its habitat are well distributed an answer of yes is given. If either habitat or population numbers are considered not to be well distributed an answer of no is given, and if neither of these is known an answer of unknown is given.

(3) Species population numbers are low. (Column 5)

In general, information is lacking about species population or numbers on National Forest lands on the forest. In many cases information about the species status in the state were used, in addition to any information about the species in the plan area. Based on past monitoring and observation information, a subjective determination of species population sizes on the forest was made.

It is recognized that some species populations are naturally low. At this point no distinction was made between those populations that are naturally low and those that have been reduced as a result of some associated risk and threat.

(4) Species is dependent on a specialized and/or limited habitat.

A determination was made if a species is dependent on either “specialized” or “limited” habitat, otherwise an answer of no is given.

(5) Species is subject to some imminent threat (for example, invasion of exotic species into habitat or disturbance due to road systems).

Example: If activities on NFS lands would result in impacts to a species during nesting, denning or other life cycle activities, an answer of yes is given. Risks and threats for each species are included in species write-ups.

(6) Species is of public interest, including those species identified cooperatively with State fish and wildlife agencies consistent with the Sikes Act.

If a species was identified to be of concern during public scoping, public meetings, meetings with state agencies or with local tribal members, or if a species is currently considered to be of public interest under the Sikes Act, an answer of yes is given.

(7) NFS lands act as an important refuge.

If a species is known to occur principally on NFS lands or if NFS lands provide the majority of the habitat on the forest for a species, an answer of yes is given.

Throughout its range

(8) Species habitat or population is not generally secure within its range.

To answer the question of whether a population is secure within its range, information was gathered for both the plan area (the forest), statewide, as well as throughout their range. If both the habitat and population is considered not to be secure an answer of yes is given

Table SOI.2 displays each of the potential species of interest and the factors used in the selection of wildlife and plant species of interest and table SOI.3 displays all wildlife and plant species proposed for species of interest for the Kootenai National Forest. A brief discussion for each potential species of interest not considered further is included.

Table SOI.2 Review of potential species of interest

Species common Name	On NFS lands – significant Habitat or Pop decline	On NFS lands - species and its habitat well distributed	On NFS lands - Population Numbers Low	On NFS lands - Dependent on Specialized and/or limited Habitat	On NFS lands - species subject to some Imminent Threat	NFS lands refuge	Species habitat or population is secure throughout its range	Include as SOI?
Vertebrates								
Amphibians								
Tiger salamander <i>Ampystoma tigrinum</i>	Not considered to be a significant habitat decline but population unknown.	No	Unknown but considered low	No	Yes	No	Yes	Yes
Boreal toad <i>Bufo boreas</i>	Not considered to be a significant habitat decline but population unknown. Statewide declines	Yes	Unk; considered fairly common	No	Yes	No	Unk/decreasing	Yes
Coeur d'Alene salamander <i>Plethodon idahoensis</i>	Not considered to be a significant habitat decline; population unknown	Yes but very few populations	Unknown but considered low	Specialized	Yes	Yes	Unk/decreasing	Yes
Northern leopard frog <i>Rana pipiens</i>	Not considered to be a significant habitat decline; population unknown	No	Unknown but considered low	Limited	Yes	No	Decreasing	Yes
Reptiles								
Northern alligator lizard <i>Elgaria coerulea</i>	Not considered to be a significant habitat decline; population unknown.	Habitat considered to be well distributed but species distribution unknown	Unk	No	Yes	Unk	Unk	No
Western skink <i>Emeces skiltonianus</i>	Not considered to be a significant habitat decline; population trend unknown	Habitat considered to be well distributed but species distribution unknown	Unk	No	Yes	Unk	Unk	No
Birds								
Northern goshawk <i>Accipiter gentilis</i>	Not considered to be a significant habitat decline. population trend unknown	Habitat considered well distributed but species distribution unknown	Unknown but considered low	No	Yes	Yes	Yes	Yes
Grasshopper sparrow* <i>Ammodramus savannarum</i>	No. suitable grassland habitat rare on NFS lands. population trend unknown	No. species and habitat rare on NFS lands.	Yes	Limited	No	No	No	No
Golden eagle <i>Aquila chrysaetos</i>	No. suitable prairie/grassland habitat rare on NFS lands. population on the forest new/increasing to stable	No. species and habitat rare on NFS lands.	Yes	Limited	No	No	Unk	No
Great blue heron <i>Ardea herodias</i>	Not considered to be a significant habitat decline; population trend unknown	Yes	Unknown but considered low	No	No	No	Yes	No
American bittern <i>Botaurus lentiginosus</i>	Not considered to be a significant habitat decline; population trend unknown	No. species rare on NFS lands.	Unknown but considered low	No	No	No	Unk	No
Swainson's hawk <i>Buteo swainsoni</i>	Not considered to be a significant habitat decline; population trend unknown	No. species and habitat rare on NFS lands.	Yes	Limited	No	No	Unk	No
Cassins finch <i>Carpodacus cassinii</i>	Not considered to be a significant habitat decline; population trend unknown	Yes	Unknown but considered common	No	No	No	Yes	No

Species common Name	On NFS lands – significant Habitat or Pop decline	On NFS lands - species and its habitat well distributed	On NFS lands - Population Numbers Low	On NFS lands - Dependent on Specialized and/or limited Habitat	On NFS lands - species subject to some Imminent Threat	NFS lands refuge	Species habitat or population is secure throughout its range	Include as SOI?
Veery <i>Catharus fuscescens</i>	Not considered to be a significant habitat decline; population trend unknown	Habitat considered to be well distributed but species distribution unknown	Unknown but considered low	No	No	Unk	Unk	No
Brown creeper <i>Certhia americana</i>	habitat decline; population trend unknown	Habitat considered to be well distributed but species distribution unknown	Unknown but considered low	Limited	Yes	Yes	Unk	Yes
Black tern <i>Chlidonias niger</i>	No. species and suitable wetland habitat rare on NFS lands; population trend unknown	No. species and habitat rare on NFS lands.	Yes	Limited	No	No	No	No
Olive-sided flycatcher <i>Contopus cooperi</i>	habitat decline; population trend unknown	Yes	Unk	Partially uses Burned forest	Unk	Yes	Unk	Yes
Black swift <i>Cypseloides niger</i>	Not considered to be a significant habitat decline; population trend unknown	No. species and habitat rare on NFS lands.	Yes	Specialized/limited	No	Yes	Unk	No
Bobolink* <i>Dolichonyx oryzivorus</i>	No. suitable grassland habitat rare on NFS lands. population trend unknown but species rare on NFS lands	No. species and habitat rare on NFS lands.	Yes	Limited	Unk	No	Yes	No
Pileated woodpecker <i>Dryocopus pileatus</i>	Habitat decline, populations unknown	Yes	Unk	Limited	Yes	Yes	Yes	Yes
Willow flycatcher <i>Empidonax traillii</i>	No	Yes	Unk	No	No	Unk	Yes	No
Common loon <i>Gavia immer</i>	Not considered to be a significant habitat decline; population trend unknown	Yes	Yes	No	Yes	No	Yes	Yes
Sandhill crane <i>Grus canadensis</i>	No. species rare on the forest	No. species and habitat rare on NFS lands.	Yes	Limited	No	No	Yes	No
Harlequin duck <i>Histrionicus histrionicus</i>	Not considered to be a significant habitat decline; population trend unknown	Yes	Yes	No	Yes	Yes	Unk	Yes
Loggerhead shrike* <i>Lanius ludovicianus</i>	No. suitable habitat rare on NFS lands. population trend unknown but species rare on the forest	No. species and habitat rare on NFS lands.	Yes	Limited	No	No	Unk	No
Gray crowned rosy finch <i>Leucosticte tephrocotis</i>	Not considered to be a significant habitat decline; population trend unknown Glaciers rare to nonexistent on NFS lands.	No. species rare on NFS lands.	Unknown but considered low	Specialized/Limited	No	Unk	Yes	No
Lewis's woodpecker <i>Melanerpes lewis</i>	habitat decline; population trend unknown	Habitat considered to be well distributed but species distribution unknown	Unknown but considered low	Specialized/limited	Unk	Yes	Unk	Yes
Clark's nutcracker <i>Nucifraga columbiana</i>	Habitat decline; Population trend unknown.	Habitat considered to be well distributed but species distribution unknown	Unk	No	Unk	Yes	Yes	No
Long-billed curlew* <i>Numerius americanus</i>	No. suitable habitat rare on NFS lands; population trend	No. species and habitat rare on NFS lands.	Yes	Limited	No	No	Yes	No

Species common Name	On NFS lands – significant Habitat or Pop decline	On NFS lands - species and its habitat well distributed	On NFS lands - Population Numbers Low	On NFS lands - Dependent on Specialized and/or limited Habitat	On NFS lands - species subject to some Imminent Threat	NFS lands refuge	Species habitat or population is secure throughout its range	Include as SOI?
Flammulated owl <i>Otus flammeolus</i>	unknown but species rare Habitat decline. Population unknown.	Yes	Unk	Large dia. pp/df with brush fields	Yes	Yes	Unk	Yes
Black-backed woodpecker <i>Picoides arcticus</i>	Habitat decline. Population trend unknown.	No	Unk	Specialized/limited	Unk	Yes	Unk	Yes
Horned grebe <i>Podiceps auritus</i>	Not considered to be a significant habitat decline: population trend unknown	Habitat considered to be well distributed but species distribution unknown	Unknown but considered low	Limited	No	No	Unk	No
Boreal chickadee <i>Poecile hudsonica</i>	Not considered to be a significant habitat decline; population trend unknown	Habitat considered to be well distributed but species distribution unknown	Unk	No	No	Yes	Yes	No
Williamson's sapsucker <i>Sphyrapicus thyroideus</i>	habitat decline; population trend unknown	Yes	Unknown but considered low		No	Unk	Yes	No
Brewer's sparrow* <i>Spizella breweri</i>	No – suitable grassland/sagebrush habitat rare on NFS lands: population trend unknown	No. species and habitat rare on NFS lands.	Yes	Limited	No	No	No	No
Calliope hummingbird <i>Stellula calliope</i>	Not considered to be a significant habitat decline: population trend unknown	Known	Unk but considered common	No	No	No		No
Great gray owl <i>Strix nebulosa</i>	Not considered to be a significant habitat decline: population trend unknown	Habitat considered to be well distributed but species distribution unknown	Unknown but considered low	No	Yes	Unk	Unk	No
Winter wren <i>Troglodytes troglodytes</i>	Habitat decline, populations unknown	Habitat considered to be well distributed but species distribution unknown	Unknown but considered low	Limited	Yes	Yes	Unk	No
Mammals -								
Rocky mountain elk <i>Cervus canadensis</i>	No	Yes	No	No	No	Yes	Yes	Yes
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	Caves and mines rare on the forest. Decline in large dia snags: population trend unknown	Yes	Yes	Caves, mines	Yes	Unk	Unk	Yes
Porcupine <i>Erethizon dorsatum</i>	Not considered to be a significant habitat decline: population trend unknown	Yes	Unknown but considered low	No	No	No	Yes	No
North American wolverine <i>Gulo gulo luxos</i>	Not considered to be a significant habitat decline: population trend unknown	Yes	Yes	Remote areas for denning	Yes	Yes	Unk	Yes
Hoary bat <i>Lasiurus cinereus</i>	habitat decline: population trend unknown	Habitat considered to be well distributed but species distribution unknown	Unknown but considered low	No	Yes	Unk	Unk	Yes
Hoary marmot <i>Marmota monax</i>	Not considered to be a significant habitat decline; population trend unknown	Habitat considered to be well distributed but species distribution unknown	Unknown but considered low	No	No	Unk	Unk	No
Fisher <i>Martes pennanti</i>	Not considered to be a significant habitat decline; population trend unknown	Habitat considered to be well distributed but species is not	Yes	Old riparian forest	Yes	Yes	Yes	Yes

Species common Name	On NFS lands – significant Habitat or Pop decline	On NFS lands - species and its habitat well distributed	On NFS lands - Population Numbers Low	On NFS lands - Dependent on Specialized and/or limited Habitat	On NFS lands - species subject to some Imminent Threat	NFS lands refuge	Species habitat or population is secure throughout its range	Include as SOI?
Fringed myotis <i>Myotis thysanodes</i>	Caves and mines rare on NFS lands. Decline in large dia snags. population trend unknown	No	Unknown but considered low	Caves, mines	Unk	Unk	Unk	Yes
American pika <i>Ochotona princeps</i>	Not considered to be a significant habitat decline: population unknown for both the forest and state	Habitat considered to be well distributed but species distribution unknown	Unk	No	No	Yes	Unk	No
Mountain goat <i>Oreamnos americanus</i>	No	No	Yes	Rock, talus	Yes	Yes	Yes	Yes
Northern bog lemming <i>Synaptomys borealis</i>	Not considered to be a significant habitat decline but population unknown	No	Yes	Bogs, fens	Yes	Yes	Unk	Yes
Fish								
Torrent sculpin <i>Cottus rhotheus</i>	Not considered to be a significant habitat decline: population trend unknown	Habitat considered to be well distributed but species distribution unknown	Unk	No	Yes	Unk	Yes	No
Inland redband trout <i>Oncorhynchus mykiss gairdneri</i>	Yes	No	Unk	No	Yes	Yes	Yes	Yes
Lake trout <i>Salvelinus namaycush</i>	No	No	Yes	Yes	No	No	Yes	No
Invertebrates - insects								
Butterflies								
Western sulphur <i>Colias occidentalis</i>	Unk	No	Yes	Unk	No	Unk	Unk	No
White admiral <i>Limenitis arthemis</i>	Unk	No	Yes	Unk	No	Unk	Yes	No
Indra swallowtail <i>Papilio indra</i>	Unk	No	Yes	Unk	No	Unk	Yes	No
Dragonflies								
Zigzag darner <i>Aeshna sitchensis</i>	Not considered to be a significant habitat decline; population trend unknown	Habitat considered to be well distributed but species distribution unknown	Unk	Unk	No	Unk	Yes	No
Subarctic darner <i>Aeshna subarctica</i>	Not considered to be a significant habitat decline; population trend unknown	Habitat considered to be well distributed but species distribution unknown	Unk	Unk	No	Unk	Yes	No
Boreal whiteface <i>Leucorrhinia borealis</i>	Not considered to be a significant habitat decline; population trend unknown	Habitat considered to be well distributed but species distribution unknown	Unk	Unk	No	Unk	Yes	No
Ringed emerald <i>Somatochlora albicincta</i>	Not considered to be a significant habitat decline; population trend unknown	Habitat considered to be well distributed but species distribution unknown	Unk	Unk	No	Unk	Yes	No
Hudsonian emerald <i>Somatochlora hudsonica</i>	Not considered to be a significant habitat decline; population trend unknown	Habitat considered to be well distributed but species distribution unknown	Unk	Unk	No	Unk	Yes	No
Brush-tipped emerald <i>Somatochlora walshii</i>	Not considered to be a significant habitat decline;	No	Yes	Unk	No	Unk	Unk	Yes

Species common Name	On NFS lands – significant Habitat or Pop decline	On NFS lands - species and its habitat well distributed	On NFS lands - Population Numbers Low	On NFS lands - Dependent on Specialized and/or limited Habitat	On NFS lands - species subject to some Imminent Threat	NFS lands refuge	Species habitat or population is secure throughout its range	Include as SOI?
Red-veined meadowhawk <i>Sympetrum madidum</i>	population trend unknown Not considered to be a significant habitat decline; population trend unknown	Habitat considered to be well distributed but species distribution unknown	Unk	Unk	No	Unk	Yes	No
Mayflies								
A mayfly <i>Caenis youngi</i>	Not considered to be a significant habitat decline; population trend unknown	Unk	Yes	No	No	Unk	Unk	Yes
Stoneflies								
A stonefly <i>Cascadopera trictura</i>	Not considered to be a significant habitat decline; population trend unknown	Habitat considered to be well distributed but species distribution unknown	Yes	No	Unk	Unk	Unk	Yes
Columbian stonefly <i>Utacapnia columbiana</i>	Not considered to be a significant habitat decline; population trend unknown	Habitat considered to be well distributed but species distribution unknown	Yes	No	Unk	Unk	Unk	Yes
Mollusks								
Striate disc <i>Discus shimekii</i>	Unk	Unk	Yes	Unk	Yes	Unk	Yes	Yes
Robust lancetooth <i>Haplotrema vancouverense</i>	Unk	Unk	Yes	Unk	Yes	Unk	Yes	Yes
Pale jumping slug <i>Hemphillia camelus</i>	Unk	No	Yes	Unk	Yes	Unk	Yes	Yes
Reticulate taildropper <i>Prophyson andersoni</i>	Unk	No	Yes	Unk	Yes	Unk	Unk	Yes
Sheathed slug <i>Zacoleus idahoensis</i>	Unk	No	Yes	Unk	Yes	Unk	No	Yes
Invertebrate – other								
Western pearlshell mussel <i>Margaritifera falcata</i>	Unk	unk	Yes	Unk	Yes	Unk	Yes	Yes
A freshwater sponge <i>Heteromeyenia baileyi</i>	Not considered to be a significant habitat decline; population trend unknown	No	Yes	Yes	Unk	Yes	Unk	Yes
Plants								
All plants in SOL.6	Populations on the forest and statewide are unknown	Species distribution is unknown but not considered to be well distributed.	Population numbers are unknown but considered to be low	Yes – the majority of the plant species are dependent on specialized habitats	Yes	Unknown	Unknown – species populations and ranges are generally unknown	Yes

Potential species of interest not selected as SOI

Reptiles

Northern alligator lizard, western skink – very little is known about these species on the forest. They are very secretive and rarely observed. They are considered of moderate or lower concern for conservation in Montana (MNHP 2008), and not a Montana species of greatest conservation need. Both of these species are identified as a Montana species of concern and listed as tier 2 species in the Montana CFWCS. However, population sizes and trends are unknown, both at the forest and state levels (MNHP 2008). Both species are rarely encountered and poorly documented. Although much of the information on habitat associations are unknown (MNHP 2009), habitat includes components such as down wood and rocky areas in the warm dry habitat types. Approximately 22% of the forest is in the warm/dry biophysical setting, well distributed across the forest, providing habitat for these species.

Northern alligator lizard

There is little specific information on habitat associations in Montana (MNHP field guide 2008). Observations have been on south facing slopes in fine to coarse talus, sometimes in the open but often with some canopy consisting of Douglas-fir, Ponderosa Pine, a variety of shrubby species and a layer of dried leaves and conifer needles. Most often found under logs and rocks. No special management activities for northern alligator lizards are defined at this time (MNHP field guide 2008). No information is available on population trends, occurrences, or population sizes. Although identified as a Montana species of concern, there is no information at this time that suggests population declines in Montana (MNHP 2009) or on the forest. Habitats are considered common and well distributed across the forest.

Western skink

Population trends are unknown but considered stable with very many occurrences (NatureServe 2008). MNHP (2008) field guide states that little information is available on habitat for this species. In Sanders county habitats include open ponderosa pine and woodland, in or near talus, or grassland habitats on southwest aspects. Habitats were described as gentle rolling terrain (less than 20%) with rocky areas embedded (MNHP 2009). Reduction from habitat loss appears to be minimal (NatureServe 2008). Trends are undocumented but extent of occurrence, area of occupancy, number of subpopulations and population size are large and probably relatively stable (NatureServe 2008). Although identified as a Montana species of concern, there is no information at this time that suggests population declines in Montana (MNHP 2009) or on the forest. Habitats are considered common and well distributed across the forest.

Birds

Grasshopper sparrow

The species has a large range extending from southern Canada to northern South America. There have been significant population declines in North America and probably elsewhere, due to loss, degradation, and incompatible management of grassland habitat (NatureServe 2009). The species prefers open prairies with intermittent brush, although not particular to heavy brush cover (MNHP field guide 2008). Open prairie habitat is rare on the forest; most grassland habitat that occurs on the forest is situated on private lands in areas such as the Tobacco Valley. The forest appears to be on the western edge of the species breeding range in Montana. The species is considered rare on the forest and there is no direct evidence of breeding on NFS lands, although the MNHP Tracker database identifies 1 observation that indicates indirect evidence of breeding, in the Tobacco Valley area on private lands.

Very little information is available in the MNHP databases for this species. Population size or trends are unknown at both the state and forest level. Management for this species includes the protection of large tracts of suitable grassland habitat (ideally 500+ acres) (MNHP 2009) which are not known to occur on NFS lands. Additional threats to the species include cultivation and urban sprawl, which are beyond FS control.

Golden eagle

The golden eagle is considered widespread throughout the northern hemisphere. This species prefers dry, open and semi open areas associated with prairies or tundra, which are rare on the forest. Use of the forest by golden eagles is a rare and fairly recent event, which may be an indication of population expansion. There are approximately 4-5 nests on the forest, with nesting activity principally on private lands, and generally associated with forested habitat near larger rivers, lakes or streams. Nesting habitat on NFS lands in the form of large trees is well distributed throughout the forest. Identified as a priority USFWS species, it is not considered to be a species of concern or species of greatest conservation need in Montana. Although a Montana tier 2 species it is not identified as a priority species for conservation by Montana partners in flight (MNHP field guide 2008). There is no information at this time that suggests population declines in Montana (MNHP 2009) or on the forest.

Great blue heron

Although identified as a species of concern for Montana, it is considered to be a species of lower need of conservation (MTCFWCS 2005 - tier 3) (i.e. this species is either abundant and widespread or believed to have adequate conservation already in place). Great blue heron populations are considered to be stable or increasing throughout its range (NatureServe 2009). Habitat is considered to be abundant and well distributed throughout the forest. The main stressors for this species, contaminants and illegal shooting, are beyond control of the forest.

American bittern

The species has a widespread distribution throughout North America. The MNHP field guide (2008) identifies the entire state as summer range for this species. Bitterns are basically solitary, with low population density (NatureServe 2008). Although considered apparently secure at the global, national and state levels, abundance is considered difficult to estimate due to the species secretive nature (NatureServe 2008). Breeding occurs primarily in large freshwater and (less often) brackish marshes, including lake and pond edges where cattails, sedges, or bulrushes are plentiful and marshes where there are patches of open water and aquatic bed vegetation. The species eats mainly fish, crayfishes, amphibians, mice and shrews, insects and other animals (Palmer 1962 in NatureServe 2008). Large (25+ acres) wetland habitats with emergent vegetation are rare on NFS lands on the forest. Population size and trends in Montana and on the forest are unknown. Observations on the forest are rare (2) (MNHP 2009). Skaar (1985 but may go back 100 years, MNHP 2008) indicated direct evidence of breeding in the Bull Lake drainage, however, more recent (Reichel 1993 in MNHP 2008) evidence indicates the species is a transient on the forest. Montana partners in flight (PIF 2000) considers the species to be of lower conservation concern in the state (a priority level 3). Although identified as a Montana species of concern there is no evidence that suggests a population decline in Montana (MNHP 2009).

Swainson's hawk

Observations of Swainson's hawk are very rare on the forest and mostly for migrating hawks. The species is not known to nest or breed on the forest, although there is indirect evidence of nesting occurring. Swainson's hawks are considered abundant and stable in Idaho and Montana (Harlow and Bloom cited in England et al. 1997). Habitat in the form of grasslands or agricultural lands is very rare on NFS lands on the forest. The main risks and threats to this species are beyond control of the forest, including impacts to the species on its winter range in Argentina. Disturbance of nest sites, should they decide to use the forest, is a possibility, however, Swainson's hawks are more tolerant of humans than other hawks and nest in close proximity to occupied houses.

Cassin's finch

The species is found throughout the western U.S. and Canada. The species breeding range includes the southern interior British Columbia, extreme southwestern Alberta, Montana, and northern Wyoming, south to interior southern California, Nevada, Arizona, and New Mexico. Breeding habitats include open coniferous forest; in migration and winter, habitats also include deciduous woodland, second growth, scrub, brushy areas, partly open situations with scattered trees and sometimes suburbs near mountains (NatureServe 2009). The species usually nests in conifers, approximately 10-75 feet above ground (Ibid). The species eats seeds and buds, insects, and berries. This species is considered fairly common and well distributed throughout the forest (MNHP 2009). The

species is considered to be of lower conservation need (a Montana tier 3 species) and of low priority for conservation (Montana partners in flight priority 3 species) in Montana (MNHP 2009). Identified as a Montana species of concern, there is no information on species abundance or trends in either NatureServe (2009) or MNHP databases (2008). There is no information that indicates a population decline in the state (MNHP 2009).

Veery

Veery populations, although declining in some areas are still widespread and common in many other areas, and the overall population is considered to be stable and secure (NatureServe 2009). The majority of the decline of the species populations are in the eastern and central North American portion of its range with trends in the west only slightly negative and not statistically significant (Ibid). Habitat for the species is considered to be abundant and well distributed across the forest. The forest conducts very little to no management in riparian areas that may impact this species. The main risks and threats to this species, collisions with human made objects, are beyond control of the forest.

Black tern

Throughout its range the species is considered widespread and relatively abundant, however the population trend is considered to be severely to rapidly declining (decline of 30% to greater than 70%) (NatureServe 2008). Black terns have declined regionally and there is evidence of declines in Montana (MNHP field guide 2008). Breeding habitat is mostly wetlands, marshes, prairie potholes, and small ponds (MNHP field guide 2008). Approximately 30-50% of the wetland complex is emergent vegetation such as cattail or bulrush. They are semi colony breeders. In Montana, appropriate habitat is considered patchy at best, the species is localized, has relatively few populations, and low numbers of individuals (MNHP field guide 2008). Habitat for this species is rare on the forest, in particular on NFS lands on the forest. Observations on the forest are also rare (3) (MNHP 2009) with no direct evidence that suggests breeding on the forest. There is one older observation that indicates indirect evidence of breeding (Skaar pre 1985 and may go back 100 years) (MNHP Tracker 2008). Active management for this species is currently limited to population monitoring and water level fluctuation control (MNHP 2009) which are beyond control of the forest.

Black swift

The species is known from one location on the forest, within or adjacent to the Cabinet Mountains wilderness area, a protected area of the forest. This particular area is generally not accessible to the public. Suitable habitat, in the form of waterfalls of appropriate size, is very rare on the forest. Activities on NFS lands are not expected to impact the species habitat in this area.

Bobolink

Considered widespread and fairly common, the species distribution includes the majority of North America (NatureServe 2009). The MNHP field guide (2009) identifies the entire state as summer range and the species is well distributed throughout Montana. The global population trend is considered to be declining (decline of 10% to 30%) (NatureServe 2009) and populations in the eastern U.S. have declined since the early 1900s (Bollinger et al. 1990 in NatureServe 2009). North American BBS data indicate a significant population decline in North America in recent decades, particularly in central North America (Sauer and Droege 1992 in NatureServe 2009). No information is available on species populations or trends in Montana (MNHP 2009). The species is considered uncommon on the forest. Although there have been several observations of the species on the forest (MNHP 2009), there has been no direct evidence of breeding. The majority of these observations have occurred on private lands either in the Tobacco Valley area or along the Clark Fork River in Sanders County. There have been 2 recorded observations on NFS lands, one which indicates indirect evidence of breeding (Skaar pre 1985 and possibly as far back as 100 years) and the other considered a transient (MNHP Tracker 2009). The species is considered to be of lower conservation need (a Montana tier 3 species) and of low priority for conservation (Montana partners in flight priority 3 species) in Montana (MNHP 2009). Identified as a Montana species of concern, there is no information at this time that suggests population declines in Montana (MNHP 2009) or on the forest.

Willow flycatcher

Although identified by the USFWS as a bird of conservation concern for BCR 10 (2008), the species is not considered to be a species of concern in Montana and is considered to be apparently secure; uncommon but not rare and usually widespread throughout the state (MNHP 2009). It is also identified as a species of lower conservation need (tier 3 – MTCFWCS 2005) (i.e. either widespread and abundant or believed to have adequate conservation already in place). Habitat is considered to be abundant and well distributed across the forest and the species is considered to be fairly common. The forest conducts very little to no management in riparian areas that may impact this species.

Sandhill crane

Sandhill cranes have a large range, and populations are considered stable or increasing in most areas (NatureServe 2008). The NatureServe database (2009) identifies that the forest is only in the migration path for this species, however the MNHP field guide (2009) identifies the entire state as summer habitat. In either case the species is a rare visitor on the forest, generally during the migration period, and there is no direct evidence of breeding on the forest. The MNHP TRACKER database includes one observation that indicates indirect evidence of breeding (MNHP 2009). The species is considered to be of lower conservation need (A Montana tier 3 species) and of low priority for conservation (Montana partners in flight priority 3 species) in Montana. Although identified in the NatureServe database as an S1/S2 species for Montana, Montana does not consider it a species of concern or species of greatest conservation need. Montana (MNHP 2009) ranks it as secure (S5B) throughout its breeding range in the state. There is no information at this time that suggests population declines in Montana (MNHP 2009) or on the forest.

Loggerhead shrike

The NatureServe database (2009) does not include the forest in the species range. However, the Montana field guide (2009) includes the entire state in the species summer range. Whichever the case, there have been very few reported observations of the species on the forest and only one on NFS lands (Skaar, date unknown, in MNHP Tracker 2008). Nests of this species are generally found in sagebrush, bitterbrush, and greasewood, all of which are rare on NFS lands. The remaining observations on the forest all occurred on private lands in the Tobacco Valley. NatureServe (2008) identifies that the most effective land protection for shrikes will probably require land use planning tools, such as zoning, special agricultural districts, and agricultural easements that will help maintain large areas of suitable habitat. All of these are beyond the control of the forest.

Gray crowned rosy finch

The species breeding range includes western and north central Alaska, central Yukon, British Columbia, and southwestern Alberta, through the Cascades, Sierra Nevada, and Rocky Mtns to California, central Idaho and northwest Montana. Populations are considered large and widespread (NatureServe 2009). Population trend is considered stable (unchanged or within +/- 10% fluctuation in population, range, area occupied, and/or number or condition of occurrences (Ibid). Habitats include barren, rocky or grassy areas and cliffs among glaciers or beyond timberline; in migration and winter also in open situations, fields, cultivated lands, brushy areas, and around human habitation (AOU 1983 in NatureServe 2009). Nests are usually in rock crevices or holes in cliffs. Forages on the ground for seeds. Breeding, nesting, and winter roosting habitat in Montana is similar to other regions in the species range (Hendricks 1981 in MNHP field guide 2009). The majority of the observations in Montana are centered around the Glacier National Park area. Observations on the forest are rare, but that may be due to the species preference for high elevation habitats. The MNHP field guide (2009) identifies that no special management action appears to be required at this time. Management actions on NFS lands are not likely to impact this species should it occur on NFS lands. There is no evidence to indicate a decline in populations in the state (MNHP 2009) or on the forest.

Clark's nutcracker

The species is considered secure; common, widespread and abundant in both Idaho and Montana. It is identified as a Montana species of concern, however it is considered to be of lower conservation need (i.e. the species is

either abundant and widespread or are believed to have adequate conservation already in place. Habitat in the form of large pines that provide seeds are abundant and well distributed across the forest, including ponderosa pine and Douglas-fir. Although there has been a significant reduction in whitebark pine, it was never very abundant on the forest (<1%). Clark's nutcrackers are not currently threatened and populations are thought to have increased in the Rocky Mountain region.

Long-billed curlew

The species breeding range includes the southern portions of British Columbia, Alberta, Saskatchewan and Manitoba south to eastern Washington, northeastern California, Nevada, Utah, southern Colorado, New Mexico, and northern Texas. The MNHP field guide identifies the entire state within the species summer range. NatureServe identifies the forest is outside or on the edge of the species range. In either case the species and its habitat are considered rare on the forest. The species was extirpated from eastern U.S. prairie by cultivation of grassland (NatureServe 2009) and fall populations along the Atlantic coast were decimated by hunting (Blus et al. 1985 in NatureServe 2009). Population declines in the western U.S. are considered to be local, not widespread (USFWS 1987 in NatureServe 2008). The majority of the observations in Montana are east of the continental divide (MNHP Tracker 2008). The MNHP Tracker database has 2 recorded observations on the forest, one of which is in the Tobacco Valley area on private lands and the other location unknown (Skaar, pre 1985 and possibly as long ago as 100 years) with no direct evidence of breeding on the forest. Habitats include prairies and grassy meadows, generally near water (AOU 1983 in NatureServe 2008) which are rare on the forest, and in particular on NFS lands on the forest. There is no information to indicate a population decline in the state (MNHP 2009) or on the forest.

Horned grebe

Horned grebes are considered uncommon in the state and observations on the forest are very rare. There is no direct evidence of breeding on the forest, although there is one observation of indirect breeding from possibly as long as 100 years ago. The location of that observation is unknown. There is no information on population trends for this species, although its breeding range is considered to be contracting northwestward (Stedman 2000). Habitat for this species is rare on NFS lands and impacts to the species on its winter range are beyond control of the forest.

Boreal chickadee

Montana is in the southern extreme of the boreal chickadees breeding range, but it is often observed during its southerly migration during the winter (MNHP 2009). No information regarding the species habitat specific to Montana exists; however, information for other areas indicates the habitat is boreal coniferous and mixed forest, muskeg bogs, in the vicinity of white cedar and hemlock swamps, birches and streamside willows. Only three known breeding records are known for the state and all of them occurred between 1980 and 1985 (Montana Bird Distribution 2003). Observations for the forest include transients (migratory) and indirect evidence of breeding (MNHP 2009). Boreal coniferous and mixed forest habitats are fairly common and well distributed across the forest. There is no information in either the NatureServe (2009) or MNHP (2009) databases on species populations or trends. Activities on NFS lands are not likely to impact habitat for this species.

Brewer's sparrow

The species breeding range includes southern British Columbia, southern Alberta, southwestern Saskatchewan, Montana, and southwestern North Dakota, south to California, southern Nevada, central Arizona, northwestern New Mexico, central Colorado, southwestern Kansas, northwestern Nebraska, and southwestern South Dakota (AOU 1998 in NatureServe 2009). Population abundance is highly variable by habitat and year (NatureServe 2009) however the global population trend is considered to be declining (decline of 10-30%). North American BBS data for 1966-1996 show significant and strong survey wide declines averaging -3.7% per year with significant declines evident in California, Colorado, Montana, Nevada, Oregon and Wyoming (NatureServe 2009). Breeding habitat is strongly associated with sagebrush over most of its range, in areas with scattered shrubs and short grass (NatureServe 2009). The direct cause of widespread decline on breeding grounds is uncertain but

possibly linked to widespread degradation of sagebrush habitats. Sagebrush habitats are extremely rare on the forest, in particular on NFS lands on the forest. Observations of the species on the forest are also rare, mostly in the Tobacco Valley area on private and state lands. One observation on NFS lands (Skaar, pre 1985 but may go back as far as 100 years) indicates indirect evidence of breeding although the location is unknown.

Calliope hummingbird

Although identified by the USFWS as a bird of conservation concern for BCR 10 (2008), the species is not considered to be a species of concern in Montana and is considered to be secure; common, widespread and abundant throughout the state (MNHP 2009). It is also identified as a species of lower conservation need (tier 3 – MTCFWCS 2005) (i.e. either widespread and abundant or believed to have adequate conservation already in place). The species habitat is considered to be abundant and well distributed across the forest and the species is considered to be common. Population declines were observed in only 2 locations (Oregon and the coastal mountains of southern California). Casey (2000) considers populations in Montana to be increasing, although monitoring is required to detect population changes over time. No threats were identified for this species in the various databases.

Great gray owl

The breeding range includes central Alaska, to northern Ontario, south locally in mountains to California, Idaho, Montana, Wyoming, central Saskatchewan, northern Minnesota, and south central Ontario (NatureServe 2009). No decline in species populations is evident in the vast majority of the species range, but few data are available for most areas (Ibid). The global population trend is apparently stable, but actual population data are lacking for many areas (Kirk et al. 1995 in NatureServe 2009). Little information is available on habitat use, populations or trends in Montana (MNHP 2009) or on the forest. Habitats include dense coniferous and hardwood forest, especially pine, spruce, paper birch, poplar, also second growth, especially near water, foraging in wet meadows; boreal forest and spruce tamarack bogs in the far north, coniferous forest and meadows in mountains (NatureServe 2009). The species nests in the top of large, broken off trunks; in old nests of other large birds; or in debris platforms from dwarf mistletoe; frequently near bogs or clearings. Great gray owls usually forage in open areas where scattered trees or forest margin provides suitable sites of visual searching. Observations on the forest are rare although the species is somewhat secretive and rarely observed. Montana partners in flight (2000) identify the species to be of lower conservation priority (tier 3) and indicate that there are no known threats to breeding populations.

Winter wren

Montana is on the eastern edge of this species range. The winter wren is considered to be common and well distributed throughout the forest. Population trends are considered to be positive or stable throughout the western states and physiographic regions (Hejl et al 202). Short term trends may reflect short term population fluctuations after severe winters. Although habitat for this species has declined across the forest, it is still considered to be well distributed. A number of species require similar habitats in the form of old forests and plan components developed for those habitat conditions will benefit this species as well.

Mammals

Porcupine

Porcupines occur throughout the entire state and use a variety of habitats including montane forest, brushy badlands and sagebrush semi-desert. Rockfall caves, ledge caves, hollow trees, or brush are used for dens (MNHP 2009). Porcupines are considered common throughout Montana. The species is considered apparently secure (S4) throughout the state and a species of lower conservation need (tier 3) in Montana. Although identified during public scoping as a species to consider, there is no information at this time that suggests population declines in Montana (MNHP 2009) or on the forest. The species is not considered a species of concern or species of greatest conservation need in the state (MNHP 2009). Habitats are considered common and well distributed across the forest.

Hoary marmot

Identified as a tier 1 species of greatest conservation need for the state of Montana, however the species is ranked as S3S4 and not considered a species of interest. Discussions with the MNHP (personnel communication Maxell 2008) and MFWP (personnel communication Brown 2008) identified that overall the species is considered to be apparently secure, however within certain localities in the state the species is considered to be in need of conservation. For the species on the forest it was determined that overall the species is apparently secure and activities on NFS lands are not likely to impact the species. Habitat is considered to be fairly well distributed although species distribution is generally unknown.

American pika

This species is distributed discontinuously in mountainous areas in western North America, from central BC and southern Alberta south to east central California, Nevada, Utah, and New Mexico, east to Wyoming and Colorado. In Montana their range includes the western one third of the state. Beever et al. (2003 in NatureServe 2009) identified that approximately 28% of historical populations within the Great Basin appeared to have been extirpated. Habitats include talus slides, boulder fields, rock rubble near meadows at high elevation but also at mid elevation if suitable rock cover and food plants are present (Hoffman and Pattie 1968 in MNHP 2009). Population status in the state and on the forest is unknown. They occur throughout the forest where suitable habitat occurs. The majority of their habitat on the forest is within protected areas; Cabinet Mountains wilderness, west Cabinets, Ten Lakes wilderness study area, etc. Risks and threats to the species have not been identified, with the exception of climate change (NatureServe and MNHP 2009). The species is considered apparently secure (S4) and a species of lower conservation need (tier 3) in Montana. The species is not considered a species of concern or species of greatest conservation need in the state (MNHP 2009). Activities on NFS lands are not likely to directly impact the species.

Fish

Torrent sculpin

Found only in fast headwater streams of the Kootenai River drainage.

Lake trout

In Montana, lake trout are native in the St. Mary and Missouri River drainages and have been introduced to a few other scattered mountain lakes, Flathead Lake, and Fort Peck Reservoir (MNHP 2009). Deep cold water lakes and reservoir with some rocky bottom and an abundance of forage fish. Spawns over rocky shoal areas in lakes in depths from 10 to 120 feet. MNHP (2009) identifies a portion of the forest as within the species range, due to stocking. However, the species is not known to occur on the forest or on NFS lands on the forest.

Butterflies

Western sulphur

The species distribution includes Southern British Columbia, Washington, Oregon, northern Utah, western Montana, Idaho, and northern California. No range map is available in NatureServe (2009). The MNHP field guide identifies the species range includes all of western Montana. No other information is available in the MNHP databases for the species. NatureServe (2009) identifies that habitats include ocean bluffs, forest openings, mountain slopes, and subalpine meadows, with substantial populations of various herbaceous legumes. The species occurs in generally forested landscapes (especially Douglas-fir) (Opler 1999 in NatureServe 2009). Larval foods include various herbaceous legumes including milk vetches, golden banner, lotis, and oxytropis (Opler 1999 in NatureServe 2009). The species is not ranked in the state at this time due in part to a lack of information (MNHP 2009). The species is not listed as a species of concern for Montana (MNHP 2008). The species is not listed as occurring in either Lincoln or Sanders counties (Butterflies and Moths of North America 2007). Habitat in the form of forest openings, Douglas-fir, and subalpine meadows are common and well distributed throughout the forest.

White admiral

The species distribution includes New England south to central Florida and west to Montana and Arizona but also includes Alaska and British Columbia. No additional information is available in NatureServe (2009) including a range map for the species (2009). The MNHP field guide identifies the species range includes approximately the northern one half of the state (MNHP 2009). Habitats include bogs/fens, forested wetlands, riparian and scrub/shrub wetland; hardwood, conifer, and mixed forests, cropland/hedgerow, old field, savanna, and hardwood, conifer, and mixed woodlands. Larval hosts for this species were not identified. NatureServe considers that many to very many of the known element occurrences are appropriately protected and managed. The species is not listed as a species of concern for Montana (MNHP 2008) and is not listed as occurring in either Lincoln or Sanders counties (Butterflies and Moths of North America 2007). No information is available on species numbers or trends (NatureServe and MNHP 2009).

Indra swallowtail

The species distribution includes the western U.S. where it is considered widespread, although some subspecies are very localized (NatureServe 2009). No range map is available in NatureServe (2009). The MNHP field guide identifies the species range includes approximately the western two thirds of the state (MNHP 2009). Habitats include arid rocky mountainous lands, canyons, cliffs, foothills, barrens. These habitats are rare on the forest. Subspecies have as larvae, hosts that include different members of the family Apiaceae. NatureServe (2009) considers that many to very many of the known element occurrences are appropriately protected and managed. The species is not listed as a species of concern for Montana (MNHP 2008) and is not listed as occurring in either Lincoln or Sanders counties (Butterflies and Moths of North America 2007). No information is available on species numbers or trends (NatureServe and MNHP 2009).

Dragonflies

Zigzag darner

The species distribution includes all of Canada, Michigan, Minnesota, Montana and Wyoming west to Washington and Oregon. No other information on the species is provided in the NatureServe database (2009) including a range map for the species. The MNHP field guide (2009) identifies about the western one third of the state within the species range (MNHP field guide 2009). Habitat includes wet meadows (Miller and Gustafson 1996 in MNHP field guide 2009). In Montana the species has been collected from wet meadows in the Swan River Valley (Lake county), Skalkaho pass (Granite county) and near Indian meadows (Lewis and Clark counties) (Miller and Gustafson 1996 in MNHP field guide 2009). No other information is provided in the MNHP databases (2009). The species is not considered a species of concern in Montana. No information is available on species numbers or trends (NatureServe and MNHP 2009). Habitat on the forest is considered to be well distributed for this species.

Subarctic darner

The species distribution includes all of Canada, Alaska, and the northern tier of states from Washington to New England, as well as Oregon. No other information on the species range is provided in the NatureServe database (2009). The MNHP field guide identifies about the western one fourth of the state within the species range (MNHP field guide 2009). The MNHP field guide (2009) identifies the species habitat as boreal areas. NatureServe (2009) identifies that the species can be common in appropriate habitat, but is rare and threatened in several places at the south edge of the range (NatureServe 2009). In Montana the species is currently known only from Mud Lake near Skalkaho Pass (Granite county), though this northern Nearctic species probably occurs in other boreal areas of western Montana (Miller and Gustafson 1996 in MNHP 2009). No other information is provided in the MNHP databases (2009). No information is available on species numbers or trends (NatureServe and MNHP 2009). Boreal habitats are fairly common and well distributed across the forest. Activities on NFS lands are not likely to impact habitat of this species.

Boreal whiteface

The species distribution includes Canada, Washington east to Minnesota; Wyoming, Utah, and Colorado. No information on the species range is provided in the NatureServe database (2009). The MNHP field guide identifies about the western one third of the state within the species range (MNHP field guide 2009). The species is considered rare in most of the southern part of its range, but more common in the north and in parts of the northern Great Plains (NatureServe 2009). The only information on the species habitats is identified as pond (Miller and Gustafson 1996 in MNHP field guide 2009). In Montana the species has only been collected from a pond in the little Belt Mtns. (Judith basin county) (Miller and Gustafson 1996 in MNHP field guide 2009). No other information is provided in the MNHP databases (2009). No information is available on species numbers or trends (NatureServe and MNHP 2009). Ponds are very common and well distributed across the forest.

Ringed emerald

The species distribution includes all of Canada, Alaska, Washington, Oregon, California, Idaho and Montana. No other information on the species is provided in the NatureServe database (2009) including a range map for the species. The MNHP field guide (2009) identifies the northwest portion of the state within the range of this species. In Montana the species is known from only Granite and Ravalli counties; is rarely collected and only from Mud Lake, near Skalkaho pass (MNHP field guide 2009). However, it is identified that the species should be present at other boreal lentic sites also (Miller and Gustafson 1996 in MNHP field guide 2009). No additional information is provided in the MNHP databases (2009). The species is not listed as a species of concern for Montana (MNHP 2008). No information is available on species numbers or trends (NatureServe and MNHP 2009). Boreal habitats are fairly common across the forest. Activities on NFS lands are not likely to impact habitat for this species.

Hudsonian emerald

The species distribution includes almost all of Canada, Alaska, Montana, Wyoming, and Colorado. No additional information is provided in the NatureServe database (2009) including a range map for the species. The MNHP field guide identifies about the western one third of the state as within the species range. Adults fly along grassy margins of mountain lakes and ponds (Miller and Gustafson 1996 in MNHP field guide 2009). No additional information is provided in the MNHP databases (2009). The species is not listed as a species of concern for Montana (MNHP 2008) and is not listed as occurring in either Lincoln or Sanders counties (Butterflies and Moths of North America 2007). No information is available on species numbers or trends (NatureServe and MNHP 2009). Habitat for the species is considered to be well distributed across the forest.

Red-veined meadowhawk

The species distribution includes the Northwest Territories of Canada east to Manitoba, extending south into Missouri, west to California, Idaho and Montana. No other information is provided in the NatureServe database (2009) including a range map for the species. The MNHP field guide identifies the entire state as within the species range. In Montana it has only been documented to occur in the southeastern part of the state and was originally described (by Hagen in 1861 in MNHP field guide 2009) from the "upper Missouri" (Miller and Gustafson 1996 in MNHP field guide 2009). This dragonfly can be found near shallow, marshy ponds and lakes (MNHP field guide 2009). Larvae feed on a wide variety of aquatic insects. No other information is provided in the MNHP databases (2009). The species is not listed as a species of concern for Montana (MNHP 2008) and is not listed as occurring in either Lincoln or Sanders counties (Butterflies and Moths of North America 2007). No information is available on species numbers or trends (NatureServe and MNHP 2009). Habitat for the species is considered to be well distributed across the forest.

*There are several bird species that are associated with grassland habitats, most of which occur on private lands, especially in the Tobacco Valley portion of the forest. Although individually these species are not identified as species of interest, because of the number of species associated with these habitats and the number of observations with indirect evidence of breeding on the forest they will be considered together as a group for grassland habitats in addition to the Columbian sharp-tailed grouse, a species of concern for the forest.

Species of interest for the Kootenai National Forests

Table SOL.3 Proposed wildlife and plant species of interest for further consideration in the analysis process

Wildlife		Plants	
Species common name	Species scientific name	Species common name	Species scientific name
Vertebrates - amphibians		Fungi/lichen	
Tiger salamander	<i>Ambystoma tigrinum</i>		<i>Albatrellus ellisii</i>
Western (boreal) toad	<i>Bufo boreas</i>		<i>Calicium adequatum</i>
Coeur d'Alene salamander	<i>Plethodon idahoensis</i>		<i>Chanotheca subroscida</i>
Northern leopard frog	<i>Rana pipiens</i>		<i>Lobaria hallii</i>
Birds			<i>Podostroma alutaceum</i>
Northern goshawk	<i>Accipiter gentilis</i>		<i>Polyozellus multiplex</i>
Brown creeper	<i>Certhia americana</i>		<i>Ramalina thrausta</i>
Olive-sided flycatcher	<i>Contopus noveboracensis</i>		<i>Tuckermannopsis subalpina</i> (<i>Cetraria subalpina</i>)
		Non vascular mosses	
Common loon	<i>Gavia immer</i>		<i>Aloina brevirostris</i>
Harlequin duck	<i>Histrionicus histrionicus</i>		<i>Andreaea blytii</i>
Lewis's woodpecker	<i>Melanerpes lewis</i>		<i>Brachythecium reflexum</i>
Flammulated owl	<i>Otus flammeolus</i>		<i>Hygrohypnum cochlearifolium</i>
Black-backed woodpecker	<i>Picoides arcticus</i>		<i>Leucolepis acanthoneuron</i>
Mammals			<i>Meesia longiseta</i>
Elk	<i>Cervus Canadensis</i>		<i>Meesia triquetra</i>
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>		<i>Meesia uliginosa</i>
Wolverine	<i>Gulo gulo</i>		<i>Neckera douglasii</i>
Hoary bat	<i>Lasiurus cinereus</i>		<i>Oligotrichum aligerum</i>
Fisher	<i>Martes pennanti</i>		<i>Platyphnidium riparoides</i>
Fringed myotis	<i>Myotis thysanodes</i>		<i>Racomitrium pygmaeum</i>
Mountain goat	<i>Oreammus americanus</i>		<i>Scorpidium scorpioides</i>
Northern bog lemming	<i>Synaptomys borealis</i>		<i>Sphagnum wulfianum</i>
Fish			
Columbia (Inland) redband trout	<i>Oncorhynchus mykiss gairdneri</i>	Conifers and relatives	
Butterflies		Whitebark pine	<i>Pinus albicaulis</i>
Brush-tipped emerald	<i>Somatochlora walshii</i>	Vascular ferns and relatives	
Mollusks			<i>Blechnum spicant</i>
Striate disc	<i>Discus shimekii</i>		<i>Botrychium hesperium</i>
Robust lancetooth	<i>Haplotrema vancouverense</i>		<i>Botrychium minganense</i>
Pale jumping slug	<i>Hemphilia camelus</i>		<i>Dryopteris cristata</i>
Western pearlshell	<i>Margaritifera falcata</i>		<i>Lycopodium inundatum</i>
Reticulate taildropper	<i>Prophysaon andersoni</i>		<i>Lycopodium dendroideum</i>
Sheathed slug	<i>Zacoleus idahoensis</i>		<i>Lycopodium lagopus</i>
Other			<i>Ophioglossum pusillum</i>
Grassland group			<i>Polystichum kruckebergii</i>
			<i>Polystichum scopulinum</i>
			<i>Thelypteris phegopteris</i>)
		Vascular flowering plants	
		Plants	
		Species common name	Species scientific name
			<i>Allium fibrillum</i>
			<i>Alnus rubra</i>
			<i>Amerorchis rotundifolia</i>
			<i>Arctostaphylos patula</i>
			<i>Betula pumila</i>
			<i>Bidens beckii</i>
			<i>Boisduvalia densiflora</i>
			<i>Brasenia schrebri</i>
			<i>Calochortus macrocarpus</i>
			<i>Camassia quamash</i>
			<i>Carex amplifolia</i>
			<i>Carex chordorrhiza</i>
			<i>Carex livida</i>
			<i>Carex prairea</i>
			<i>Carex rostrata</i>

7. Is the species or its habitat affected by management or potential plan components on National Forest Lands on the Kootenai? (species which are not affected by any current or potential form of management or lack of management) (USDA 2007).
8. Is there adequate knowledge or information available about the species to conduct a credible assessment (species for which there is too little information known to complete a credible assessment of appropriate management actions). If substantive information about the habitat of management needs of a species, the responsible official may consider to:
 - Treat the species as part of a larger taxonomic group with which it is likely to share habitat requirements and risk factors.
 - Provide appropriate management to known sites of the species in the plan area but not attempt a detailed evaluation
 - Not consider the species further in the planning process. If the species is not further considered collection of information about the species should become a high priority in monitoring programs (FSH 1909.12_40, sec. 43.23).

Table SOI.4 Screening species of interest for further inclusion in the planning process

Species common name	Is there Known Occurrence or Suitable Habitat on NFS lands in the plan area	Is the species Secure in the Plan Area	Is the species potentially affected by management or potential plan components	Is there adequate knowledge or info to conduct a credible assessment	Further Analysis Needed
Vertebrates					
Amphibians					
Tiger salamander <i>Ambystoma tigrinum</i>	Known	Unk	Yes	Yes	Yes
Western (boreal) toad <i>Bufo boreas</i>	Known	Unk	Yes	Yes	Yes
Coeur d'Alene salamander <i>Plethodon idahoensis</i>	Known	Unk	Yes	Yes	Yes
Northern leopard frog <i>Rana pipiens</i>	Known	No	Yes	Yes	Yes
Birds					
Northern goshawk <i>Accipiter gentilis</i>	Known	Unk	Yes	Yes	Yes
Brown creeper <i>Certhia americana</i>	Known	Unk	Yes	Yes	Yes
Olive-sided flycatcher <i>Contopus noveboracensis</i>	Known	Unk	Yes	Yes	Yes
Pileated woodpecker <i>Dryocopus pileatus</i>	Known	Unk	Yes	Yes	Yes
Common loon <i>Gavia immer</i>	Known	Unk	Yes	Yes	Yes
Harlequin duck <i>Histrionicus histrionicus</i>	Known	Unk	Yes	Yes	Yes
Lewis's woodpecker <i>Melanerpes lewis</i>	Known	Unk	Yes	Yes	Yes
Flammulated owl <i>Otus flammeolus</i>	Known	Unk	Yes	Yes	Yes
Black-backed woodpecker <i>Picoides arcticus</i>	Known	Unk	Yes	Yes	Yes
Williamson's sapsucker <i>Sphyrapicus thryoideus</i>	Known	Unk	Yes	Yes	Yes
Mammals					
Rocky mountain elk <i>Cervus Canadensis</i>	Known	Unk	Yes	Yes	Yes
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	Known	Unk	Yes	Yes	Yes
Wolverine <i>Gulo gulo</i>	Known	Unk	Yes	Yes	Yes
Hoary bat <i>Lasiurus cinereus</i>	Known	Unk	Yes	Yes	Yes
Fisher <i>Martes pennanti</i>	Known	Unk	Yes	Yes	Yes
Fringed myotis <i>Myotis thysanodes</i>	Known	Unk	Yes	Yes	Yes
Mountain goat <i>Oreammus americanus</i>	Known	Unk	Yes	Yes	Yes
Northern bog lemming <i>Synaptomys borealis</i>	Known	Unk	Yes	Yes	Yes
Invertebrates					
Fish					
Columbia (Inland) redband trout <i>Oncorhynchus mykiss gairdnerii</i>	Known	Unk	Yes	Yes	Yes
Invertebrates					
Insects - dragonflies					
Brush-tipped emerald <i>Somatochlora walshii</i>	Known	Unk	No	No	No
Mayflies					
A mayfly <i>Caenis youngi</i>	Known	Unk	Yes	Yes	Yes
Stoneflies					
<i>Cascadoperna trictura</i>	Yes	Unk	No	Yes	No
Columbian stonefly <i>Utacapnia columbiana</i>	Yes	Unk	Yes	Yes	Yes

Species common name	Is there Known Occurrence or Suitable Habitat on NFS lands in the plan area	Is the species Secure in the Plan Area	Is the species potentially affected by management or potential plan components	Is there adequate knowledge or info to conduct a credible assessment	Further Analysis Needed
Mollusks					
Striate disc <i>Discus shimckii</i>	Yes	Unk	Yes	Yes	Yes
Robust lancetooth <i>Haplotrema vancouverense</i>	Yes	Unk	Yes	Yes	Yes
Pale jumping slug <i>Hemphilia camelus</i>	Yes	Unk	Yes	Yes	Yes
Western pearlshell <i>Margaritifera falcata</i>	Yes	Unk	Yes	Yes	Yes
Reticulate taildropper <i>Prophysaon andersoni</i>	Yes	Unk	Yes	Yes	Yes
Sheathed slug <i>Zacoleus idahoensis</i>	Yes	Unk	Yes	Yes	Yes
A freshwater sponge <i>Heteromeyenia baileyi</i>	Yes	Unk	No	No	No
Plants					
All but the following					

The following species of interest are not considered further in the analysis process

Dragonflies

Brush tipped emerald - *Somatochlora walshii*

The species distribution includes most of Canada and the northern tier of states from Washington east to New England, and also includes Oregon (NatureServe 2009). No other information is provided in the NatureServe database (2009) including a species range map. The MNHP field guide (2009) identifies the northwest portion of the state within the species range. In Montana the species is known only from Loon Lake on the forest and a boggy stream near west Glacier in Flathead County (Miller and Gustafson 1996 in MNHP field guide 2009). No other information is provided in the MNHP databases (2009). Activities on NFS lands are not likely to impact habitat for this species in Loon Lake.

Stoneflies

Cascadopera trictura

The species ranking of G3G4 does not qualify it for consideration as a species of concern but because it is suspected to occur on the forest it is being considered for species of interest. The species is distributed throughout the coastal and cascade mountain ranges of the Pacific coast of North America (California, Oregon, Washington, British Columbia), but also the Rocky Mtns of Idaho and Montana. The species is not ranked (SNR) in any of these locations. No range map is available in the NatureServe database (2009). In Idaho the species is known from one site on the Coeur d'Alene river near Kingston, (Shoshone county) (MNHP field guide 2009). The Montana field guide suggests it is known from only one stream (Ninemile Creek) in Missoula County (Stagliano et al. 2007 in MNHP 2009) however, the MNHP Tracker database identifies the species is also known to occur in the Vermilion River on the forest. Specific threats to MT/ID populations have not been identified. In general, stonefly populations are affected by changes to aquatic habitat such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality. Alteration and degradation of aquatic habitat is the primary concern for Idaho populations (Stagliano et al. 2007 in MNHP 2009). Activities on NFS lands are not expected to impact the species habitat in the Vermilion River.

Other

Heteromeyenia baileyi (a freshwater sponge)

Distribution data for U.S. states and Canadian provinces is known to be incomplete or has not been reviewed for this taxon (NatureServe 2008). No other information is provided in the NatureServe database (2009) including a species range map. The MNHP Tracker database identifies the species is known to occur in Flower Lake on the

forest (MNHP field guide 2008). No additional information is provided for this species in the MNHP databases (2009). Activities on NFS lands are not likely to impact this species habitat in Flower Lake.

43.24 – Species groups and surrogate species

The process used to address species diversity has, up to this point, identified all listed species, species of concern and species of interest in the plan area and where possible gathered existing information on them. In many cases it is difficult or impossible to try and consider each possible species in detail in the planning process and the ecological understanding and resources needed to manage all species on an individual basis is not available. Grouping species is one method that would make it possible to identify a manageable subset of species or habitat conditions on which to focus species conservation measures and evaluation in the plan revision. Species groups and/or surrogate species may also improve the efficiency of the evaluation of conditions and development of plan components.

Therefore, all species were reviewed to determine if grouping of species were possible and/or if a surrogate species could be selected to represent other species in a particular group. A surrogate species is one that has been selected to represent other species with similar habitat requirements (ecological conditions). For the groups of species identified for the forest no surrogate species were selected because of the diversity of habitat requirements shown between species and because the selection of one species to represent a suite of others would not adequately represent the needs of rare or uncommon species.

A review of Wisdom et al. (2000 a, b) was conducted and used in the process for grouping terrestrial vertebrate wildlife species. The regional vegetation diversity matrix and the HRV analysis conducted for Forest Plan revision were also reviewed and used in this process. Grouping was conducted using a hierarchical approach; Initial grouping was conducted at a very broad scale and further refined as the process continued. At the broad scale species were identified based on their dependency on either aquatic or terrestrial habitats. Each of these groups were then further subdivided into finer components, based mainly on species habitat needs and additional ecological requirements, for example, need for frequent fire, lack of human disturbance, susceptibility to invasive/exotic species. It is recognized that some species occur in both an aquatic and terrestrial environment, however specific portions of a species life cycle may occur in an aquatic environment (such as boreal toad) and are included in that category.

The forest, in working with the region and other revision forests, identified the following individuals and species groups to evaluate (see table SOCI.1). The Montana Natural Heritage program aided in grouping invertebrate mollusk species into those that are associated with aquatic habitats and those found in more dry environments. Within each of these larger groups some species are considered generalists while others have very specific habitat requirements. Where habitat requirements were common or and/or key stressors and the effects of management were similar (such as mollusks) species were placed into a group.

Table 5 displays all of the T&E species, species of concern and species of interest for the forest, species groups and/or individual species that were not placed into a group. For all plant species the regional and forest botanists developed a set of 7 habitat guilds and placed all plant species into one of those 7 guilds. Staff biologists evaluated each species group or individual species using both global information and information that is specific to the forest (see appendix ? of the CER). This entire process, from identification of potential species, to screening and selection of species, placing species into groups, and developing plan components for species and/or groups was an iterative process.

Table SOCI.1. Species groups and associated species.

Species group	Species	Category	Habitat
Aquatic			
Amphibian	Western (boreal) toad	SOI	Potholes/lakes/wetlands
	Coeur d'Alene salamander	SOI	Seeps/springs
	Northern leopard frog	SOI	Potholes/lakes
Aquatic insects - Caddisflies, mayflies, dragonflies, stoneflies¹⁶			Streams
Caddisflies	Agapetus montanus	SOC	
	Rhyacophila potteri	SOC	
Mayflies	Caudatella edmundsi	SOC	
	Caenis youngi		
Stoneflies	Pictitiella expansa	SOC	
	Setvana bradleyi	SOC	
	Utacapnia columbiana	SOC	
	Zapada cordillera		
Dragonflies	Brush-tipped emerald	SOI	
Aquatic invertebrates - Mussels¹⁷	Western pearlshell mussel	SOI	Streams with fish
Fish¹⁸	Columbia basin redband trout		
	White sturgeon		
	Bull trout		
	Westslope cutthroat trout		
Species not placed into a group	Common loon	SOI	Lakes greater than 13 acres in size for nesting, undisturbed areas for nesting and rearing
	Harlequin duck	SOI	2 nd order streams or larger for nesting, undisturbed areas for nesting and rearing
	Northern bog lemming	SOI	Fens/bogs, moss habitats
	Fisher		Riparian, old growth
Terrestrial			
Bat	Fringed myotis	SOI	Caves/mines/buildings for hibernacula
	Hoary bat	SOI	Snags, rock crevices
	Townsend's big-eared bat	SOI	Caves/mines for hibernacula
Big game	Rocky mountain elk	SOI	General forest/winter range/security
Burned forest/snags	Black-backed woodpecker	SOI	
	Olive-sided flycatcher	SOI	
Grassland habitats - birds	Columbian sharp-tailed grouse	SOC	Grasslands

¹⁶ Added into "Coldwater Group"

¹⁷ Added into "Coldwater Group"

¹⁸ Added into "Coldwater Group"

Species group	Species	Category	Habitat
Terrestrial Mollusks – snails/slugs			
	Humped coin	SOC	Cedar/hemlock/grand fir, spruce-fir, talus rocky ground
	Magnum mantleslug	SOC	Cedar/hemlock/grand fir, spruce-fir, talus rocky ground
	Pygmy slug	SOC	Cedar/hemlock/grand fir
	Sheathed slug	SOI	Cedar/hemlock/grand fir, spruce-fir
	Smokey tailedropper	SOC	Cedar/hemlock/grand fir, spruce-fir, talus rocky ground
	Robust lancetooth	SOI	Cedar/hemlock/grand fir
	Pale jumping slug	SOI	Cedar/hemlock/grand fir, spruce-fir
	Reticulate tailedropper	SOI	Cedar/hemlock/grand fir
	Striate disc	SOI	Dry mixed conifer forest/aspens
Old forest/large diameter snags	Flammulated owl	SOI	Low elevation, warm/dry ponderosa pine-Douglas-fir
	Lewis’s woodpecker	SOI	
	Brown creeper	SOI	
	Pileated woodpecker	SOI	
	Williamson’s sapsucker	SOI	
Species not placed into a group	North American wolverine	SOI	Talus/upper elevation, large undisturbed areas for denning
	Peregrine falcon	SOC	Cliffs, undisturbed areas for nesting
	Northern goshawk	SOI	Undisturbed areas for nesting
	Mountain goat	SOI	Upper elevation, undisturbed areas for winter
	Bald eagle	SOC	Large diameter trees for nesting and roosting adjacent to rivers/lakes, undisturbed areas for nesting and fledging
	Grizzly bear	T&E	Upper elevation, large undisturbed areas for denning, lower to mid elevation for spring
	Canada lynx	T&E	Spruce-fir, mid to upper elevation, down wood for denning, early successional for snowshoe hare
	Gray wolf	T&E	Forest generalist, undisturbed areas for denning, big game for prey
	Gillette’s checkerspot butterfly	SOC	Moist open meadows
	Western yellow-billed cuckoo	SOC	Riparian

43.25 Plan Components for Species Diversity

Note: This section has been updated with components from the revised forest plans and is found in the main body of “Providing for Ecological Sustainability in the Revised Forest Plans”

Appendix C1

This appendix provides the majority of the information used in discussion of species diversity and the selection of species of concern and species of interest. There are three categories of species to be considered in the species diversity evaluation:

Species lists

Federally listed threatened and endangered species

These are species that are listed by the Department of the Interior, U.S. Fish and Wildlife Service or the National Oceanic and Atmospheric Administration, National Marine Fisheries Service as threatened or endangered. The Forest Service has a legal requirement to maintain or improve habitat conditions for threatened, endangered, and proposed species under the Endangered Species Act (ESA). Species listed under the ESA fall into four categories based on viability concerns: threatened, endangered, proposed, and candidate. Proposed and candidate species are addressed under the species of concern section. (FSH 1909.12, 43.22a – federally listed species).

Species of concern (FSH 1909.12, 43.22b)

Species of concern are species for which the Responsible Official determines that management actions may be necessary to prevent listing under the Endangered Species Act (ESA). The following criteria were used in identifying species to be considered for species of concern for the Kootenai NF.

- Candidate and proposed species under the ESA (1973).
- Species ranked G-1 through G-3 or subspecific taxa ranked T-1 through T-3 in the NatureServe ranking system.

Because of the scientific uncertainty in the status of any particular species or infraspecific taxon, the following guidance (USDA 2006, NatureServe 2007) was used to help in the selection of species of concern for the forest:

- Taxa that have not been identified to “named” species (e.g. *Amnicola* sp. 2) but may have been ranked, do not meet the planning rules definition of a species, do not satisfy the G3/T3 criteria, and are dropped from further consideration.
- Species with a Q (questionable taxonomically) in the ranking (e.g. G3Q, T3Q) do not meet the planning rule definition of a species, do not satisfy the G3/T3 criteria, and were dropped from further consideration.
- Species with a ranking of G3G4 (T3T4) or G3G5 (T3T5) do not meet the G3/T3 criteria for species of concern. Species in this category whose range is known to include the forest were considered for identification of species of interest. These include: western sulphur butterfly, cascades stripetail stonefly, sheathed slug, and the following plants; *Calicium adequatum*, *Chaenotheca sobrisca*, *Podostroma alutaceum*, *Ramalina thrausta*, and *Botrychium hesperium*.
- Species petitioned for Federal listing (with positive 90 day finding). (A 90 day finding is a preliminary finding that substantive information was provided indicating that the petition listing may be warranted and a full status review is conducted).
- Species that have been recently delisted (these include species delisted within the past five years and other delisted species for which regulatory agency monitoring is still considered necessary).

Species of interest – (FSH 1909.12, 43.22c)

Species of Interest are those species for which the Responsible Official (Forest Supervisor) determines that management actions may be necessary or desirable to achieve ecological or other multiple use objectives. The following sources were used to identify potential species of interest for the Kootenai NF. These sources provide a list of potential species on interest which were then screened to identify those to be considered as species of interest.

1. Species with rank of S-1 and S-2, or N-1 and N-2 on the NatureServe ranking system.
2. In addition to S1/S2 or N1/N2 species, there are several species that were initially considered in the identification for species of concern but were removed because they did not meet the criteria for species of concern based on their ranks (G3G4). These species are known to occur on the forest and/or their range is known to include the forest and they are included here for consideration as species of interest.
3. State listed threatened and endangered species that are not within the criteria as species of concern.
4. Species identified as species of conservation concern in State Comprehensive Wildlife Strategies (MT CFWCS 2005).
5. Species identified as Montana species of concern (MNHP 2009).
6. Birds on the U.S. Fish and Wildlife Birds of Conservation Concern National Priority List (USFWS 2008).
7. Species on the Regional Foresters sensitive species list (2007) identified for the forest, and not already included as SOC or one of the other categories above.
8. Additional species where valid, existing information is available that indicates species are of regional or local conservation concern due to factors that may include;
 - a) Significant threats to populations or habitat,
 - b) Declining trends in populations or habitat,
 - c) Rarity
 - d) Restricted ranges (for example, narrow endemics, disjunct populations, or species at the edge of their range).
9. Additional Species that may need plan components established for them. These include species of public interest including hunted, fished, and other species. Species of public concern were identified during public scoping and meetings.

Key for terms and abbreviations in the tables

Occurrence/observations

Seasonal	Species migrates into Idaho or Montana and is normally present only part of the year.
Yearlong	Species is present yearlong (may be inactive or rarely detected during some seasons).
Migratory	Species is present only during migration.
Suspected	Species may occur on the Forest but there are no documented sightings.
No record	There are no documented sightings on the Forest, nor are there any expected.
Extirpated	Historical species no longer present on the Forest.
Introduced	Species is not native to the Forest but has been brought onto the forest and is known to reproduce.
Accidental	Species is accidental or casual in Montana, in other words, infrequent and outside its usual range. Includes species (usually birds and butterflies) recorded once or only a few times at a location. A few of these species may have bred on the one or two occasions they were recorded.

Global and Montana species ranking

Species are assigned ranks ranging from 1 (highest concern) to 5 (lowest concern). A summary of the codes follows in this table. A full explanation of the rank codes can be found at

<http://www.NatureServe.org/explorer/ranking.htm>. G and T ranks are assigned by NatureServe and S ranks are assigned by the state heritage programs.

G	Global (range wide) status
S	Statewide status
T	Rank for a subspecific taxon (subspecies, variety, or population), appended to the global rank for the full species
G1, T1	Critically imperiled: at very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
G2, T2	Imperiled: at high risk of extinction or elimination due to a very restricted range, very few populations or other factors.
G3, T3	Vulnerable: at moderate risk of extinction or elimination due to a restricted range, relatively few populations, recent and widespread declines or other factors.
G4	Apparently secure: uncommon but not rare; some cause for long-term concern due to declines or other factors.
G5	Secure: common, widespread and abundant.
S1	At high risk because of extremely limited and/or rapidly declining numbers, range, and/or habitat making it highly vulnerable to global extinction or extirpation in the state.
S2	At risk because of very limited and/or declining numbers, range, and/or habitat, making it vulnerable to global extinction or extirpation in the state.
S3	Potentially at risk because of limited and/or declining numbers, range, and/or habitat even though it may be abundant in some areas.
S4	Uncommon but not rare (although it may be rare in parts of its range) and usually widespread. Apparently not vulnerable in most of its range, but possibly cause for long term concern.
S5	Common, widespread, and abundant (although it may be rare in parts of its range). Not vulnerable in most of its range.
Q	Questionable taxonomy that may reduce conservation priority-distinctiveness of this entity as a taxon at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon in another taxon, with the resulting taxon having a lower priority (numerically higher) conservation status rank.
?	Denotes inexact or uncertain numeric rank
X	Species believed to be extinct throughout its range. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
H	Species known from historical records. May be extirpated.
	Historically occurred, may be rediscovered. MNHP
U	Species unrankable due to lack of information or due to substantially conflicting information on status or trends.
B	Rank refers to the breeding population of the species in Montana. B = breeding.
HYB	A global rank denoting a hybrid
M	A state rank modifier indicating migratory stopover status for a species
N	Rank refers to the non-breeding population of the species in Montana. N = non-breeding
SR	Species reported in Montana but without a basis for either accepting or rejecting the report, or the report not yet reviewed locally.
GNA, SNA	A conservation status rank is not applicable because the species is not a suitable target for conservation activities
GNR, SNR	Not yet ranked
XE	Essential experimental population. An experimental population whose loss would be likely to appreciably reduce the likelihood of the survival of the species in the wild.
XN	Nonessential experimental population. An experimental population of a listed species reintroduced into a specific area that receives more flexible management under the ESA.
CH	Critical habitat. the specific areas within the geographic area occupied by the species, at

	the time it is listed, on which are found those physical or biological features essential to conserve the species and that may require special management considerations or protection. And specific areas outside the geographic area occupied by the species at the time it is listed upon determination that such areas are essential to conserve the species.
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For Montana species ranking status codes see: <http://fieldguide.mt.gov/statuscodes.aspx>.

For NatureServe conservation status ranks see:

<http://www.NatureServe.org/explorer/ranking.htm>

Abbreviations:

- MNHP = Montana Natural Heritage Program
- MTCFWCS – Montana Comprehensive Fish and Wildlife Conservation Strategy
- ICBEMP = Interior Columbia Basin Ecosystem Management Project
- KNF = Kootenai National Forest
- USFWS (FWS) = U.S. Fish and Wildlife Service
- BCR – Bird Conservation Region
- PIF = partners in flight.
- SOI = species of interest
- SOC = species of concern

Definitions:

Species of greatest conservation need - “In greatest conservation need” is interpreted to mean focus areas, community types, and species that are significantly degraded or declining, federally listed, or where important distribution and occurrence information to assess the status of individuals and/or groups of species is lacking (MNHP 2005).

Montana species of concern - Species of concern are native Montana plants and animals that are at risk or potentially at risk due to rarity, restricted distribution, habitat loss and/or other factors.

Birds of Conservation concern (USFWS 2002)

These include migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent the highest conservation priorities or species and species in need of conservation action.

Regional forester sensitive species – these include species that are currently on the Northern Region (R1) sensitive species list. For a complete list of R1 sensitive species see <http://fs.fed/us>. Sensitive species of native plant and animal species must receive special management emphasis to ensure their viability and to preclude trends toward endangerment that would result in the need for federal listing (FSM 2672.1).

Those plant and animal species identified by the regional forester for which population viability is a concern as evidenced by:

- e. Significant current or predicted downward trends in population numbers or density.
- f. Significant current or predicted downward trends in habitat capability that would reduce a species existing distribution.

Montana Fish, Wildlife and Parks Tier ratings for vertebrate wildlife

Tier 1. Greatest conservation need. Montana Fish, Wildlife and Parks has a clear obligation to use its resources to implement conservation actions that provide direct benefit to these species, communities, and focus areas.

Tier 2. Moderate conservation need. Montana Fish, Wildlife and Parks could use its resources to implement conservation actions that provide direct benefit to these species, communities, and focus areas.

Tier 3. Lower conservation need. Although important to Montana's wildlife diversity, these species, communities, and focus areas are either abundant and widespread or are believed to have adequate conservation already in place.

Tier 4. Species that are non-native, incidental, or on the periphery of their range and are either expanding or very common in adjacent states.

Montana Partners in Flight priority levels (PIF version 1.1, 2000). Based on Partners in flight global and regional conservation assessments of each bird species, they have assigned regional conservation priorities among birds.

I. Conservation action. Generally high overall scores, declining population trends, and/or high importance. These are the species for which Montana has a clear obligation to implement conservation.

II. Monitoring species. Species in need for which we have responsibility, but with lesser threat or stable/increasing populations in the state. As compared to level I, these species have generally lower overall scores, in many cases because they are poorly sampled by BBS. Montana has a high responsibility to monitor the status of these species, and/or to design conservation actions.

III. Local concern. Species of concern (often designated as such by participating agencies) which rank lower, are not in imminent risk, or which are near obligates for high priority habitat. Presence of these species may serve as added criteria in the design and selection of conservation or monitoring strategies.

IV. Non-priority. Formerly suggested for inclusion in the planning effort, but recommended for deletion because of occurrence as rare migrants only, extremely peripheral occurrence, or lack of imminent risk (widespread, generalist, increasing).

Resources used:

NatureServe. For a complete listing of NatureServe conservation status ranks see <http://www.NatureServe.org/explorer/ranking.htm>

Montana Natural Heritage Program

Natural HeritageTracker <http://nhp.nris.state.mt.us/tracker/NHTmap.aspx>

Montana Species of concern, 2008. For a complete listing of Montana state conservation ranks see <http://nhp.nris.state.mt.us/speciesofconcern> or http://mtnhp.org/mtnhp_info.asp

Montana Comprehensive Fish and Wildlife Conservation Strategy. 2005. For a complete description of species status in Montana see the Montana Comprehensive Fish and Wildlife Conservation Assessment at <http://>

Montana Field Guide <http://fieldguide.mt.gov>

Birds and burns network - <http://www.rmrs.nau.edu/wildlife/birdsnburns>

Butterflies of glacier National Park. <http://www.npwrc.usgs.gov/resource/insects/glacbfly/index.htm> (Version 16JUL97)

Butterflies and Moths of North America. <http://www.butterfliesandmoths.org>

U.S. Endangered Species Act <http://endangered.fws.gov/esa.html>

Committee on the Status of Endangered Wildlife in Canada <http://www.cosewic.gc.ca>
USDA Forest Service. Unpublished report on file, Northern Region, Missoula, Montana, USA.
(http://www.fs.fed.us/r1/projects/wildlife-ecology/conserv_assessment.shtml)

Idaho's special status plants - <http://fishandgame.idaho.gov/cms/tech/CDC/plants>

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Material used in the selection of species of concern and species of interest for the Kootenai National Forest

The first step in identifying species includes a query of the NatureServe database for all species that meet specific criteria in FSH 1909.12_40. This query provides lists of all species for the state of Montana that meet the criteria established for species of concern and species of interest (1909.12_40, 43.22b and 43.22c below). From these lists all species whose ranges include the Kootenai National Forest were identified. Species whose ranges were displayed in the NatureServe database and do not include the forest are displayed as “**not**” in the tables and dropped from consideration as species of concern or interest.

There are many invertebrate wildlife species and plant species whose ranges are unknown and/or have not been identified in the NatureServe or MNHP databases. For those species the NatureServe database (2009) states “distribution data for U.S. states and Canadian provinces is known to be incomplete or has not been reviewed for this taxon and No Range map available”. For those species additional sources were reviewed, principally the Montana Natural Heritage Program (MNHP) field guides (2009) but also other sources as available. As with the NatureServe database, for most of these species the MNHP database states that “information for the species is not complete” and no range map or information is provided. In most cases these species have been given a state ranking of SNR (species not rated) or they are not identified as occurring in the MNHP database for wildlife or plants. In general these are species reported in Montana but without a basis for either accepting or rejecting the report, or the report has not yet been reviewed locally. Some of these are very recent discoveries for which the program has not yet received firsthand information while others are old obscure reports (MNHP field guide 6/12/2008).

For those species whose ranges could not be determined, a review of the MNHP Tracker database was used to identify any species with observations that include the forest. Additional sources were also reviewed including those identified below. Those species whose ranges could not be determined and/or there are no observations for the forest, are identified in the tables as “**range unknown/no info**” and are dropped from consideration as species of concern and interest for the forest.

There are instances where the NatureServe database identifies a species distribution that includes the state of Montana, however the species is not listed in any of the MNHP databases as occurring in the state. Those species are displayed as “**not in MNHP**” and are dropped from consideration as species of concern or interest.

Birds – a list of all bird species known or suspected to occur on the Kootenai and Idaho Panhandle National Forests (KIPZ) was reviewed by the MNHP (Casey 2003). The Montana Bird Conservation Plan (PIF 2000) prioritizes bird species and habitat associations and provides information and management recommendations for associated birds. For all birds on the list a determination was made whether a species was known to occur on the forest or not, and if the species occurred during a particular period of the year (i.e. seasonal, migratory). Birds identified as transient or accidental are dropped from consideration as species of concern or interest. Those species whose range has been identified as migratory only for the forest, there is no record of the species occurring on the forest, and the species is being considered because of concerns on its breeding range are dropped from further consideration as species of concern and interest.

Invertebrates – a review was made of analyses conducted for the ICBEMP for invertebrates (Niwa et al. 2001) and mollusks (Frest and Johannes 1995). The region and the forest worked with the MNHP (personal communication, Hendricks and Maxell 2005) in the identification of and potential management strategies for terrestrial mollusks. MNHP has provided habitat associations and distribution by forest for land mollusks in the region (MNHP 2005, Hendricks et al. 2006, 2007) and for aquatic invertebrates (Stagliano et al. 2007).

Plants - All of the plant species identified in the query of the NatureServe database for the state and whose range was determined to be unknown, were further reviewed in the MNHP databases. MNHP (2006) provides a list of all plant species considered to be of concern in the state and their distribution by county. All of those plant species included for the various counties that make up the forest were then reviewed in the MNHP field guides and/or

Tracker database to identify those that include the forest. The lists of plant species were reviewed by the forest botanists to identify all of those that were either known or suspected to occur on the forest. All plant species whose range is known and includes the forest and/or all of those whose range is unknown but observation data suggests they are known or suspected to occur on the forest were included in the analysis for species of concern and species of interest.

As with species of concern, all species whose range is known “not” to overlap the forest as well as those whose range is “unknown and no information” is available to determine if a species range overlaps the forest, were dropped from further consideration. There are a number of bird species whose migratory range includes the forest. Those species state rankings were reviewed to determine why they were considered to be of conservation concern in the state and/or if there were any observations of the species on the forest. All of those species whose range on the forest is identified only as migratory, and they were only ranked in the state for their breeding populations (which does not include the forest) were dropped from further consideration as species of interest.

The trumpeter swan is the only species whose migratory range includes the forest and is ranked for both its breeding and non-breeding populations, which include spring use and wintering birds. The trumpeter swan is associated with large bodies of water or river systems during its migration. The trumpeter swan has not been observed on the forest and it is unlikely that activities on NFS lands would have any impact on the species during its migration.

Other species dropped from consideration are those species identified as S1/S2 in the NatureServe database for the state of Montana but are not ranked as such in the state and do not meet any of the other criteria listed here. These include the following: (the species state ranking is displayed in parentheses) Baird’s sandpiper (SNA), monarch butterfly (SNA), Lakota crescent butterfly (SNR), a mayfly (*Ephemerella mucronata*) (SNR), meadow ramshorn (SNR), prairie sprite (SU) and fir pinwheel (S3S4) mollusks.

The monarch butterfly is identified in the NatureServe database for its winter range only, which does not occur on the forest. It is ranked as SNA (not a species considered for conservation) by the state of Montana and is dropped from further consideration as a species of interest.

Table 1. Wildlife species that meet the criteria for selection as species of concern for the state of Montana, if the species ranges overlap the forest, and if the species is a species of concern for the KNF.

Species common Name	Species scientific name	NatureServe G1/G3, T1/T3 Ranking	Proposed or Candidate	Petitioned	Delisted	Species Range Encompasses the Forest	Include as SOC?
Vertebrates							
Amphibians							
Idaho giant salamander	<i>Dicamptodon aterrimus</i>	G3				Not	No
Birds							
Greater sage grouse (western DPS)	<i>Centrocercus urophasianus</i>		C			Not	No
Piping plover	<i>Charadrius melodus</i>	G3				Not	No
Mountain plover	<i>Charadrius montanus</i>	G2				Not	No
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	G5T3Q	C			Summer	Yes
Peregrine falcon	<i>Falco peregrinus</i>				Yes	Known	Yes
Whooping crane	<i>Grus americana</i>	G1				Not	No
Bald eagle	<i>Haliaeetus leucocephalus</i>				Yes	Yearlong	Yes
American white pelican	<i>Pelecanus erythrorhynchos</i>	G3				Not	No
Columbian sharp-tailed grouse	<i>Tympanuchus phasianellus columbianus</i>	G4T3				Yearlong	Yes
Fish							
Blue sucker	<i>Cycleptus elongatus</i>	G3G4				Not	No
Burbot – lower Kootenai R. pop.	<i>Lota lota</i>	G5T1Q				Known	Yes
Sturgeon chub	<i>Macrhybopsis gelida</i>	G3				Not	No
Sicklefin chub	<i>Macrhybopsis meeki</i>	G3				Not	No
Yellowstone cutthroat trout	<i>Oncorhynchus clarki bouvieri</i>	G4T2				Not	No
Westslope cutthroat trout	<i>Oncorhynchus clarki lewisi</i>	G4T3				Known	Yes
California golden trout	<i>Oncorhynchus mykiss aquabonita</i>	G5T1				Not	No
Arctic grayling- upper Missouri R. pop.	<i>Thymallus arcticus pop. 2</i>	G5T1Q				Not	No
Mammals							
Black-footed ferret	<i>Mustela nigripes</i>	G1				Not	No
Swift fox	<i>Vulpes velox</i>	G3				Not	No
Invertebrates - insects							
Insects - Beetles							
Ghost tiger beetle	<i>Cincindela lepida</i>	G3G4				Not	No
Oblique lined tiger beetle	<i>Cincindela tranquebarica vibex</i>	G5T3Q				Not	No
Browns microcylloepus riffle beetle	<i>Microcylloepus browni</i>	G1				Not	No
Warm spring zaitzaevian riffle beetle	<i>Zaitzevia therae</i>	G1				Not	No
Insects - Butterflies							
Arogos skipper	<i>Atrytone arogos</i>	G3				Not	No
Iowa skipper	<i>Atrytone arogos iowa</i>	G3T3				Not	No
Alberta fritillary	<i>Boloria Alberta</i>	G3				Not	No
Bog fritillary	<i>Boloria eunomia ursadentis</i>	G5T2				Range unknown/No info	No
Relict fritillary	<i>Boloria kriemhild</i>	G3G4				Not	No
Western sulphur	<i>Colias occidentalis</i>	G3G4				Known	No/consider for SOI
Gillette's checkerspot	<i>Euphydryas gillettii</i>	G2G3				Known	Yes
Ottoo skipper	<i>Hesperia ottoe</i>	G3G4				Not	No
Swale satyr	<i>Neominois wyomingo</i>	G3G4Q				Not	No
Insects - Caddisflies							
A Agapetus caddisfly	<i>Agapetus montanus</i>	G2				Known	Yes
A caddisfly	<i>Allomyia bifosa</i>	G3G4				Not	No

Species common Name	Species scientific name	NatureServe G1/G3, T1/T3 Ranking	Proposed or Candidate	Petitioned	Delisted	Species Range Encompasses the Forest	Include as SOC?
A caddisfly	<i>Allomyia hector</i>	G1G2				Range unknown/No info	No
A caddisfly	<i>Apatania comosa</i>	G2G3				Not	No
A caddisfly	<i>Asynarchus circopa</i>	G2G4				Range unknown/No info	No
A caddisfly	<i>Ceraclea coph</i>	G3G4				Range unknown/No info	No
A caddisfly	<i>Cryptochia furcata</i>	G3G4				Not	No
A caddisfly	<i>Glossosoma idaho</i>	G2G3				Range unknown/No info	No
A caddisfly	<i>Goereilla baumanni</i>	G2G4				Not	No
A caddisfly	<i>Lepidostoma apornum</i>	G2G4				Range unknown/No info	No
A caddisfly	<i>Lepidostoma knulli</i>	G2G3				Range unknown/No info	No
A caddisfly	<i>Limnephilus alberta</i>	G3G4				Range unknown/No info	No
A caddisfly	<i>Neophylax sinuatus</i>	G1G3				Range unknown/No info	No
A caddisfly	<i>Neotrichia ersitis</i>	G1G3				Range unknown/No info	No
Alsea Ochrotrichian Micro caddisfly	<i>Ochrotrichia alsea</i>	G3				Range unknown/No info	No
A caddisfly	<i>Ochrotrichia potomus</i>	G3G4				Range unknown/No info	No
Tombstone Prairie Oligophlebodes caddisfly	<i>Oligophlebodes mostbento</i>	G3				Range unknown/No info	No
A caddisfly	<i>Philocasca banksi</i>	G1G3				Range unknown/No info	No
A caddisfly	<i>Polycentropus denningi</i>	G3G4				Range unknown/No info	No
A caddisfly	<i>Psychoglypha prita</i>	G3G4				Range unknown/No info	No
Alexander's Rhyacophilan caddisfly	<i>Rhyacophila alexanderi</i>	G2				Not	No
A caddisfly	<i>Rhyacophila belona</i>	G2G4				Range unknown/No info	No
A caddisfly	<i>Rhyacophila donaldi</i>	G2G3				Range unknown/No info	No
A caddisfly	<i>Rhyacophila ebria</i>	G2G3				Not	No
A caddisfly	<i>Rhyacophila gemona</i>	G2G3				Range unknown/No info	No
A Rhyacophila caddisfly	<i>Rhyacophila glaciera</i>	G3				Not	No
A caddisfly	<i>Rhyacophila kernada</i>	G2G4				Range unknown/No info	No
A Rhyacophila caddisfly	<i>Rhyacophila newelli</i>	G2				Not	No
A caddisfly	<i>Rhyacophila ophrys</i>	G1G3				Range unknown/No info	No
A caddisfly	<i>Rhyacophila potteri</i>	G1G2				Suspected	Yes
A caddisfly	<i>Rhyacophila rickeri</i>	G2G3				Not	No
A caddisfly	<i>Rhyacophila robusta</i>	G2G3				Range unknown/No info	No
A caddisfly	<i>Rhyacophila unimaculata</i>	G2G3				Not	No
A caddisfly	<i>Rossiana montana</i>	G2G3				Not	No
A caddisfly	<i>Sericostriata surdickae</i>	G2G3				Not	No
A caddisfly	<i>Zumatrichia notosa</i>	G2G4				Range unknown/No info	No
Insects - Damselflies							
Last best place damselfly	<i>Enallagma optimolocus</i>	G1G3Q				Not	No
Insects - Grasshoppers							
Rehns slow grasshopper	<i>Arigiacris rehni</i>	G2G3				Range unknown/No info	No
A grasshopper	<i>Barricris petraea</i>	G3?				Range unknown/No info	No
a spur throat grasshopper	<i>Melanoplus lanthamus</i>	G1G3				Range unknown/No info	No
a spur throat grasshopper	<i>Melanoplus missoulae</i>	G1				Range unknown/No info	No
a spur throat grasshopper	<i>Melanoplus picropidzae</i>	G1G3				Range unknown/No info	No
a spur throat grasshopper	<i>Melanoplus sp. 1</i>	G1G2				Range unknown/No info	No
a spur throat grasshopper	<i>Melanoplus sp. 15</i>	G2G3				Range unknown/No info	No
Insects - Mayflies							
A mayfly	<i>Ameletus bellulus</i>	G2G3				Range unknown/No info	No
A mayfly	<i>Amaletus majusculus</i>	G3G4				Range unknown/No info	No

Species common Name	Species scientific name	NatureServe G1/G3, T1/T3 Ranking	Proposed or Candidate	Petitioned	Delisted	Species Range Encompasses the Forest	Include as SOC?
A mayfly	<i>Ameletus shepherdii</i>	G3G4				Range unknown/No info	No
A mayfly	<i>Ameletus sparsatus</i>	G3G4				Not	No
A mayfly	<i>Ameletus vernalis</i>	G3G4				Range unknown/No info	No
A mayfly	<i>Analetris eximia</i>	G3				Not	No
A mayfly	<i>Anepeorus rusticus</i>	G2				Not	No
A mayfly	<i>Caudatella edmundsi</i>	G2G3				Known	Yes
A mayfly	<i>Caudatella jacobi</i>	G3G4				Not	No
Lolo mayfly	<i>Caurinella idahoensis</i>	G3				Not	No
A mayfly	<i>Heterocloeon rubrolaterale</i>	G2				Not	No
A mayfly	<i>Macdunnoa nipawinia</i>	G2G3				Not	No
A mayfly	<i>Rhithrogena virilis</i>	G3G4				Range unknown/No info	No
Insects - Stoneflies							
Glacier snowfly	<i>Bolshecapnia milami</i>	G3				Range unknown/No info	No
Mission mountains snowfly	<i>Bolshecapnia missiona</i>	G2				Range unknown/No info	No
Ice snowfly	<i>Bolshecapnia spenceri</i>	G3				Range unknown/No info	No
Cascades stripetail	<i>Cascadopera trictura</i>	G3G4				Known	No/consider for SOI
Notched stripetail	<i>Isoperla sordida</i>	G3				Range unknown/No info	No
Mist forestfly	<i>Lednia tumana</i>	G1				Not	No
Tiny forestfly	<i>Malenka tina</i>	G3				Not	No
Giant needlefly	<i>Megaleuctra stigmata</i>	G2				Not	No
Utah needlefly	<i>Perlomyia utahensis</i>	G3				Range unknown/No info	No
Autumn springfly	<i>Pictitiella expansa</i>	G3				Suspected	Yes
Alberta springfly	<i>Servenella bradleyi</i>	G3				Range unknown/No info	No
Clearwater roachfly	<i>Soliperla salish</i>	G2				Not	No
Idaho forestfly	<i>Soyedina potteri</i>	G3				Not	No
A stonefly	<i>Suwallia salish</i>	G1				Range unknown/No info	No
Cordilleran forestfly	<i>Zapada cordillera</i>	G3				Suspected	Yes
Glacier forestfly	<i>Zapada glacier</i>	G2				Not	No
Millipedes and centipedes							
A millipede	<i>Adrietyla cucullata</i>	G1G3				Not	No
A millipede	<i>Austrotyla montani</i>	G1G3				Not	No
A millipede	<i>Corypus cochlearis</i>	G1G3				Known	Yes
A millipede	<i>Endopus parvipipes</i>	G1G3				Not	No
A millipede	<i>Lophomus laxus</i>	G1G3				Not	No
A millipede	<i>Orophe cabinetus</i>	G1G3				Known	Yes
A millipede	<i>Orthogmus oculatus</i>	G1G3				Known	Yes
A millipede	<i>Taiyutyla curvata</i>	G1G3				Known	Yes
Mollusks							
Rocky Mountain capshell	<i>Acroloxus coloradensis</i>	G3				Not	No
Washington duskysnail	<i>Ammicola sp. 2</i>	G1				Range unknown/No info	No
Chrome ambersnail	<i>Catinella rehderi</i>	G3Q				Not	No
Kingston Oregonian	<i>Cryptomastix sanburni</i>	G1				Suspected	Yes
Lake disc	<i>Discus brunsoni</i>	G1				Not	No
Shortface lanx,	<i>Fisherola nuttalli</i>	G2				Not	No
Ashy pebblesnail	<i>Flumicola fuscus</i>	G2				Unk	No
Marbled jumping slug	<i>Hemphillia danielsi</i>	G2G3				Not	No
Pygmy slug	<i>Kootenaia burkei</i>	G2				Known	Yes

Species common Name	Species scientific name	NatureServe G1/G3, T1/T3 Ranking	Proposed or Candidate	Petitioned	Delisted	Species Range Encompasses the Forest	Include as SOC?
Magnum mantleslug (spotted slug)	<i>Mangipelta mycophaga</i>	G3				Known	Yes
Alpine mountainsnail	<i>Oreohelix alpina</i>	G1				Not	No
Bitterroot mountainsnail	<i>Oreohelix amariradix</i>	G1G2				Not	No
Keeled mountainsnail	<i>Oreohelix carinifera</i>	G1				Not	No
Carinate mountainsnail	<i>Oreohelix elrodi</i>	G1				Not	No
Berry's mountainsnail	<i>Oreohelix strigosa berryi</i>	G5T2				Not	No
Gallatin mountainsnail	<i>Oreohelix yavapai mariae</i>	G4T1				Not	No
Bearmouth mountainsnail	<i>Oreohelix sp. 3</i>	G1G2				Not	No
Drummond mountainsnail	<i>Oreohelix sp. 4</i>	G1				Not	No
Brunson mountainsnail	<i>Oreohelix sp. 5</i>	G1G2				Not	No
Kintla lake mountainsnail	<i>Oreohelix sp. 6</i>	G1				Not	No
Kitchen creek mountainsnail	<i>Oreohelix sp. 7</i>	G1G2				Not	No
Missoula mountainsnail	<i>Oreohelix sp. 10</i>	G1G3				Not	No
Subcarinate mountainsnail	<i>Oreohelix sp. 11</i>	G1				Not	No
Byrne resort mountainsnail	<i>Oreohelix sp. 31</i>	G1G2				Not	No
Oblique ambersnail	<i>Oxyloma nuttallianum</i>	G2G4				Range unknown/No info	No
Large-mantle physa (Cloaked physa)	<i>Physa megalochlamys</i>	G3				Not	No
Rotund physa	<i>Physella columbiana</i>	G2				Range unknown/No info	No
Humped coin	<i>Polygyrella polygyrella</i>	G3				Known	Yes
Northern tightcoil	<i>Pristiloma arcticum</i>	G3G4				Range unknown/No info	No
Black-footed tightcoil	<i>Pristiloma chersinella</i>	G3G4				Range unknown/No info	No
Shiny tightcoil	<i>Pristiloma wascoense</i>	G3				Range unknown/No info	No
Smoky taildropper	<i>Prophysaon humile</i>	G3				Known	Yes
A freshwater snail	<i>Pyrgulosis bedfordensis</i>	G1				Not	No
Flathead pondsnailed	<i>Stagnicola elrodi</i>	G1				Not	No
Largemouth pondsnailed	<i>Stagnicola elrodiana</i>	G1				Not	No
Mountain marshsnail	<i>Stagnicola montanensis</i>	G3				Not	No
Widelip pondsnailed	<i>Stagnicola traski</i>	G3				Range unknown/No info	No
Lyre mantleslug	<i>Udosarx lyrata</i>	G2				Not	No
Lyre mantleslug	<i>Udosarx lyrata lyrata</i>	G2T2				Range unknown/No info	No
Russell mantleslug	<i>Udosarx lyrata russelli</i>	G2T1				Range unknown/No info	No
Cylindrical vertigo	<i>Vertigo binneyana</i>	G1				Range unknown/No info	No
Sheathed slug	<i>Zacoleus idahoensis</i>	G3G4				Known	No/consider for SOI
Invertebrate - other							
A cave obligate harvestman	<i>Cryptobunus cavicolus</i>	G1G2				Not	No
A freshwater sponge	<i>Ephydatia cooperensis</i>	G1G3				Not	No
Crustaceans							
A cave obligate isopod	<i>Salmasellus steganothrix</i>	G2G3				Not	No
Glacier amphipod	<i>Stygobromus glacialis</i>	G1G3				Not	No
A cave obligate amphipod	<i>Stygobromus montanensis</i>	G1G2				Not	No
A cave obligate amphipod	<i>Stygobromus obscurus</i>	G1G2				Not	No
A cave obligate amphipod	<i>Stygobromus puteanus</i>	G1G2				Not	No
A cave obligate amphipod	<i>Stygobromus tritus</i>	G1G2				Not	No
Diplurans, springtails, and proturans							
A springtail	<i>Oncopodura cruciata</i>	G1G2				Not	No

Table 2. Plant species that meet the criteria for selection as species of concern for the state of Montana, if the species ranges overlap the forest, and if the species is a species of concern for the KNF. (NatureServe).

Species common name	species scientific name	NatureServe G1/G3, T1/T3 Ranking	Proposed or Candidate	Petitioned	Delisted	Species Range Encompasses the Forest	Include as SOC?
Fungi/lichens							
	<i>Adelolecia pilati</i>	G2G4				Range unknown/No info	No
A lichen	<i>Agrestia hispida</i>	G3				Not in MNHP	No
	<i>Aspicilia arctica</i>	G2G4				Range unknown/No info	No
Vagrant aspicilia	<i>Aspicilia fruticulosa</i>	G3				Range unknown/No info	No
	<i>Bacidia hegetschweileri</i>	G2G4				Not in MNHP	No
	<i>Bacidia vermifera</i>	G2G4				Not	No
	<i>Bryoria friabilis</i>	G3				Range unknown/No info	No
	<i>Buellia badia</i>	G3?				Known	Yes
	<i>Calicium adequatum</i>	G3G4				Known	No/consider for SOI
	<i>Catapyrenium plumbeum</i>	G3				Not in MNHP	No
	<i>Chaenotheca subroscida</i>	G3G4				Known	No/consider for SOI
	<i>Cladonia luteoalba</i>	G2				Not in MNHP	No
	<i>Cladonia verruculosa</i>	G3				Not in MNHP	No
	<i>Collema curtisporum</i>	G3				Known	Yes
	<i>Ephebe solida</i>	G3G4				Not in MNHP	No
	<i>Euopsis granatina</i>	G3?				Range unknown/No info	No
	<i>Gyalecta jenensis</i>	G3G4				Range unknown/No info	No
	<i>Hypogmnia inactiva</i>	G3				Range unknown/No info	No
	<i>Lecanora beringii</i>	G3G4				Range unknown/No info	No
	<i>Micarea ternaria</i>	G1G2				Range unknown/No info	No
	<i>Nodbryoria subdivergens (Bryoria s.)</i>	G2				Known	Yes
	<i>Ophioparma rubricosa</i>	G3G4				Range unknown/No info	No
	<i>Parmelia omphalodes</i>	G2G4				Range unknown/No info	No
	<i>Phaeophyscia kairamoi</i>	G3G4				Range unknown/No info	No
	<i>Platismatia stenophylla</i>	G2G4				Known	Yes
	<i>Podostroma alutaceum</i>	G3G4				Known	No/consider for SOI
	<i>Pseudocyphellaria anomala</i>	G2G4				Not	No
A lichen	<i>Ramalina thrausta</i>	G3G4				Known	No/consider for SOI
	<i>Rhizocarpon intermediellum</i>	G2G4				Range unknown/No info	No
	<i>Rhizoplaca haydenii</i>	G2G3				Range unknown/No info	No
	<i>Umbilicaria angulata</i>	G2				Not in MNHP	No
	<i>Umbilicaria havaasii</i>	G3				Range unknown/No info	No
	<i>Umbilicaria hirsuta</i>	G2G4				Range unknown/No info	No
	<i>Umbilicaria lambii</i>	G2G4				Range unknown/No info	No
	<i>Umbilicaria polyrhiza</i>	G2G3				Range unknown/No info	No
	<i>Verrucaria kootenaica</i>	G1?				Range unknown/No info	No
Liverworts							
	<i>Anthoceros fusiformis</i>	G2G4				Known	Yes
	<i>Hygrobiella laxifolia</i>	G3G4				Not in MNHP	No
	<i>Jungermannia rubra</i>	G2G4				Not in MNHP	No
Non-vascular mosses							
	<i>Barbula eustegia</i>	G3?				Range unknown/No info	No

Species common name	species scientific name	NatureServe G1/G3, T1/T3 Ranking	Proposed or Candidate	Petitioned	Delisted	Species Range Encompasses the Forest	Include as SOC?
	<i>Brachythecium calcareum</i>	G3G4				Not in MNHP	No
	<i>Bryum calobryoides</i>	G3				Range unknown/No info	No
	<i>Bryum miniatum</i>	G3G4				Not in MNHP	No
	<i>Buxbaumia viridis</i>	G3G4				Range unknown/No info	No
	<i>Campylium cardotii</i>	G1G2				Not	No
	<i>Crumia latifolia</i>	G3				Range unknown/No info	No
	<i>Drepanocladus cardotii</i>	G1G2				Range unknown/No info	No
	<i>Encalypta spathulata</i>	G3				Not in MNHP	No
	<i>Entosthodon rubiginosus</i>	G1G3				Not	No
	<i>Funaria americana</i>	G3?				Not	No
	<i>Grimmia brittoniae</i>	G2				Known	Yes
	<i>Herzogiella seligeri</i>	G3G4				Range unknown/No info	No
	<i>Hypnum procerrimum</i>	G3G4				Range unknown/No info	No
	<i>Mielichhoferia macrocarpa</i>	G2G3				Range unknown/No info	No
	<i>Myurella tenerrima</i>	G3G4				Not	No
	<i>Orthotrichum praemorsum</i>	G2				Not	No
	<i>Philonotis yezoana</i>	G2G3				Not in MNHP	No
	<i>Physcomitrium hookeri</i>	G2G4				Range unknown/No info	No
	<i>Pohlia drummondii</i>	G3G4				Range unknown/No info	No
	<i>Pohlia obtusifolia</i>	G2G4				Range unknown/No info	No
Luminous moss	<i>Schistostega pennata</i>	G3G4				Range unknown/No info	No
	<i>Tayloria acuminata</i>	G3G4				Range unknown/No info	No
	<i>Tortula bartramii</i>	G2G4				Not	No
Vascular ferns and relatives							
Adnate moonwort	<i>Botrychium adnatum</i>	G1?				Range unknown/No info	No
Upward lobed moonwort	<i>Botrychium ascendens</i>	G2G3				Known	Yes
Prairie dunewort	<i>Botrychium campestre</i>	G3G4				Not	No
Crenulate moonwort	<i>Botrychium crenulatum</i>	G3				Known	Yes
Frenchmans bluff moonwort	<i>Botrychium gallicomontanum</i>	G1G2				Range unknown/No info	No
Western moonwort	<i>Botrychium hesperium</i>	G3G4				Known	No/consider for SOI
Narrow leaf grape fern	<i>Botrychium lineare</i>	G2?				Known	Yes
Michigan moonwort	<i>Botrychium michiganense</i>	G1				Range unknown/No info	No
Mountain moonwort	<i>Botrychium montanum</i>	G3				Known	Yes
Pale moonwort	<i>Botrychium pallidum</i>	G3				Known	Yes
Peculiar moonwort	<i>Botrychium paradoxum</i>	G2				Known	Yes
Stalked moonwort	<i>Botrychium pendunculosum</i>	G2G3				Known	Yes
Spoon leaf moonwort	<i>Botrychium spathulatum</i>	G3				Not	No
Moosewort	<i>Botrychium tunus</i>	G1G2				Range unknown/No info	No
	<i>Botrychium yaaxudakeit</i>	G2				Not	No
Vascular flowering plants							
Contracted ricegrass	<i>Achnatherum contractum</i>	G3G4				Not	No
Cusick's giant hyssop	<i>Agastache cusickii</i>	G3G4				Not	No
Columbia onion	<i>Allium columbianum</i>	G3				Not	No
Dense leaved antennaria	<i>Antennaria densifolia</i>	G3				Not	No
Jones columbine	<i>Aquilegia jonesii var. elatior</i>	G4T1?Q				Not in MNHP	No
Sapphire rockcress	<i>Arabis fecunda</i>	G2				Not in MNHP	No

Species common name	species scientific name	NatureServe G1/G3, T1/T3 Ranking	Proposed or Candidate	Petitioned	Delisted	Species Range Encompasses the Forest	Include as SOC?
Elegant rockcress	<i>Arabis sparsiflora</i> var. <i>columbiana</i>	G5T2T4				Not in MNHP	No
Wind river rockcress	<i>Arabis williamsii</i>	G3Q				Not in MNHP	No
Williams rockcress	<i>Arabis williamsii</i> var. <i>saximontana</i>	G3QT2T3Q				Not in MNHP	No
	<i>Arnica chamissonis</i> var. <i>maguirei</i>	G5T1Q				Not in MNHP	No
Northern arnica	<i>Arnica lonchophylla</i> ssp. <i>arnoglossa</i>	G4T3T4				Not in MNHP	No
Spiked big sagebrush	<i>Artemisia tridentata</i> ssp. <i>Spiciformis</i>	G5T3T4				Not in MNHP	No
Barrs milkvetch	<i>Astragalus barrii</i>	G3				Not	No
Painted milkvetch	<i>Astragalus ceramicus</i> var. <i>apus</i>	G4T3				Not	No
Lackschewitzs milkvetch	<i>Astragalus lackschewitzii</i>	G2				Not	No
Timber milkvetch	<i>Astragalus miser</i> var. <i>crispatus</i>	G5T3?				Not in MNHP	No
Purshs milkvetch	<i>Astragalus purshii</i> var. <i>concinus</i>	G5T3T4				Not in MNHP	No
Bitterroot milkvetch	<i>Astragalus scaphoides</i>	G3				Not	No
Railhead milkvetch	<i>Astragalus terminalis</i>	G3				Not	No
Cascade reedgrass	<i>Calamagrostis tweedyi</i>	G3				Range unknown/No info	No
Elegant mariposa lily	<i>Calochortus elegans</i>	G3G4				Not	No
Elegant mariposa lily	<i>Calochortus elegans</i> var. <i>selwayensis</i>	G3G4T2T3				Not	No
Slender sepa marsh marigold	<i>Caltha leptosepala</i> var. <i>sulfurea</i>	G5T2T3				Not in MNHP	No
Colorado bitter cress	<i>Cardamine breweri</i> var. <i>leibergii</i>	G5T2T4				Range unknown/No info	No
Cliff toothwort	<i>Cardamine rupicola</i>	G3				Not	No
Idaho sedge	<i>Carex idaho</i>	G2G3				Not	No
Goose grass sedge	<i>Carex lenticularis</i> var. <i>dolia</i>	G5T3Q				Not	No
Woodrush sedge	<i>Carex luzulina</i> var. <i>atropurpurea</i>	G5T3				Not	No
Nelsons sedge	<i>Carex nelsonii</i>	G3				Range unknown/No info	No
Saw-leaved sedge	<i>Carex scopulorum</i> var. <i>prionophylla</i>	G5T3?				Range unknown/No info	No
Small winged sedge	<i>Carex stenoptila</i>	G2				Not	No
Covilles Indian paintbrush	<i>Castilleja covilleana</i>	G3G4				Not	No
Rustic paintbrushg	<i>Castilleja flava</i> var. <i>rustica</i>	G4G5T3T4				Range unknown/No info	No
Harsh Indian paintbrush	<i>Castilleja hispida</i> ssp. <i>Acuta</i>	G5T3T4				Not in MNHP	No
Snow Indian paintbrush	<i>Castilleja nivea</i>	G3				Not	No
Showy Indian paintbrush	<i>Castilleja pulchella</i>	G3G4				Range unknown/No info	No
Smooth goosefoot	<i>Chenopodium subglabrum</i>	G3G4				Not	No
Bolanders water hemlock	<i>Cicuta maculata</i> var. <i>bolanderi</i>	G5T3T4				Not in MNHP	No
Long styled thistle	<i>Cirsium longistylum</i>	G3				Not	No
Flexible alpine collomia	<i>Collomia debilis</i> var. <i>camporum</i>	G5T2				Range unknown/No info k	No
Williams conimitella	<i>Conimitella williamsii</i>	G3?				Range unknown/No info	No
O'Kennons hawthorn	<i>Crataegus okennonii</i>	G2G4				Not in MNHP	No
Phipps hawthorn	<i>Crataegus phippsii</i>	G1G3				Not in MNHP	No
Flat head larkspur	<i>Delphinium bicolor</i> ssp. <i>calcicola</i>	G4G5T3				Not	No
Electric peak larkspur	<i>Delphinium glaucescens</i>	G3?				Range unknown/No info	No
Brewers whitlow grass	<i>Draba breweri</i>	G3?				Not in MNHP	No
Thick leaf whitlow grass	<i>Draba crassa</i>	G3				Range unknown/No info	No
Bitterroot draba	<i>Draba daviesiae</i>	G3				Range unknown/No info	No
Rockcress draba	<i>Draba globosa</i>	G3				Not	No
Macouns whitlow grass	<i>Draba macounii</i>	G3G4				Not	No
Paysons whitlow grass	<i>Draba paysonii</i> var. <i>paysonii</i>	G5T3				Range unknown/No info	No
Porsilds whitlow grass	<i>Draba porsildii</i>	G3G4				No	No

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Porsilds whitlow grass	<i>Draba porsildii</i> var. <i>brevicula</i>	G3G4T1T2Q				Not in MNHP	No
	<i>Draba porsildii</i> var. <i>porsildii</i>	G3G4T3T4Q				Not in MNHP	No
Wind river whitlow grass	<i>Draba ventosa</i>	G3				Not	No
Pale spikerush	<i>Eleocharis flavescens</i> var. <i>Thermalis</i>	G5T2T3Q				Not in MNHP	No
Rydbergs wild rye	<i>Elymus vulpinus</i>	G1G3Q				Not in MNHP	No
Parrys rabbit rush	<i>Ericameria parryi</i> var. <i>montana</i>	G5T1				Not	No
Branched fleabane	<i>Erigeron allocotus</i>	G3				Not	No
Fanleaf fleabane	<i>Erigeron flabellifolius</i>	G3				Range unknown/No info	No
Front range fleabane	<i>Erigeron lackschewitzii</i>	G3				Not	No
Woolly fleabane	<i>Erigeron lanatus</i>	G3G4				Range unknown/No info	No
Parry's fleabane	<i>Erigeron parryi</i>	G2				Not	No
Taprooted fleabane	<i>Erigeron radicans</i>	G3				Range unknown/No info	No
Muhliks buckwheat	<i>Eriogonum capistratum</i> var. <i>muhlickii</i>	G4T3				Range unknown/No info	No
Rabbit buckwheat	<i>Eriogonum lagopus</i>	G3G4				Not	No
Oval leaf buckwheat	<i>Eriogonum ovalifolium</i> var. <i>ochroleucum</i>	G5T2T4Q				Not in MNHP	No
Oval leaf buckwheat	<i>Eriogonum ovalifolium</i> var. <i>pansum</i>	G5T1				Not in MNHP	No
Railroad canyon wild buckwheat	<i>Eriogonum soliceps</i>	G2				Not	No
Dakota wild buckwheat	<i>Eriogonum visherii</i>	G3				Not	No
Altai cotton grass	<i>Eriophorum altaicum</i> var. <i>neogaeum</i>	G4?T3T4				Not in MNHP	No
White glacierlily	<i>Erythronium grandiflorum</i> ssp. <i>candidum</i>	G5T3T4				Range unknown/No info	No
Howells gumweed	<i>Grindelia howellii</i>	G3				Suspected	Yes
Hairy false goldenaster	<i>Heterotheca villosa</i> var. <i>depressa</i>	G5T3				Not	No
Fineleaf woolly white	<i>Hymenopappus filifolius</i> var. <i>idahensis</i>	G5T3				Range unknown/No info	No
Spurless touch me not	<i>Impatiens ecalcarata</i>	G3G4				Range unknown/No info	No
Compact gila	<i>Ipomopsis congesta</i> ssp. <i>crebrifolia</i>	G5T3T4				Not	No
Ball head standing cypress	<i>Ipomopsis congesta</i> ssp. <i>pseudotypica</i>	G5T3?				Range unknown/No info	No
Spiked standing cypress	<i>Ipomopsis spicata</i> var. <i>orchidacea</i>	G5T2T3				Not in MNHP	No
Tweedys rush	<i>Juncos tweedyi</i>	G3Q				Range unknown/No info	No
Keeled bladderpod	<i>Lesquerella carinata</i>	G3G4				Range unknown/No info	No
	<i>Lesquerella carinata</i> var. <i>carinata</i>	G3G4T3T4				Not	No
Keeled bladderpod	<i>Lesquerella carinata</i> var. <i>languida</i>	G3G4T1				Not in MNHP	No
Few seeded bladderpod	<i>Lesquerella humilis</i>	G1				Not	No
Klaus bladderpod	<i>Lesquerella klausii</i>	G3				Not	No
Pryor mountains bladderpod	<i>Lesquerella plesicii</i>	G1				Not	No
Beautiful bladderpod	<i>Lesquerella pulchella</i>	G2				Not	No
Giant wild rye	<i>Leymus condensatus</i>	G3G4				Not in MNHP	No
Porters lovage	<i>Ligusticum porteri</i> var. <i>porteri</i>	G3G4T3T4				Not in MNHP	No
Taper tip desert parsley	<i>Lomatium attenuatum</i>	G3				Not	No
Bicolor biscuitroot	<i>Lomatium bicolor</i> var. <i>bicolor</i>	G4T3T4				Range unknown/No info	No
Nuttalls desert parsley	<i>Lomatium nuttallii</i>	G3				Not	No
Long spur lupine	<i>Lupinus arbustus</i> ssp. <i>pseudoparviflorus</i>	G5T2T3				Not in MNHP	No
Lyalls lupine	<i>Lupinus lyalli</i> ssp. <i>lyalli</i>	G5T2T3				Not in MNHP	No
Kettle falls lupine	<i>Lupinus minimus</i>	G3G4				Not in MNHP	No
Mountain lupine	<i>Lupinus monticola</i>	G2G4Q				Not in MNHP	No
Silky lupine	<i>Lupinus sericeus</i> var. <i>egglestonianus</i>	G5T2T4Q				Not in MNHP	No
	<i>Melica subulata</i> var. <i>pammelii</i>	G5T1T2Q				Not in MNHP	No

Species common name	species scientific name	NatureServe G1/G3, T1/T3 Ranking	Proposed or Candidate	Petitioned	Delisted	Species Range Encompasses the Forest	Include as SOC?
Tall bluebells	<i>Mertensia paniculata</i> var. <i>borealis</i>	G5T3T4				Not in MNHP	No
Rydbergs parsley	<i>Musineon vaginatum</i>	G3G4				Range unknown/No info	No
Besseys locoweed	<i>Oxytropis besseyi</i> var. <i>fallax</i>	G5T3				Not	No
Besseys locoweed	<i>Oxytropis besseyi</i> var. <i>ventosa</i>	G5T3?				Range unknown/No info	No
Columbia crazyweed	<i>Oxytropis campestris</i> var. <i>columbiana</i>	G5T1				Not	No
Rabbit foot crazyweed	<i>Oxytropis lagopus</i> var. <i>conjugans</i>	G4G5T3				Not	No
Hares foot point vetch	<i>Oxytropis lagopus</i> var. <i>lagopus</i>	G4G5T3T4				Range unknown/No info	No
Northwestern groundsel	<i>Packera contermina</i>	G3				Not in MNHP	No
Alpine glacier poppy	<i>Papaver pygmaeum</i>	G3				Not	No
Alpine poppy	<i>Papaver radicum</i> ssp. <i>Kluanense</i>	G5T3T4				Not	No
Towering lousewort	<i>Pedicularis bracteosa</i> var. <i>canbyi</i>	G5T1T3				Not in MNHP	No
Towering lousewort	<i>Pedicularis bracteosa</i> var. <i>siifolia</i>	G5T1T3				Not in MNHP	No
Coilbeaked loosewort	<i>Pedicularis contorta</i> var. <i>ctenophora</i>	G5T3				Range unknown/No info	No
Coil beaked lousewort	<i>Pedicularis contorta</i> var. <i>Rubincunda</i>	G5T3				Range unknown/No info	No
Parrys lousewort	<i>Pedicularis parryi</i> ssp. <i>purpurea</i>	G5T2T4				Not in MNHP	No
Mountain lousewort	<i>Pedicularis pulchella</i>	G3				Range unknown/No info	No
Simpsons hedgehog cactus	<i>Pediocactus simpsonii</i> var. <i>simpsonii</i>	G4T3T4				Not in MNHP	No
Red desert beardtongue	<i>Penstemon arenicola</i>	G3G4				Range unknown/No info	No
Taper leaf beardtongue	<i>Penstemon attenuatus</i> var. <i>pseudoprocerus</i>	G4T3?				Range unknown/No info	No
Cary beardtongue	<i>Penstemon caryi</i>	G3				Not	No
	<i>Penstemon cyananthus</i> var. <i>subglaber</i>	G4T3?				Range unknown/No info	No
Cleburns beardtongue	<i>Penstemon eriantherus</i> var. <i>cleburnei</i>	G4T2T3				Range unknown/No info	No
Crested tongue beardtongue	<i>Penstemon eriantherus</i> var. <i>redactus</i>	G4T1T3				Not in MNHP	No
Pennell beardtongue	<i>Penstemon flavescens</i>	G3				Range unknown/No info	No
Lemhi penstemon	<i>Penstemon lemhiensis</i>	G3				Not	No
Cordroot beardtongue	<i>Penstemon montanus</i> var. <i>idahoensis</i>	G4G4T2T3				Not	No
Wax leaf beardtongue	<i>Penstemon nitidus</i> var. <i>polyphyllus</i>	G5T2T3				Not in MNHP	No
Western phacelia	<i>Phacelia incana</i>	G3G4				No	No
Lyalls phacelia	<i>Phacelia lyallii</i>	G3				Range unknown/No info	No
Hot spring phacelia	<i>Phacelia thermalis</i>	G3G4				Not	No
Missoula phlox	<i>Phlox missoulensis</i>	G2				Not	No
Variiegated phlox	<i>Phlox variabilis</i>	G3G4Q				Range unknown/No info	No
Variiegated phlox	<i>Phlox variabilis</i> ssp. <i>nudata</i>	G3G4QT1T3				Not in MNHP	No
	<i>Phlox variabilis</i> ssp. <i>variabilis</i>	G3G4QT3T4				Not in MNHP	No
Double twinpod	<i>Physaria didymocarpa</i> var. <i>lanata</i>	G5T2				Not	No
Snake river twinpod	<i>Physaria integrifolia</i>	G3G4				Not in MNHP	No
Snake river twinpod	<i>Physaria integrifolia</i> var. <i>integrifolia</i>	G3G4T3T4				Not in MNHP	No
Fremont county twinpod	<i>Physaria saximontana</i>	G3				Not	No
Mountain twinpod	<i>Physaria saximontana</i> var. <i>dentata</i>	G3T3				Not	No
Mt. Washington bluegrass	<i>Poa laxa</i> ssp. <i>banffiana</i>	G5?T1				Not	No
Thin fruited knotweed	<i>Polygonum leptocarpum</i>	G2G4Q				Range unknown/No info	No
Dense flower knotweed	<i>Polygonum polygaloides</i> ssp. <i>Confertiflorum</i>	G4G5T3T4				Range unknown/No info	No
Macouns cinquefoil	<i>Potentilla macouni</i>	G1?				Range unknown/No info	No
Arrow leaf rattlesnake root	<i>Prenanthes sagittata</i>	G3G4				Range unknown/No info	No
Alkali primrose	<i>Primula alcalina</i>	G2				Not	No
Large flower goldenweed	<i>Pyrrocoma carthamoides</i> var. <i>subsquarrosa</i>	G4G5T2T3				Not	No

Species common name	species scientific name	NatureServe G1/G3, T1/T3 Ranking	Proposed or Candidate	Petitioned	Delisted	Species Range Encompasses the Forest	Include as SOC?
Entire leaf goldenweed	<i>Pyrocoma integrifolia</i>	G3?				Range unknown/No info	No
Idaho gooseberry	<i>Ribes oxycanthoides ssp. irriguum</i>	G5T3T4				Range unknown/No info	No
Persistent sepal yellowcress	<i>Rorippa calycina</i>	G3				Not	No
Webers sawwort	<i>Saussurea weberi</i>	G2G3				Not	No
Swamp saxifrage	<i>Saxifrage apetala</i>	G3Q				Not	No
Yellowstone saxifrage	<i>Saxifraga subapetala</i>	G3G4Q				Range unknown/No info	No
Storm saxifrage	<i>Saxifraga tempestiva</i>	G2				Not	No
Entire leaf ragwort	<i>Senecio integerrimus var. scribneri</i>	G5T1T3				Not in MNHP	No
Spribillei's groundsel	<i>Senecio spribillei</i>	G1				Known	Yes
Shoshone carrot	<i>Shoshone pulvinata</i>	G2G3				Not	No
Kings campion	<i>Silene kingii</i>	G2G4Q				Not in MNHP	No
Northern blue eyed grass	<i>Sisyrinchium septentrionale</i>	G3G4				Not	No
Nuttalls false sagebrush	<i>Sphaeromeria argentea</i>	G3G4				Not	No
Rock tansy	<i>Sphaeromeria capitata</i>	G3				Not	No
Ute ladies tresses	<i>Spiranthes diluvialis</i>	G2				Not	No
American stitchwort	<i>Stellaria americana</i>	G3G4				Range unknown/No info	No
Purpus sullivantia	<i>Sullivantia hapemanii</i>	G3				Not	No
Purpus sullivantia	<i>Sullivantia hapemanii var. hapemanii</i>	G3T3				Not	No
Missouri kittentail	<i>Synthyris canbyi</i>	G3				Not	No
Cut leaf kittentail	<i>Synthyris pinnatifida var. pinnatifida</i>	G4T2T4				Not in MNHP	No
Northwestern thelypody	<i>Thelypodium paniculatum</i>	G2				Not	No
Slender false lupine	<i>Thermopsis gracilis var. ovata</i>	G4T3T4				Not in MNHP	No
Idaho pennycress	<i>Thlaspi idahoense</i>	G3G4				Not in MNHP	No
Idaho pennycress	<i>Thlaspi idahoense var. idahoense</i>	G3G4T2T4				Not in MNHP	No
Small flowered pennycress	<i>Thlaspi parviflorum</i>	G3				Not	No
Idaho goldenweed	<i>Tonestus aberrans (Haplopappus aberrans)</i>	G3				Not	No
Nuttalls townsend daisy	<i>Townsendia nuttallii</i>	G3				Not	No
Sword townsend daisy	<i>Townsendia spathulata</i>	G3				Not	No
Woolly head clover	<i>Trifolium eriocephalum ssp. Arcuatum</i>	G5T3?				Range unknown/No info	No
Haydens clover	<i>Trifolium haydenii</i>	G3G4				Range unknown/No info	No
Upland yellow violet	<i>Viola praemorsa ssp. Flavovirens</i>	G5T2T4				Not in MNHP	No
Idaho strawberry	<i>Waldsteinia idahoensis</i>	G3				Not	No

Table 3. Wildlife species that meet the criteria for potential species of interest for Montana, if the species ranges overlap the forest, and if the species is a potential species of interest for the KNF

Species common Name	species scientific name	NatureServe S1S2 or N1N2	Montana ranking	State Conservation Concern	State species of concern	Priority USFWS Bird	RF – MT Sensitive Species	Local Conservation Concern	Public Interest Species	Range Encompasses the Forest	Species Qualifies as a Potential SOI
Vertebrates											
Amphibians											
Western toad	<i>Bufo boreas</i>	X	S2	X	X		X	X		Known	Yes
Great plains toad	<i>Bufo cognatus</i>	X	S2		X		X			Not	No
Coeur d'Alene salamander	<i>Plethodon idahoensis</i>	X	S2	X	X		X	X		Known	Yes
Northern leopard frog	<i>Rana pipiens</i>	X	S1S3	X	X		X	X		Known	Yes
Plains spadefoot	<i>Spea bombifrons</i>		S3		X		X			Not	No
Reptiles											
Spiny softshell	<i>Apalone spinifera</i>		S3	X	X					Not	No
Snapping turtle	<i>Chelydra serpentina</i>		S3	X	X					Not	No
Northern alligator lizard	<i>Elgaria coerulea</i>		S3		X					Known	Yes
Western skink	<i>Emeces skiltonianus</i>		S3		X					Known	Yes
Porcupine	<i>Erethizon dorsatum</i>		S4						X	Known	Yes
Western hog-nosed snake	<i>Heterodon nasicus</i>	X	S2	X	X		X			Not	No
Milksnake	<i>Lampropeltis triangulum</i>	X	S2	X	X		X			Not	No
Smooth green snake	<i>Liochlorophis vernalis</i>	X	S2	X	X					Not	No
Greater short-horned lizard	<i>Phrynosoma hernandesi</i>		S3		X		X			Not	No
Common sagebrush lizard	<i>Sceloporus graciosus</i>		S3		X					Not	No
Birds											
Northern goshawk	<i>Accipiter gentilis</i>		S3		X			X		Yearlong	Yes
Clark's grebe	<i>Aechmophorus clarkii</i>		S3B		X					Not	No
Baird's sparrow	<i>Ammodramus bairdii</i>	X	S3B		X					Not	No
Leconte's sparrow**	<i>Ammodramus leconteii</i>	X	S3B		X					Not	No
Nelson's sharp-tailed sparrow**	<i>Ammodramus nelsoni</i>	X	S3B	X	X					Not	No
Grasshopper sparrow	<i>Ammodramus savannarum</i>		S3B		X					Summer	Yes
Sage sparrow*	<i>Amphispiza belli</i>	X	S3B		X	X				Not	No
Sprague's pipit	<i>Anthus spragueii</i>	X	S3B		X					Migratory	No
Golden eagle	<i>Aquila chrysaetos</i>		S4		X					Yearlong	Yes
Great blue heron	<i>Ardea herodias</i>		S3		X					Yearlong	Yes
Burrowing owl	<i>Athene cucularia</i>	X	S3B	X	X					Not	No
Upland sandpiper	<i>Bartramia longicauda</i>		S4B			X				Migratory	No
American bittern	<i>Botaurus lentiginosus</i>		S3B		X					Summer	Yes
Ferruginous hawk	<i>Buteo regalis</i>	X	S3B		X	X				Not	No
Swainson's hawk	<i>Buteo swainsoni</i>		S3B		X	X				Not	No
Lark bunting	<i>Calamospiza melanocorys</i>		S3B							Not	No
McGown's longspur	<i>Calcarius mccownii</i>	X	S3B		X	X				Not	No
Chestnut collared longspur	<i>Calcarius ornatus</i>		S2B		X					Not	No
Baird's sandpiper	<i>Calidris alba</i>		SNA							Migratory	No
Cassin's finch	<i>Carpodacus cassinii</i>		S3		X	X				Yearlong	Yes
Veery	<i>Catharus fuscescens</i>		S3B	X	X					Summer	Yes
Brown creeper	<i>Certhia americana</i>	G5	S3		X				X	Known	Yes
Black tern	<i>Chlidonias niger</i>		S3B	X	X					Summer	Yes
Sedge wren**	<i>Cistothorus platensis</i>	X	S3B	X	X					Not	No

Species common Name	species scientific name	NatureServe S1S2 or N1N2	Montana ranking	State Conservation Concern	State species of concern	Priority USFWS Bird	RF – MT Sensitive Species	Local Conservation Concern	Public Interest Species	Range Encompasses the Forest	Species Qualifies as a Potential SOI
Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>		S3B		X					Not	No
Olive-sided flycatcher	<i>Contopus cooperi</i>		S3B	X		X				Summer	Yes
Yellow rail*	<i>Coturnicops noveboracensis</i>	X	S3B	X	X					Not	No
Trumpeter swan	<i>Cygnus buccinator</i>	X	S3	X	X					Migratory	No
Black swift	<i>Cypseloides niger</i>		S1B		X	X	X			Summer	Yes
Bobolink	<i>Dolichonyx oryzivorus</i>	X	S3B		X					Summer	Yes
Pileated woodpecker	<i>Dryocopus pileatus</i>		S3		X					Yearlong	Yes
Alder flycatcher**	<i>Empidonax alhorum</i>	X	S3B		X					Not	No
Willow flycatcher	<i>Empidonax traillii</i>		S5			X				Summer	Yes
Common loon	<i>Gavia immer</i>	X	S3B	X	X		X	X		Summer	Yes
Sandhill crane	<i>Grus canadensis</i>	X	S2N/S5B							Summer	Yes
Pinyon jay	<i>Gymnorhinus cyanocephalus</i>		S3		X					Not	No
Black-necked stilt	<i>Himantopus mexicanus</i>		S3B		X					Not	No
Harlequin duck	<i>Histrionicus histrionicus</i>	X	S2B	X	X		X	X		Summer	Yes
Caspian tern	<i>Hydroprogne caspia</i>	X	S2B		X					Migratory	No
White-tailed ptarmigan	<i>Lagopus leucura</i>		S3		X					Partial/yearlong	No
Loggerhead shrike	<i>Lanius ludovicianus</i>		S3B		X	X				Summer	Yes
Franklin's gull	<i>Larus pipixcan</i>		S3B		X					Migratory	No
Black rosy finch	<i>Leucosticte atrata</i>	X	S2		X	X				Not	No
Gray crowned rosy finch	<i>Leucosticte tephrocotis</i>	X	S2B/S5N		X					Yearlong	Yes
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>		S3B		X					Not	No
Lewis's woodpecker	<i>Melanerpes lewis</i>	X	S2B		X	X		X		Yearlong	Yes
Black and white warbler	<i>Mniotilta varia</i>	X	S2S3B							Not	No
Clark's nutcracker	<i>Nucifraga columbiana</i>		S3		X					Yearlong	Yes
Long-billed curlew	<i>Numerius americanus</i>	X	S2B	X	X	X				Summer	Yes
Black-crowned night heron	<i>Nycticorax nycticorax</i>		S3B		X					Migratory	No
Sage thrasher	<i>Oreoscoptes montanus</i>		S3B		X	X				Not	No
Flammulated owl	<i>Otus flammeolus</i>		S3B	X	X	X	X	X		Summer	Yes
White-headed woodpecker*	<i>Picoides albolarvatus</i>		SNR			X				Not	No
Black-backed woodpecker	<i>Picoides arcticus</i>	X	S3	X	X		X	X		Yearlong	Yes
White-faced ibis	<i>Plegadis chihii</i>	X	S3B		X					Migratory	No
Horned grebe	<i>Podiceps auritus</i>		S3B		X					Summer	Yes
Boreal chickadee	<i>Poecile hudsonica</i>	X	S3		X					Yearlong	Yes
Blue-gray gnatcatcher**	<i>Poliopitila caerulea</i>	X	S2B		X					Not	No
Broad-tailed hummingbird*	<i>Selasphorus platycercus</i>	X	S1B							Not	No
Eastern bluebird	<i>Sialia sialis</i>	X	S2B							Not	No
Dicksissel*	<i>Spiza americana</i>	X	S1S2B							Not	No
Williamson's sapsucker	<i>Sphyrapicus thyoideus</i>		S4B			X				Summer	Yes
Brewer's sparrow	<i>Spizella breweri</i>	X	S3B		X	X				Summer	Yes
Calliope hummingbird	<i>Stellula calliope</i>		S5			X				Summer	Yes
Forster's tern	<i>Sterna forsteri</i>	X	S3B		X					Migratory	No
Common tern	<i>Sterna hirundo</i>		S3B		X					Migratory	No
Great gray owl	<i>Strix nebulosa</i>		S3		X					Yearlong	Yes
Northern hawk-owl	<i>Surnia ulula</i>	X	S1							Winter	No
Winter wren	<i>Troglodytes troglodytes</i>		S3		X					Yearlong	Yes
Cassin's kingbird	<i>Tyrannus vociferans</i>	X	S3							Not	No

Species common Name	species scientific name	NatureServe S1S2 or N1N2	Montana ranking	State Conservation Concern	State species of concern	Priority USFWS Bird	RF – MT Sensitive Species	Local Conservation Concern	Public Interest Species	Range Encompasses the Forest	Species Qualifies as a Potential SOI
Barn owl**	<i>Tyto alba</i>	X	S1							Yearlong	No
Mammals -											
Pallid bat	<i>Antrozous pallidus</i>	X	S2	X	X					Not	No
Northern short-tailed shrew	<i>Blarina brevicauda</i>		S1S3		X					Not	No
American bison	<i>Bison bison</i>	X	S2	X	X					Not	No
Pygmy rabbit	<i>Brachylagus idahoensis</i>		S3	X	X					Not	No
Rocky mountain elk	<i>Cervus canadensis</i>		S5						X	Known	Yes
Hispid pocketmouse	<i>Chaetodipus hispidus</i>	X	S1S3	X	X					Not	No
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	X	S2	X	X		X	X		Known	Yes
White-tailed prairie dog	<i>Cynomys leucurus</i>	X	S1	X	X					Not	No
Black-tailed prairie dog	<i>Cynomys ludovicianus</i>		S3		X					Not	No
Porcupine	<i>Erethizon dorsatum</i>								X	Known	Yes
Spotted bat	<i>Euderma maculatum</i>	X	S2	X	X					Not	No
North American wolverine	<i>Gulo gulo luxos</i>		S2	X	X		X	X	X	Known	Yes
Eastern red bat	<i>Lasiurus borealis</i>	X	S2S3B		X					Not	No
Hoary bat	<i>Lasiurus cinereus</i>		S3		X					Known	Yes
Black-tailed jackrabbit	<i>Lepus californicus</i>	X	S2		X					Not	No
Hoary marmot	<i>Marmota monax</i>			X						Known	Yes
Fisher	<i>Martes pennanti</i>		S3		X		X	X		Known	Yes
Northern myotis	<i>Myotis septentrionalis</i>	X	S2S3B		X					Not	No
Fringed myotis	<i>Myotis thysanodes</i>		S3		X			X		Known	Yes
American pika	<i>Ochotona princeps</i>		S4						X	Known	Yes
Mountain goat	<i>Oreamnos americanus</i>		S5						X	Known	Yes
Rocky mountain bighorn sheep	<i>Ovis canadensis</i>								X	Known	Yes
Great basin pocketmouse	<i>Perognathus parvus</i>	X	S2S3B	X	X					Not	No
Arctic shrew	<i>Sorex arcticus</i>	X	S1S3		X					Not	No
Merriam's shrew	<i>Sorex merriami</i>		S3		X					Not	No
Dwarf shrew	<i>Sorex nanus</i>	X	S2S3B		X					Not	No
Preble's shrew	<i>Sorex preblei</i>		S3		X					Not	No
Western spotted skunk	<i>Spilogale gracilis</i>	X	S1S3		X					Not	No
Northern bog lemming	<i>Synaptomys borealis</i>	X	S2	X	X		X	X		Known	Yes
Uinta chipmunk	<i>Tamias umbrinus</i>		S3		X					Not	No
Meadow jumping mouse	<i>Zapus hudsonius</i>	X	S2	X	X					Not	No
Fish											
Torrent sculpin	<i>Cottus rhotheus</i>	G5	S3		X		X			Known	Yes
Spoonhead sculpin	<i>Cottus ricei</i>	G5	S3		X					Not	No
Shortnose gar	<i>Lepisosteus platostomus</i>	G5	S1	X	X					Not	No
Pearl dace	<i>Margariscus margarita</i>	G5	S2	X	X					Not	No
Columbia River redband trout	<i>Oncorhynchus mykiss gairdneri</i>	G5T4	S1	X	X		X	X		Known	Yes
Trout perch	<i>Percopsis omiscomaycus</i>	G5	S2	X	X					Not	No
Northern redbelly X finescale dace	<i>Phoxinus eos x phoxinus neogaeus</i>	GNA	S3		X					Not	No
Paddlefish	<i>Polydon spathula</i>	G4	S1S2	X	X					Not	No
Lake trout	<i>Salvelinus namaycush</i>	G5	S2	X	X					Known	Yes
Sauger	<i>Sander canadensis</i>	G5	S2	X	X					Not	No

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Arctic grayling	<i>Thymallus arcticus</i>	G5	S1	X	X					Not	No
Invertebrates - insects											
Butterflies											
Astarte fritillary	<i>Boloria astarte</i>	X	S2S3							Not	No
Astarte fritillary	<i>Boloria astarte astarte</i>	X	None							Not	No
Bog fritillary	<i>Boloria eunomia</i>		S2							Not	No
Frigga fritillary	<i>Boloria frigga</i>	X	S1S2		X					Not	No
Labrador sulphur	<i>Colias nastes</i>	X	S2S3							Not	No
Western sulphur	<i>Colias occidentalis</i>	X	SNR							Known	Yes
Monarch	<i>Danus plexipus</i>	X	SNA							Not	No
Colorado alpine	<i>Erebia callias</i>	X	S2S3							Not	No
Magdalena alpine	<i>Erebia magdalena</i>	X	S2		X					Not	No
Northern marble	<i>Euchloe creusa</i>	X	S1S3							Not	No
White admiral	<i>Limenitis arthemis</i>	X	S2S3							Known	Yes
White-veined artic	<i>Oeneis bore</i>	X	S2S3							Not	No
Melissa artic	<i>Oeneis melissa</i>	X	S2S3							Not	No
Indra swallowtail	<i>Papilio indra</i>	X	S2S3							Known	Yes
Tawny crescent	<i>Phyciodes batesii</i>	X	S2S3							Not	No
Lakota crescent	<i>Phyciodes batesii lakota</i>	X	SNR							Not	No
Gray comma	<i>Polygonia progne</i>	X	S2		X					Not	No
Eyed brown	<i>Satyrodes eurydice</i>	X	S2S3							Not	No
Damselflies											
Paiute dancer	<i>Argia alberta</i>	X	S2S3							Not	No
Prairie bluet	<i>Coenagrion angulatum</i>	X	S1S3							Not	No
Subarctic bluet	<i>Coenagrion interrogatum</i>	X	S1S2		X					Not	No
Dragonflies											
Lance-tipped darner	<i>Aeshna constricta</i>	X	S1S3							Not	No
Zigzag darner	<i>Aeshna sitchensis</i>	X	S2S3							Known	Yes
Subarctic darner	<i>Aeshna subarctica</i>	X	S1S2		X					Known	Yes
Eastern ringtail	<i>Erpetogomphus designatus</i>	X	S1		X					Not	No
Western pondhawk	<i>Erythemis collocata</i>	X	S1S2		X					Not	No
Boreal whiteface	<i>Leucorrhinia borealis</i>	X	S1		X					Known	Yes
Ringed emerald	<i>Somatochlora albicincta</i>	X	S1S3							Known	Yes
Hudsonian emerald	<i>Somatochlora hudsonica</i>	G5	S2S4							Known	Yes
Brush-tipped emerald	<i>Somatochlora walshii</i>	X	S1S2		X					Known	Yes
Brimstone clubtail	<i>Stylurus intricatus</i>	X	S1		X					Not	No
Red-veined meadowhawk	<i>Sympetrum madidum</i>	X	S2S3							Known	Yes
Mayflies											
A mayfly	<i>Caenis youngi</i>	X	S2		X					Known	Yes
A mayfly	<i>Ephemerella mucronata</i>	G4	SNR							Not	No
A mayfly	<i>Homoeoneuria alleni</i>	X	S2		X					Not	No
A mayfly	<i>Lachlania saskatchewanensis</i>	X	S1		X					Unk	No
A mayfly	<i>Raptoheptagenia cruentata</i>	X	S2		X					Unk	No
Stoneflies											
A stonefly	<i>Cascadoperna trictua</i>	G3G4	SNR		X					Known	Yes
Hooked snowfly	<i>Isocapnia crinita</i>	X	S2		X					Not	No
Alberta snowfly	<i>Isocapnia integra</i>	X	S2		X					Not	No

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Springs stripetail	<i>Isoperla petersoni</i>	X	S2		X					Not	No
Columbian snowfly	<i>Utacapnia columbiana</i>	X	S2		X					Known	Yes
Invertebrates - Mollusks											
Rocky Mountain duskysnail	<i>Colligyrus greggi</i>	X	S1		X					Not	No
Striate disc	<i>Discus shimkii</i>	X	S1		X					Known	Yes
Robust lancetooth	<i>Haplotrema vancouverense</i>	X	S1S2		X					Known	yes
Pale jumping slug	<i>Hemphillia camelus</i>		S1S3		X					Known	yes
Western pearlshell mussel	<i>Margaritifera falcata</i>	X	S2S4	X				X		Known	Yes
Meadow ramshorn	<i>Planorbula campestris</i>	G4	SNR							Range Unknown/No info	No
Prairie sprite	<i>Promenetus exacuus megas</i>	G5T4	SU							Known	Yes
Reticulate tailedropper	<i>Prophysaon andersoni</i>	X	S1S3							Known	Yes
Fir pinwheel	<i>Radiodiscus abietum</i>	X	S2S3							Known	Yes
Threeridge valvata	<i>Valvata tricarinata</i>	X	S2S3							Not	Yes
Sheathed slug	<i>Zacoleus idahoensis</i>	G3G4	S2S3		X					Known	Yes
Invertebrates - other											
A freshwater sponge	<i>Heteromeyenia baileyi</i>	X	S1S3							Known	Yes
Invertebrates – crayfish											
Pilose crayfish	<i>Pacifastacus gambelii</i>	X	S1		X					Range Unknown/No info	No

*species seen fewer than 20 times in the state. Recorded at least once but fewer than 20 times in the state, with proper documentation.

**rare but local species. Reported fewer than 20 times in the state, or in some cases more than 20 times but are more or less regular at some locations.

Table 4. Plant species that meet the criteria for potential species of interest for Montana, if the species ranges overlap the forest, and if the species is a potential species of interest for the KNF

Species common Name	Species scientific name	NatureServe Ranking	Montana ranking	RF Sensitive Species	Local Conservation Concern	Range Encompasses the Forest	Species qualifies as a species of interest
Fungi/lichens							
	<i>Acarospora scabrida</i>	G3G5	S1		X	Range unknown/no info	No
	<i>Albatrellus ellisii</i>	G4	None		X	Known	Yes
	<i>Alectoria nigricans</i>	G5	S1		X	Range unknown/no info	No
	<i>Alectoria sarmentosa ssp. vexillifera</i>	G5TNR	S2			Not in MNHP	No
	<i>Alectoria vexillifera</i>	GNR	S2		X	Range unknown/no info	No
	<i>Arctoparmelia subcentrifuga</i>	G4G5	S1		X	Range unknown/no info	No
	<i>Aspicilia myrini</i>	G5	S1		X	Range unknown/no info	No
	<i>Bacidia auerswaldii</i>	GNR	S1		X	Range unknown/no info	No
	<i>Bacidia granosa</i>	GNR	S1		X	Range unknown/no info	No
	<i>Bryonora castanea</i>	G3G5	S1		X	Range unknown/no info	No
	<i>Bryoria implexa</i>	GNR	S1		X	Range unknown/no info	No
	<i>Bryoria nadvornikiana</i>	GNR	S1		X	Range unknown/no info	No
	<i>Bryoria simplicior</i>	G3G5	S2		X	Range unknown/no info	No
	<i>Bryoria tortuosa</i>	G5	S1		X	Range unknown/no info	No
	<i>Calicium adequatum</i>				X	Known	Yes
	<i>Chaenotheca cinerea</i>	GNR	S1		X	Range unknown/no info	No
	<i>Chaenotheca subroscida</i>	G3G4	S1		X	Known	Yes
Green reindeer lichen	<i>Cladina mitis</i>	G5	S1		X	Range unknown/no info	No
Gray reindeer lichen	<i>Cladina rangiferina</i>	G5	S1		X	Range unknown/no info	No
	<i>Cladonia botrytes</i>	G5	S1		X	Range unknown/no info	No
	<i>Cladonia digitata</i>	G3G5	S1		X	Range unknown/no info	No
	<i>Cladonia transcendens</i>	G5	S1		X	Range unknown/no info	No
Thorn cladonia	<i>Cladonia uncialis</i>	G4G5	S1		X	Range unknown/no info	No
	<i>Cliostomum leprosum</i>	GNR	S1		X	Range unknown/no info	No
	<i>Collema polycarpon</i>	GNR	S2		X	Range unknown/no info	No
	<i>Cornicularia normoerica</i>	G3G5	S1		X	Range unknown/no info	No
	<i>Cyphelium karelicum</i>	GNR	S1		X	Range unknown/no info	No
	<i>Dactylina madreporiformis</i>	GNR	S2		X	Range unknown/no info	No
	<i>Dactylina ramulosa</i>	G4G5	S2		X	Range unknown/no info	No
	<i>Dimelaena thysanota</i>	GNR	S1		X	Range unknown/no info	No
	<i>Diploschistes diacapsis</i>	G4G5	S1		X	Range unknown/no info	No
	<i>Endocarpon pulvinatum</i>	G4G5	S2		X	Range unknown/no info	No
	<i>Endocarpon tortuosum</i>	GNR	S2		X	Range unknown/no info	No
	<i>Evernia divaricata</i>	G4G5	S1		X	Range unknown/no info	No
	<i>Farnoldia micropsis</i>	G3G5	S1		X	Range unknown/no info	No
	<i>Flavopunctelia flaventior</i>	G5	S1		X	Range unknown/no info	No
	<i>Gyalecta foveolaris</i>	G3G5	S1		X	Range unknown/no info	No
	<i>Hypogymnia enteromorpha</i>	G4	S2		X	Range unknown/no info	No
	<i>Imshaugia aleurites</i>	G5	S1		X	Range unknown/no info	No
	<i>Japewia tormoensis</i>	G4G5	S1		X	Range unknown/no info	No
	<i>Lecania fuscella</i>	GNR	S1		X	Range unknown/no info	No
	<i>Lecanora umbrosa</i>	GNR	S1		X	Range unknown/no info	No
	<i>Lecidea dolodes</i>	G4	S2		X	Range unknown/no info	No
	<i>Lecidea myriocaropoides</i>	G3G5	S1		X	Range unknown/no info	No

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	<i>Lecidea paddensis</i>	GNR	S1		X	Range unknown/no info	No
	<i>Lecidea plebeja</i>	G3G5	None			Not in MNHP	No
	<i>Lecidella effugiens</i>	GNR	S1		X	Range unknown/no info	No
	<i>Leptogium subtile</i>	GNR	S1		X	Range unknown/no info	No
	<i>Leptogium tenuissimum</i>	GNR	S2		X	Range unknown/no info	No
	<i>Lobaria hallii</i>	G4?	S2		X	Known	Yes
	<i>Lobaria limita</i>	G4G5	S1		X	Range unknown/no info	No
A lichen	<i>Lobaria scrobiculata</i>	G4	S1		X	Range unknown/no info	No
	<i>Melania commixta</i>	GNR	S1		X	Range unknown/no info	No
	<i>Melanelia septentrionalis</i>	G3G5	S1		X	Range unknown/no info	No
	<i>Miriquidica garovaglii</i>	GNR	S1		X	Range unknown/no info	No
	<i>Mycobilimbia sabuletorum</i>	G4G5	S1		X	Range unknown/no info	No
	<i>Neofuscelia loxodes</i>	G3G5	S1		X	Range unknown/no info	No
	<i>Neofuscelia subhosseana</i>	G4G5	S2		X	Range unknown/no info	No
	<i>Parmelia fraudans</i>	G4G5	S1		X	Range unknown/no info	No
	<i>Parmeliella triptophylla</i>	G3G5	S1		X	Range unknown/no info	No
	<i>Peltula patellata</i>	G3G5	None			Not in MNHP	No
	<i>Peltula polyspora</i>	G3G5	S1		X	Range unknown/no info	No
	<i>Pertusaria amara</i>	G5?	S1		X	Range unknown/no info	No
	<i>Pertusaria saximontana</i>	G3G5	S1		X	Range unknown/no info	No
	<i>Pertusaria sommerfeltii</i>	G4G5	S1		X	Range unknown/no info	No
	<i>Phaeophyscia ciliata</i>	G4G5	S1		X	Range unknown/no info	No
	<i>Phaeorrhiza sareptana</i>	GNR	S1		X	Range unknown/no info	No
	<i>Physcia semipinnata</i>	GNR	S1		X	Range unknown/no info	No
	<i>Podostroma alutaceum</i>	G3G4					
	<i>Polyozellus multiplex</i>	G4G5	None		X	Known	Yes
	<i>Psora rubiformis</i>	G3G5	S1		X	Range unknown/no info	No
	<i>Psorotichia nigra</i>	GNR	S1		X	Range unknown/no info	No
	<i>Psorotichia schaeereri</i>	GNR	S1		X	Range unknown/no info	No
A lichen	<i>Ramalina farinacea</i>	G3G5	S2		X	Range unknown/no info	No
Powdery twig lichen	<i>Ramalina pollinaria</i>	G4G4	S1		X	Range unknown/no info	No
	<i>Ramalina thrausta</i>	G3G4	S3		X	Known	Yes
	<i>Rhizocarpon hochstetteri</i>	G4G5	S1		X	Range unknown/no info	No
	<i>Rhizocarpon polycarpum</i>	G3G5	S1		X	Range unknown/no info	No
	<i>Solorina bispora</i>	G3G5	S1		X	Range unknown/no info	No
	<i>Solorina octospora</i>	G3G5	S1		X	Range unknown/no info	No
	<i>Solorina saccata</i>	G3G5	S2		X	Range unknown/no info	No
	<i>Solorina spongiosa</i>	G4G5	S1		X	Range unknown/no info	No
	<i>Sporastatia polyspora</i>	G3G5	S1		X	Range unknown/no info	No
	<i>Stereocauloon paschale</i>	G5	S1		X	Range unknown/no info	No
	<i>Toninia alutacea</i>	G4G5	S1		X	Range unknown/no info	No
	<i>Toninia candida</i>	G3G5	S2		X	Range unknown/no info	No
	<i>Toninia ruginosa</i>	G3G5	S2		X	Range unknown/no info	No
	<i>Tuckermannopsis sepincola</i>	G5	S2		X	Range unknown/no info	No
Iceland moss	<i>Tuckermannopsis subalpina</i> (<i>Cetraria subalpina</i>)	G4	S2		X	Known	Yes
	<i>Umbilicaria muehlenbergii</i>	G5	S1		X	Range unknown/no info	No
	<i>Usnea cavernosa</i>	G3G5	S1		X	Range unknown/no info	No

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	<i>Verrucaria calkinsiana</i>	GNR	S1		X	Range unknown/no info	No
	<i>Xanthoparmelia angustiphylla</i>	G5	S1		X	Range unknown/no info	No
	<i>Xanthoparmelia montanensis</i>	G5	S1		X	Range unknown/no info	No
Non vascular mosses							
	<i>Aloina brevirostris</i>	G3G5	S1		X	Known	Yes
	<i>Amblyodon dealbatus</i>	G3G5	SH		X	Not	No
	<i>Andreaea blytii</i>	G5	None S1		X	Known	Yes
Cedar moss	<i>Brachythecium reflexum</i>	G4G5	S1		X	Known	Yes
	<i>Brachythecium turgidum</i>	G4	S1		X	Range unknown/no info	No
	<i>Bryum arcticum</i>	G5?	S2		X	Range unknown/no info	No
	<i>Bryum calophyllum</i>	G5?	SH		X	Range unknown/no info	No
Bryum moss	<i>Bryum dichotomum</i>	GNR	S1		X	Not	No
	<i>Bryum lonchocaulon</i>	G5?	S1		X	Range unknown/no info	No
	<i>Bryum pallens</i>	G4G5	S1		X	Range unknown/no info	No
	<i>Bryum schleicheri</i>	G5?	S1		X	Not	No
	<i>Callacladium haldanianum</i>	G5	SH		X	Range unknown/no info	No
	<i>Calliergon richardsonii</i>	G4	S1		X	Not	No
A moss	<i>Calliergon trifarium</i>	G4	S1		X	Not	No
Calliergonella moss	<i>Calliergonella cuspidata</i>	G5	S1		X	Not	No
	<i>Catoscopium nigratum</i>	G4G5	S1		X	Range unknown/no info	No
	<i>Cinclidium stygium</i>	G5	S1		X	Range unknown/no info	No
	<i>Cynodontium tenellum</i>	G3G5Q	SH		X	Range unknown/no info	No
	<i>Dendroalsia abietina</i>	G4	SH		X	Range unknown/no info	No
	<i>Desmatodon ceruus</i>	G3G5	SH		X	Range unknown/no info	No
	<i>Desmatodon heimii</i>	G5G5	S1		X	Not	No
	<i>Dichodontium olympicum</i>	G3G5	S1		X	Range unknown/no info	No
	<i>Dicranella grevilleana</i>	G3G5	S1		X	Not	No
	<i>Dicranella heteromalla</i>	G5?	S1		X	Not	No
	<i>Dicranoweisia cirrata</i>	G4	S1		X	Not	No
	<i>Dicranum acutifolium</i>	G5?	S1		X	Not	No
	<i>Dicranum fragilifolium</i>	G4G5	S1		X	Not	No
	<i>Dicranum spadiceum</i>	G5?	S1		X	Range unknown/no info	No
	<i>Didymodon fallax var. reflexus</i>	G5T5?	S1		X	Range unknown/no info	No
	<i>Didymodon rigidulus var. gracilis</i>	G5T5?	S1		X	Range unknown/no info	No
	<i>Didymodon vinealis var. brachyphyllus</i>	G5TNR	S1		X	Not	No
	<i>Distichium inclinatum</i>	G4G5	S1		X	Not	No
	<i>Ditrichum ambiguum</i>	G4?	SH		X	Not	No
	<i>Entosthodon rubiginosus</i>	G1G3	SH		X	Not in MNHP	No
Lime seep eucladium	<i>Eucladium verticillatum</i>	G4	S1		X	Not	No
	<i>Eurhynchium pulchellum vcar. Barnesii</i>	G5TNR	S1		X	Not	No
	<i>Fabronia pusilla</i>	G4G5	S1		X	Not	No
	<i>Fissidens fontanus</i>	G5	S1		X	Not	No
	<i>Grimmia incurva</i>	G4G5	S1		X	Not	No
	<i>Grimmia mollis</i>	G3G5	S1		X	Not	No
	<i>Hamatocaulis vernicosus</i>	G5	S1		X	Range unknown/no info	No
	<i>Herzogiella striatella</i>	G4G5	S1		X	Range unknown/no info	No

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	<i>Herzogiella turfacea</i>	G4G5	S1		X	Range unknown/no info	No
	<i>Hygroamblystegium noterophilum</i>	G4	S1		X	Range unknown/no info	No
	<i>Hygrohypnum cochlearifolium</i>	G4	S1		X	Known	Yes
	<i>Hypnum callichroum</i>	G5?	S1		X	Range unknown/no info	No
	<i>Kiaeria blytti</i>	G5	S1		X	Not	No
	<i>Kiaeria falcata</i>	G5	S1		X	Range unknown/no info	No
	<i>Kiaeria starkei</i>	G5	S1		X	Not	No
	<i>Leucolepis acanthoneuron</i>	G4	S1		X	Known	Yes
	<i>Limprichtia revolvens</i>	G4G5	S2		X	Range unknown/no info	No
	<i>Meesia longiseta</i>	G4?	S1		X	Known	Yes
	<i>Meesia triquetra</i>	G5	S2	X	X	Known	Yes
	<i>Meesia uliginosa</i>	G4	S1		X	Known	Yes
	<i>Neckera douglasii</i>	G4	S1		X	Not	No
	<i>Neckera pennata</i>	G5	S1		X	Range unknown/no info	No
	<i>Oligotrichum aligerum</i>	G5	S1		X	Known	Yes
	<i>Oxystegus tenuistrois</i>	G4	SH		X	Range unknown/no info	No
	<i>Paludella squarrosa</i>	G3G5	S1		X	Not	No
	<i>Paraleucobryum enerve</i>	G5?	S1		X	Not	No
	<i>Paraleucobryum longifolium</i>	G5	S1		X	Not	No
	<i>Phascum cuspidatum</i>	G5	S1		X	Not	No
	<i>Plagiobryum demissum</i>	G3G5	S1		X	Range unknown/no info	No
	<i>Plagiobryum zieri</i>	G4G5	S1		X	Range unknown/no info	No
	<i>Platyphmidium riparioides</i>	G4	S1		X	Known	Yes
	<i>Pohlia vexans</i>	G3G5	SH		X	Not	No
	<i>Polytrichum lyalli</i>	GU	S1		X	Range unknown/no info	No
	<i>Porotrichum bigelovii</i>	G4	S1		X	Not	No
	<i>Pseudocalliergon turgescens</i>	G3G5	S1		X	Not	No
	<i>Pseudocrossidium obtusulum</i>	GU	S1		X	Not	No
	<i>Pterygoneurum lamellatum</i>	G3G5	S1		X	Range unknown/no info	No
	<i>Ptychomitrium gardneri</i>	G4	S1		X	Range unknown/no info	No
	<i>Racomitrium aquaticum</i>	G3G5Q	S1		X	Range unknown/no info	No
	<i>Racomitrium brevipes</i>	GU	S1		X	Range unknown/no info	No
	<i>Racomitrium pygmaeum</i>	GU	S1		X	Known	Yes
	<i>Sarmenthypnum sarmentosum</i>	G4G5	S1		X	Range unknown/no info	No
	<i>Scorpidium scorpioides</i>	G4G5	S2	X	X	Known	Yes
	<i>Seligeria donniana</i>	G5	S1		X	Range unknown/no info	No
Narrowleaf peatmoss	<i>Sphagnum angustifolium</i>	G5	S2		X	Range unknown/no info	No
Sphagnum	<i>Sphagnum centrale</i>	G5	S1		X	Not	No
Low peatmoss	<i>Sphagnum compactum</i>	G5	S1		X	Not	No
Sphagnum	<i>Sphagnum contortum</i>	G5	S1		X	Not	No
Flattop bogmoss	<i>Sphagnum fallax</i>	G5	S1		X	Range unknown/no info	No
Fringed bogmoss	<i>Sphagnum fimbriatum</i>	G5	S1		X	Not	No
Brown peatmoss	<i>Sphagnum fuscum</i>	G5	S1		X	Range unknown/no info	No
Girgensohns peatmoss	<i>Sphagnum girgensohnii</i>	G5	S1		X	Range unknown/no info	No
Magellans peatmoss	<i>Sphagnum magellanicum</i>	G5	S1		X	Not	No
Mendocino peatmoss	<i>Sphagnum mendocinum</i>	G4	S1		X	Not	No
Sphagnum	<i>Sphagnum platyphyllum</i>	G5	S1		X	Range unknown/no info	No
Sphagnum	<i>Sphagnum riparium</i>	G5	S1		X	Not	No

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	<i>Sphagnum subnitens</i>	G5	S1		X	Range unknown/no info	No
Wulfs peatmoss	<i>Sphagnum wulfianum</i>	G5	S1		X	Known	Yes
	<i>Stegonia latifolia</i>	G4G5	S1		X	Range unknown/no info	No
	<i>Tayloria lingulata</i>	G3G5	S1		X	Not	No
	<i>Tayloria serrata</i>	G4G4	S1		X	Not	No
	<i>Tetraplodon angustatus</i>	G4	S1		X	Not	No
	<i>Tetraplodon mnioides</i>	G4	S1		X	Not	No
	<i>Thamnobryum neckeroides</i>	G4	SH		X	Range unknown/no info	No
	<i>Tortula muralis</i>	G5	S1		X	Range unknown/no info	No
	<i>Tortula norvegica</i>	G5	S1		X	Not in MNHP	No
	<i>Tortula papillosa</i>	G5	S1		X	Not	No
	<i>Trachybryum megapitilum</i>	G4	S1		X	Range unknown/no info	No
Warnstorfia moss	<i>Warnstorfia exannulata</i>	G5	S1		X	Range unknown/no info	No
Vascular							
Conifers and relatives							
Dwarf birch	<i>Betula pumila</i>	G5	SNR		X	Suspected	Yes
Whitebark pine	<i>Pinus albicaulis</i>					Known	Yes
Ferns and relatives							
Maidenhair spleenwort	<i>Asplenium trichomanes</i>	G5	SH		X	Not	No
Deer fern	<i>Blechnum spicant</i>	G5	None	X	X	Suspected	Yes
Mountain bladder fern	<i>Cystopteris montana</i>	G5	SH		X	Not	No
Crested shieldfern	<i>Dryopteris cristata</i>	G5	S2		X	Known	Yes
Bog clubmoss	<i>Lycopodiella inundata</i> (<i>Lycopodium inundatum</i>)	G5	S1	X	X	Suspected	Yes
Treelike clubmoss	<i>Lycopodium dendroideum</i>	G5	S1		X	Known	Yes
One cone ground pine	<i>Lycopodium lagopus</i>	G5	S1		X	Known	Yes
Northern adders tongue	<i>Ophioglossum pusillum</i>	G5	S2		X	Known	Yes
Kruckeberg's swordfern	<i>Polystichum kruckebergii</i>	G4	S1		X	Known	Yes
Mountain holly fern	<i>Polystichum scopulinum</i>	G5	S1		X	Known	Yes
Low spike moss	<i>Selaginella selaginoides</i>	G5	S2		X	Not	No
Northern beechfern	<i>Thelypteris phegopteris</i> (<i>Phegopteris comectilis</i>)	G5	S2	X	X	Known	Yes
Triangle moonwort	<i>Botrychium lanceolatum</i>	G5	S3?			Not	No
Mingan moonwort	<i>Botrychium minganense</i>	G4	S3			Known	Yes
Least moonwort	<i>Botrychium simplex</i>	G5	SU			Not	No
Flowering plants							
Lettermans needlegrass	<i>Achnatherum lettermanii</i> (<i>Stipa lettermannii</i>)	G5	S1		X	Not	No
Sweetflag	<i>Acorus americanus</i> (<i>A. calamus</i>)	G5	SH		X	Not	No
Musk root	<i>Adoxa moschatellina</i>	G5	S2	X	X	Not	No
Western joe-pye weed	<i>Ageratina occidentalis</i> (<i>Eupatorium occidentale</i>)	G4	S2	X	X	Range unknown/no info	Yes
Taper tip onion	<i>Allium acuminatum</i>	G5	S1	X	X	Known	Yes
	<i>Allium fibrillum</i>	G4				Known	Yes
Dwarf onion	<i>Allium parvum</i>	G5	S2S3	X	X	Not	No
Simil onion	<i>Allium simillimum</i>	G4	S1		X	Not	No
Red alder	<i>Alnus rubra</i>	G5	S1		X	Known	Yes
California amaranth	<i>Amaranthus californicus</i>	G4	S2?			Not	No

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Round leaved orchis	<i>Amerorchis rotundifolia</i> (<i>Orchis rotundifolia</i>)	G5	S2S3	X	X	Known	Yes
Scarlet ammannia	<i>Ammannia robusta</i>	G5	SH		X	Not	No
Lead plant	<i>Amorpha canescens</i>	G5	SH		X	Not	No
Chaffweed	<i>Anagallis minima</i> (<i>Centunculus minima</i>)	G5	S2		X	Not	No
Small flower columbine	<i>Aquilegia brevistyla</i>	G5	S2	X	X	Not	No
Crimson columbine	<i>Aquilegia formosa</i>	G5	S1S2		X	Not	No
Nodding rockcress	<i>Arabis demissa</i>	G5	S1		X	Not	No
Daggett rockcress	<i>Arabis demissa</i> var. <i>languida</i>	G5T4	S1		X	Not	No
Kamchatica rockcress	<i>Arabis kamchatica</i>	G5T5?	SH		X	Not	No
Greenleaf manzanita	<i>Arctostaphylos patula</i>	G4	S1		X	Known	Yes
Swamp milkweed	<i>Asclepias incarnata</i>	G5G5	S1		X	Not	No
Dwarf milkweed	<i>Asclepias ovalifolia</i>	G5?	S1	X	X	Not	No
Narrow leaved milkweed	<i>Asclepias stenophylla</i>	G4G5	S1		X	Not	No
Alkali aster	<i>Aster frondosus</i>	G4	None			Not	No
Prairie aster	<i>Aster ptarmicoides</i>	G5	S1		X	Not	No
Sweetwater milkvetch	<i>Astragalus aretioides</i>	G4	S1		X	Not	No
Silverleaf milkvetch	<i>Astragalus argophyllus</i> var. <i>argophyllus</i>	G5T4	S2?			Range unknown/no info	No
Timber milkvetch	<i>Astragalus convallarius</i>	G5	S2		X	Not	No
Lesser rushy milkvetch	<i>Astragalus convallarius</i> var. <i>convallarius</i>	G5T5	None			Not in MNHP	No
Geyers milkvetch	<i>Astragalus geyeri</i>	G4	S2		X	Not	No
Geyers milkvetch	<i>Astragalus geyeri</i> var. <i>geyeri</i>	G4T4				Not in MNHP	No
Grays milkvetch	<i>Astragalus grayi</i>	G4?	S1S2		X	Not	No
Wind river milkvetch	<i>Astragalus oreganus</i>	G4?	S1		X	Not	No
Racemose milkvetch	<i>Astragalus racemosus</i>	G5	S2		X	Not	No
Racemose milkvetch	<i>Astragalus racemosus</i> var. <i>racemosus</i>	G5T5	None			Not	No
Common milkvetch	<i>Athysanus pusillus</i>	G4	S1	X	X	Not	No
Wedgeleaved saltbush	<i>Atriplex truncata</i>	G5	S1		X	Not	No
Roundleaf water hyslop	<i>Bacopa rotundifolia</i>	G5	S1		X	Not	No
Hookers balsamroot	<i>Balsamorhiza hookeri</i>	G5	S1		X	Not	No
Cutleaf balsamroot	<i>Balsamorhiza macrophylla</i>	G3G5	S2	X	X	Not	No
Dense spike primrose	<i>Boisduvalia densiflora</i>	G5	SH		X	Not	No
Watershield	<i>Brasenia schreberi</i>	G5	S1S2	X	X	Known	Yes
Low braya	<i>Braya humilis</i>	G5	S1		X	Not	No
Narrowleaf brickell bush	<i>Brickellia oblongifolia</i>	G5	S1		X	Not	No
Narrowleaf brickell bush	<i>Brickellia oblongifolia</i> var. <i>oblongifolia</i>	G5T5	None			Not in MNHP	No
Bruneau mariposa lily	<i>Calochortus bruneanus</i>	G5	SH		X	Not	No
Sagebrush mariposa lily	<i>Calochortus macrocarpus</i>	G5	SU			Known	Yes
	<i>Camassia quamash</i>	G5	S4S5			Known	Yes
Blackfoot river suncup	<i>Camissonia andina</i>	G4	S1		X	Not	No
Lewis river suncup	<i>Camissonia parvula</i>	G5	S1		X	Not	No
Longleaf suncup	<i>Camissonia subacaulis</i>	G5	S2S3			Not	No

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Few seed bittercress	<i>Cardamine oligosperma</i> var. <i>kamtschatica</i>	G5T3T5	S1		X	Not	No
Bigleaf sedge	<i>Carex amplifolia</i>	G4	S1	X	X	Known	Yes
Brownish sedge	<i>Carex brunnescens</i>	G5				Not	No
Creeping sedge	<i>Carex chordorrhiza</i>	G5	S2	X	X	Known	Yes
Bristly sedge	<i>Carex comosa</i>	G5	S1		X	Not	No
Crawes sedge	<i>Carex crawei</i>	G5	S2		X	Not	No
Heavy fruited sedge	<i>Carex gravida</i>	G5	S1S2		X	Not	No
Heavy fruited sedge	<i>Carex gravida</i> var. <i>gravida</i>	G5T5?	S1S2			Not in MNHP	No
Different nerve sedge	<i>Carex heteroneura</i> var. <i>chalciolepis</i>	G5G5	S1?			Not	No
Seaside sedge	<i>Carex incurviformis</i>	G4G5	S1		X	Not	No
Seaside sedge	<i>Carex incurviformis</i> var. <i>incurviformis</i>	G4G5T4T5	S1			Range unknown/no info	No
Lake bank sedge	<i>Carex lacustris</i>	G5	S1	X	X	Not	No
Pale sedge	<i>Carex livida</i>	G5	S3		X	Known	Yes
Many ribbed sedge	<i>Carex multicosata</i>	G5	S1		X	Not	No
Scandinavian sedge	<i>Carex norvegica</i> ssp. <i>stevenii</i>	G5TNR	S1		X	Not	No
Black sedge	<i>Carex nova</i>	G5	S2			Not	No
Western sedge	<i>Carex occidentalis</i>	G4	SH		X	Not	No
Pale sedge	<i>Carex pallescens</i>	G5	S1?			Not	No
Rock sedge	<i>Carex petricosa</i>	G4	S1		X	Not	No
Prairie sedge	<i>Carex prairea</i>	G5?	S2	X	X	Known	Yes
Beaked sedge	<i>Carex rostrata</i>	G5	S1	X	X	Known	Yes
Broom sedge	<i>Carex scoparia</i>	G5	S1S2		X	Not	No
Many headed sedge	<i>Carex sychnocephala</i>	G4	S1		X	Known	Yes
Sparse flower sedge	<i>Carex tenuiflora</i>	G5	S1		X	Not	No
Tinged sedge	<i>Carex tinctoria</i>	G4G5	S1		X	Not	No
Sheathed sedge	<i>Carex vaginata</i>	G5	S1	X	X	Known	Yes
Deer Indian paintbrush	<i>Castilleja cervina</i>	G4	SH		X	Not	No
Greater red Indian paintbrush	<i>Castilleja crista-galli</i>	G4?	S1		X	Not	No
Alkali Indian paintbrush	<i>Castilleja minor</i> ssp. <i>minor</i> (c. <i>exilis</i>)	G5T5	S2		X	Not	No
Slender Indian paintbrush	<i>Castilleja gracillima</i>	G3G4Q	S2		X	Unk	No
New jersey tea	<i>Ceanothus herbaceus</i>	G5	SH		X	Not	No
Climbing bittersweet	<i>Celastrus scandens</i>	G5	S1		X	Not	No
Western centuary	<i>Centaurium exaltatum</i>	G5	SH		X	Not	No
Chaffweed	<i>Centunculus minimus</i>	G5	S2		X	Not	No
Colorado birchleaf mountain mahogany	<i>Cercocarpus montanus</i>	G5	S1S2		X	Not	No
Birchleaf mountain mahogany	<i>Cercocarpus montanus</i> var. <i>glaber</i>	G5T3T5				Not in MNHP	No
Parrys mountain rabbitbrush	<i>Chrysothamnus parryi</i> ssp. <i>montanus</i>	G5T1	S1		X	Not	No
Short style thistle	<i>Cirsium brevistylum</i>	G4	S1S2		X	Known	Yes
Wyoming thistle	<i>Cirsium pulcherrimum</i>	G5	S1		X	Not	No
Tongue clarkia	<i>Clarkia rhomboidea</i>	G5	S2	X	X	Known	Yes
Sand springbeauty	<i>Claytonia arenicola</i>	G4	S1	X	X	Known	Yes
Yellow spiderflower	<i>Cleome lutea</i>	G5	S1		X	Not	No

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Douglas savory	<i>Clinopodium douglasii</i> (<i>Satureja douglasii</i>)	G4	S2		X	Known	Yes
Yellow staining collomia	<i>Collomia tinctoria</i>	G5	S1		X	Not	No
Mertens coralroot	<i>Corallorhiza mertensiana</i>	G4G5	S2S3			Not	No
Pale corydalis	<i>Corydalis sempervirens</i>	G4G5	S2	X	X	Known	Yes
Fendlers catseye	<i>Cryptantha fendleri</i>	G4	S2		X	Not	No
Round headed cryptantha	<i>Cryptantha humilis</i>	G4?	SH		X	Not	No
Desert cryptantha	<i>Cryptantha scoparia</i>	G4?	S1		X	Not	No
Short point flatsedge	<i>Cyperus acuminatus</i>	G5	S1		X	Known	Yes
Red foot flatsedge	<i>Cyperus erythrorhizos</i>	G5	SH		X	Not	No
Shining flatsedge	<i>Cyperus rivularis</i> (<i>C. bipartitus</i>)	G5	S1		X	Not	No
Schweinitzs flatsedge	<i>Cyperus schweinitzii</i>	G5	S2		X	Not	No
Clustered lady's slipper	<i>Cypripedium fasciculatum</i>	G4	S2	X	X	Known	Yes
Yellow lady's slipper	<i>Cypripedium parviflorum</i>	G5	S3	X		Known	Yes
Sparrows egg ladys slipper	<i>Cypripedium passerinum</i>	G4G5	S2	X	X	Known	Yes
Nine anther dalea	<i>Dalea enneandra</i>	G5	S1		X	Not	No
Silky prairie clover	<i>Dalea villosa</i>	G5	S1		X	Not	No
Silky prairie clover	<i>Dalea villosa</i> var. <i>villosa</i>	G5T5	None			Not	No
Meadow larkspur	<i>Delphinium burkei</i>	G4	S2		X	Not in MNHP	No
Hellers whitcgrass	<i>Dicanthelium oligosanthes</i>	G5	S1			Not	No
Scribners panicgrass	<i>Dicanthelium oligosanthes</i> var. <i>scribnerianum</i>	G5T5	S1		X	Not	No
Great basin downingia	<i>Downingia laeta</i>	G5	S1		X	Not	No
Denseleaf whitlow grass	<i>Draba densifolia</i>	G5	S2		X	Not	No
White arctic whitlow grass	<i>Draba fladnizensis</i>	G4	S1		X	Not	No
White arctic whitlow grass	<i>Draba fladnizensis</i> var. <i>fladnizensis</i>	G4T4	S1			Not	No
English sundew	<i>Drosera anglica</i>	G5	S2S3	X	X	Known	Yes
Slenderleaf sundew	<i>Drosera linearis</i>	G4	S1	X	X	Suspected	Yes
Entire leaved mountain avens	<i>Dryas integrifolia</i>	G5	S1		X	Not	No
Slender spikerush	<i>Eleocharis rostellata</i>	G5	S2	X	X	Known	Yes
Long sheath waterweed	<i>Elodea longivaginata</i> (<i>Elodea bifoliata</i>)	G4G5	S1		X	Not	No
Nuttalls waterweed	<i>Elodea nuttalli</i>	G5	S2			Not in MNHP	No
Sand wildrye	<i>Elymus flavescens</i> (<i>Leymus flavescens</i>)	G4	S1		X	Not	No
Northern wildrye	<i>Elymus innovatus</i> (<i>Leymus innovatus</i>)	G5	S1	X	X	Not	No
Giant helleborine	<i>Epipactis gigantea</i>	G4	S2	X	X	Suspected	Yes
Discoid goldenweed	<i>Ericameria discoidea</i> var. <i>discoidea</i> (<i>Haplopappus macronema</i> var. <i>macronema</i>)	G4G5T4	S1		X	Not	No
Parrys rabbitbrush	<i>Ericameria parryi</i>	G5	S1			Range unknown/no info	No
Idaho fleabane	<i>Erigeron asperugineus</i>	G4	S1	X	X	Not	No
Eatons daisy	<i>Erigeron eatonii</i>	G5	SU			Range unknown/no info	No
Eatons fleabane	<i>Erigeron eatonii</i> var. <i>eatonii</i>	G5T5	S1		X	Not	No
Evermanns fleabane	<i>Erigeron evermannii</i>	G4	S1	X	X	Not	No
Beautiful bleabane	<i>Erigeron formosissimus</i>	G5	S1		X	Not	No
Smooth fleabane	<i>Erigeron leiomerus</i>	G4	S1		X	Not	No

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Linearleaf fleabane	<i>Erigeron linearis</i>	G5	S1		X	Not	No
Tendere fleabane	<i>Erigeron tener</i>	G4	S1		X	Not	No
Matted wild buckwheat	<i>Eriogonum caespitosum</i>	G5	S1		X	Not	No
Smooth buckwheat	<i>Eriogonum salsuginosum</i>	G4?	S1		X	Not	No
Sheathed cottongrass	<i>Eriophorum callitrix</i>	G5	S1		X	Not	No
Sheathed cotton grass	<i>Eriophorum callitrix</i> var. <i>callitrix</i>	G5T4T5	None			Not in MNHP	No
Green keeled cotton grass	<i>Eriophorum gracile</i>	G5	S2	X	X	Known	Yes
Green keeled cotton grass	<i>Eriophorum viridicarinatum</i>	G5	S3	X		Known	Yes
Spotted joe pyeweed	<i>Eupatorium maculatum</i>	G5	S1S2		X	Not	No
Joe pyeweed	<i>Eupatorium maculatum</i> var. <i>bruneri</i>	G5T4T5Q	None			Not in MNHP	No
Arctic eyebright	<i>Euphrasia subarctica</i>	G5	S1		X	Not	No
Showy prairie gentian	<i>Eustoma exaltatum</i> ssp. <i>russellianum</i> (<i>E. grandiflorum</i>)	GNRT5	S1		X	Not	No
Viviparous fescue	<i>Festuca vivipara</i>	G4G5	S1		X	Not	No
Northern fescue	<i>Festuca viviparoidea</i> ssp. <i>viviparoidea</i>	G4G5T4T5	S1			Not in MNHP	No
Glaucous gentian	<i>Gentiana glauca</i>	G4G5	S1		X	Not	No
Macouns gentian	<i>Gentianopsis macounii</i>	G5	S1	X	X	Not	No
One flowergentian	<i>Gentianopsis simplex</i>	G5	S1	X	X	Suspected	Yes
Common blue cup	<i>Githosios specularioides</i>	G5	S1		X	Known	Yes
Spiny greasebush	<i>Glossopetalon spinescens</i>	G5	S1	X	X	Not	No
Nevada greasebush	<i>Glossopetalon spinescens</i> var. <i>aridum</i>	G5T5?	None			Not in MNHP	No
Dwarf rattlesnake plantain	<i>Goodyera repens</i>	G5	S2S3	X	X	Not	No
Bractless hedge hyssop	<i>Gratiola ebracteata</i>	G4	S1		X	Not	No
Spiny hop sage	<i>Grayia spinosa</i>	G5	S2		X	Not	No
Small flower gymmotheris	<i>Gymmotheris parvula</i>	G4	SH		X	Not	No
Puzzling rockcress	<i>Halimolobos perplexa</i>	G4	S1		X	Not	No
Puzzling rockcress	<i>Halimolobos perplexa</i> var. <i>lemhiensis</i>	G4T4	S1			Not	No
Beartooth large flowered goldenweed	<i>Haplopappus carthamoides</i> var. <i>subsquarrosus</i>	G4G5T2T3	S1S2	X	X	Not	No
Dwarf goldenweed	<i>Haplopappus nanus</i>	G5	SH		X	Not	No
Pygmy goldenweed	<i>Haplopappus pygmaeus</i>	G4	SH		X	Not	No
Many flower viguiera	<i>Helimeris multiflora</i> (<i>Viguiera multiflora</i>)	G4G5	S1		X	Not	No
Drummonds hemicarpha	<i>Hemicarpha drummondii</i>	G4G5	SH		X	Not	No
Grassleaf mud plantain	<i>Heteranthera dubia</i>	G5	S1	X	X	Known	Yes
Western pearl flower	<i>Heterocodon rariflorum</i>	G5	S2	X	X	Known	Yes
Prostrate hymenolobus	<i>Hutchinsia procumbens</i>	G5	S1		X	Not	No
Scapose scalepod	<i>Idahoia scapigera</i>	G5	S1	X	X	Not	No
Bush morning glory	<i>Ipomoea leptophylla</i>	G3G5	S1S2		X	Not	No
Small flower standing cypress	<i>Ipomopsis minitiflora</i>	G4	S1		X	Not	No
Sharp fruit rush	<i>Juncus acuminatus</i>	G5	S1		X	Not	No
Northern white rush	<i>Juncus albescens</i>	G5	S1		X	Not	No
Covilles rush	<i>Juncus covillei</i>	G5	S1			Range unknown/no info	No
Covilles rush	<i>Juncus covillei</i> var. <i>covillei</i>	G5T5	S1		X	Not	No
Covilles rush	<i>Juncus covillei</i> var. <i>obtusatus</i>	G5T4	S1		X	Not	No

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Halls rush	<i>Juncus hallii</i>	G4G5	S2	X	X	Not	No
Pale laurel	<i>Kalmia polifolia</i>	G5	S1	X	X	Not	No
Kelloggia	<i>Kelloggia galioides</i>	G5	SH		X	Not	No
	<i>Kobresia macrocarpa (Kobresia sibirica)</i>	G5	S1		X	Not	No
Simple kobresia	<i>Kobresia simpliciuscula</i>	G5	S2		X	Not	No
Perennial summer cypress	<i>Kochia americana</i>	G5	S1		X	Not	No
Island koenigia	<i>Koenigia islandica</i>	G4	S1		X	Not	No
Slender hareleaf	<i>Lagophylla ramosissima</i>	G5	S1		X	Known	Yes
Latah tule pea	<i>Lathyrus bijugatus</i>	G4	S1	X	X	Known	Yes
Rice cutgrass	<i>Leersia oryzoides</i>	G5			X	Not	No
Matted prickly phlox	<i>Leptodactylon caespitosum</i>	G4	S2		X	Not	No
Douglas bladderpod	<i>Lesquerella douglasii</i>	G4?	S1		X	Known	Yes
Columbian bitterroot	<i>Lewisia columbiana</i>	G4	S1		X	Not	No
Columbia lewisia	<i>Lewisia Columbiana var. wallowensis</i>	G4T4	S1			Not	No
Nevada bitterroot	<i>Lewisia nevadensis (Lewisia pygmaea var. nevadensis)</i>	G4	S1		x	Not	No
Bitterroot	<i>Lewisia rediviva</i>	G5	G4G5			Known	Yes
Flowering quillwort	<i>Lilaea scilloides</i>	G5?	SH		X	Not	No
Columbian lily	<i>Lilium columbianum</i>	G4G5	S2S3			Range unknown/no info	No
Loesels twayblade	<i>Liparis loeselii</i>	G5	S1S2	X	X	Not	No
Northern twayblade	<i>Listera borealis</i>	G4	S2?		X	Not	No
Pale spike lobelia	<i>Lobelia spicata</i>	G5	S1		X	Not	No
Geyers desert parsley	<i>Lomatium geberi</i>	G4	S2	X	X	Known	Yes
Marsh felwort	<i>Lomatogonium rotatum</i>	G5	S1		X	Not	No
	<i>Madia minima</i>	G4	S3		X	Range unknown/no info	Yes
	<i>Mahonia nervosa</i>	G5	None		X	Known	Yes
Wildl lily of the valley	<i>Maianthemum canadense</i>	G5	SH		X	Not	No
Torreys malacothrix	<i>Malacothrix torreyi</i>	G4	S1		X	Not	No
	<i>Megaladonta beckii (Bidens beckii)</i>	G4G5	S2	X	X	Known	Yes
			None check	X			No
Beck water marigold	<i>Megaladonta beckii vr. beckii</i>	G4G5T4T5			X	Not in MNHP	
Smiths melicgrass	<i>Melica smithii</i>	G4	S1?			Range unknown/no info	No
white bract stickleaf	<i>Mentzelia montana</i>	G4	S1		X	Not	No
Bractless stickleaf	<i>Mentzelia nuda</i>	G5	S1		X	Not	No
Golden stickleaf	<i>Mentzelia pumila</i>	G4	S2		X	Not	No
Oregon bluebells	<i>Mertensia bella</i>	G4	S1	X	X	Not	No
Short flower monkeyflower	<i>Mimulus breviflorus</i>	G4	S1S2	X	X	Known	Yes
Dwarf purple monkeyflower	<i>Mimulus nanus</i>	G4G5	S1	X	X	Not	No
Stalk-leaffed monkeyflower	<i>Mimulus patulus (M. Washingtonensis)</i>	G3Q	S1	X	X	Known	Yes
Primrose monkeyflower	<i>Mimulus primuloides</i>	G4	S2	X	X	Not	No
Square stem monkeyflower	<i>Mimulus ringens</i>	G5	S1		X	Not	No
Pulup muhly	<i>Muhlenbergia filiformis</i>	G5	S2?			Range unknown/no info	No
Southern naiad	<i>Najas guadalupensis</i>	G5	S1		X	Not	No
Matted fiddleleaf	<i>Nama densum</i>	G5	S1		X	Not	No
Texas toadflax	<i>Nuttallanthus texanus</i>	G4G5	S1		X	Not	No

Species common Name	Species scientific name	NatureServe Ranking	Montana ranking	RF Sensitive Species	Local Conservation Concern	Range Encompasses the Forest	Species qualifies as a species of interest
Dwarf water lily	<i>Nymphaea leibergii</i> (<i>N. tetragona</i> ssp. <i>leibergii</i>)	G5	S1		X	Not	No
Prairie goldenrod	<i>Oligoneuron album</i>	G5	S1		X	Not	No
California Indian potato	<i>Orogenia fusiformis</i>	G5	S2	X	X	Not	No
Pendent pod crazyweed	<i>Oxytropis deflexa</i> var. <i>foliolosa</i>	G5T3T5	S1		X	Not	No
Parrys crazyweed	<i>Oxytropis parryi</i>	G5	S1		X	Not	No
Grays point vetch	<i>Oxytropis podocarpa</i>	G4	S1	X	X	Not	No
Scallop leaf lousewort	<i>Pedicularis crenulata</i>	G4	S1		X	Not	No
Edible scurfpea	<i>Pedionelum huogaeum</i> var. <i>hypogaeum</i>	G5T4	S2S3			Not in MNHP	No
Narrowleaf beardtongue	<i>Penstemon angustifolius</i>	G5	S1S2		X	Not	No
Taper leaved beardtongue	<i>Penstemon attenuatus</i> var. <i>militaris</i>	G4T4	SH		X	Not	No
Globe beardtongue	<i>Penstemon globosus</i>	G4	S1		X	Not	No
Large flower beardtongue	<i>Penstemon grandiflorus</i>	G5?	S1		X	Not	No
Payettes beardtongue	<i>Penstemon payettensis</i>	G4	S1		X	Not	No
Whipples beardtongue	<i>Penstemon whippleanus</i>	G5	S1		X	Not	No
Arctic butter bur	<i>Petasites frigidus</i>	G5	S3S4			Range unknown/no info	No
Arctic butter bur	<i>Petasites frigidus</i> var. <i>frigidus</i>	G5T5	S1		X	Not	No
Dwarf phacelia	<i>Phacelia scopulina</i>	G4	SH		X	Not	No
Ice grass	<i>Phippia algida</i>	G5	S1		X	Not	No
Prairie phlox	<i>Phlox andicola</i>	G4	S2		X	Not	No
Rydbergs double twinpod	<i>Physaria brassicoides</i>	G5	S2		X	Not	No
Alkali popcorn flower	<i>Plagiobothrys leptocladus</i>	G4	S1		X	Not	No
Small northern bog orchid	<i>Platanthera obtusata</i>	G5	S2S3			Range unknown/no info	No
Arctic bluegrass	<i>Poa artica</i>	G5	S2S3			Range unknown/no info	No
Short leaved bluegrass	<i>Poa curta</i>	G4	S1		X	Not	No
Austins knotweed	<i>Polygonum douglasii</i> ssp. <i>austiniae</i> (<i>P. austiniae</i>)	G5T4	S2S3	X	X	Not	No
Blunt leaf pondweed	<i>Potamogeton obtusifolius</i>	G5	S2	X	X	Not	No
Shortleaf cinquefoil	<i>Potentilla brevifolia</i>	G4	S1		X	Not	No
Arctic cinquefoil	<i>Potentilla nana</i>	G4G5	S1		X	Not	No
Fiveleaf cinquefoil	<i>Potentilla nivea</i> var. <i>pentaphylla</i> (<i>P. quinquefolia</i>)	G5T4	S1	X	X	Not	No
Platte river cinquefoil	<i>Potentilla plattensis</i>	G4	S1		X	Not	No
Oneflower cinquefoil	<i>Potentilla uniflora</i>	G5	S1		X	Not	No
Jones primrose	<i>Primula incana</i>	G4G5	S2	X	X	Not	No
Sand cherry	<i>Prunus pumila</i>	G5	S1		X	Not	No
Sticky flase starwort	<i>Pseudostellaria jamesiana</i> (<i>Stellaria jamesiana</i>)	G5	S1		X	Not	No
Round woolly heads	<i>Psilocaraphus brevissimus</i>	G4	S1	X	X	Known	Yes
Dwarf woolly heads	<i>Psilocaraphus brevissimus</i> var. <i>brevissimus</i>	G4T4?	S1			Not	No
Indian breadroot	<i>Psoralea hypopaea</i>	G5T4	S2S3		X	Not	No
Lemmons alkali grass	<i>Puccinellia lemmonii</i>	G4	S1		X	Not	No
Bur oak	<i>Quercus macrocarpa</i>	G5	S1		X	Not	No
Tall buttercup	<i>Ranunculus acris</i>	G5G5	SNA			Not	No
Heartleaf buttercup	<i>Ranunculus caridophyllus</i>	G4G5	S1		X	Not	No
Arctic buttercup	<i>Ranunculus gelidus</i>	G5	S1		X	Not	No

Species common Name	Species scientific name	NatureServe Ranking	Montana ranking	RF Sensitive Species	Local Conservation Concern	Range Encompasses the Forest	Species qualifies as a species of interest
Arctic buttercup	<i>Ranunculus hyperboreus</i>	G5	S1		X	Not	No
Hillside buttercup	<i>Ranunculus jovis</i>	G4	S2	X	X	Not	No
Straight beak buttercup	<i>Ranunculus orthorhynchus</i>	G5	SH		X	Not	No
Straight beak buttercup	<i>Ranunculus orthorhynchus</i> var. <i>orthorhynchus</i>	G5T5	None			Not in MNHP	No
Northern buttercup	<i>Ranunculus pedatifidus</i>	G5	S1		X	Not	No
Timberline buttercup	<i>Ranunculus verecundus</i>	G5	None			Not in MNHP	No
	<i>Ribes cognatum</i>	G5T4	Unk			Known	Yes
Trailing black currant	<i>Ribes laxiflorum</i>	G5	S1		X	Known	Yes
Swamp red currant	<i>Ribes triste</i>	G5	S1		X	Not	No
Desert gooseberry	<i>Ribes velutinum</i>	G5	None			Not in MNHP	No
Watercress	<i>Rorippa nasturtium-aquaticum</i>	GNR	SNA			Not	No
Toothcup	<i>Rotala ramosior</i>	G5	S1		X	Not	No
Snow pearlwort	<i>Sagina nivalis</i>	G5	S1		X	Not	No
Barretts willow	<i>Salix barrattiana</i>	G5	S1	X	X	Not	No
Cascade willow	<i>Salix cascadenis</i>	G4G5	S1		X	Not	No
Pussy willow	<i>Salix discolor</i>	G5	S2S3			Not	No
Autumn willow	<i>Salix serissima</i>	G4	S2		X	Not	No
Clustered sawwort	<i>Saussurea densa</i>	G4	S1S2		X	Not	No
Yellow marshsaxifrage	<i>Saxifraga hirculus</i>	G5	S1		X	Not	No
Pod grass	<i>Scheuchzeria palustris</i>	G5	S2	X	X	Known	Yes
Tufted clubrush	<i>Scirpus cespitosus</i> (<i>Trichophorum caespitosum</i>)	G5	S2	X	X	Known	Yes
Slende rbulrush	<i>Scirpus heterochaetus</i> (<i>Schoenoplectus heterochaetus</i>)	G5	S1		X	Not	No
Hudsons bay bulrush	<i>Scirpus hudsonianus</i> (<i>Trichophorum alpinum</i>)	G5	S1		X	Not	No
Small clubrush	<i>Scirpus pumilus</i> (<i>S. rollandi</i>)/ (<i>Trichophorum pumilum</i>)	G5	S1		X	Not	No
Water bulrush	<i>Scirpus subterminalis</i> (<i>Schoenoplectus subterminalis</i>)	G4G5	S2	X	X	Known	Yes
Sprangletop	<i>Scolochloa festucacea</i>	G5	S1?			Range unknown/no info	No
Showy alpine groundsel	<i>Senecio amplexans</i>	G4	S1		X	Not	No
Clasping groundsel	<i>Senecio amplexans</i> var. <i>holmii</i>	G4T5?	S1S2			Not in MNHP	No
Desert groundsel	<i>Senecio eremophilus</i>	G5	S1S2		X	Not	No
Desert groundsel	<i>Senecio eremophilus</i> vr. <i>eremophilus</i>	G5T5	S1			Not in MNHP	No
Oregon checkermallow	<i>Sidalcea oregana</i>	G5	S1		X	Not	No
Few flowered goldenrod	<i>Solidago sparsiflora</i>	G5?	S1		X	Not	No
Whitestem globemallow	<i>Sphaeralcea munroana</i>	G4	S1		X	Not	No
Slender wedgescale	<i>Sphenopholis intermedia</i>	G5	S1		X	Not	No
Pyramid spirea	<i>Spiraea pyramidata</i>	GNA	Unk		X	Known	Yes
Longleaf dropseed	<i>Sporobolus asper</i>	G5T5	SH		X	Not	No
Small dropseed	<i>Sporobolus neglectus</i>	G5	S1		X	Known	Yes
Fleshy stitchwort	<i>Stellaria crassifolia</i>	G5	S1		X	Known	Yes
Smooth twowhorl buckwheat	<i>Stenogonum salsuginosum</i>	G4?	S1		X	Not	No
Thorny wire lettuce	<i>Stephanomeria spinosa</i>	G4	S1		X	Not	No
Poison suckleya	<i>Suckleya suckleyana</i>	G5	S1		X	Not	No

Species common Name	Species scientific name	NatureServe Ranking	Montana ranking	RF Sensitive Species	Local Conservation Concern	Range Encompasses the Forest	Species qualifies as a species of interest
Wool bearing dandelion	<i>Taraxacum eriophorum</i>	G4	S1		X	Not	No
	<i>Tellima grandiflora</i>	G5	S3			Known	Yes
Alpine meadowrue	<i>Thalictrum alpinum</i>	G5	S2	X	X	Not	No
Slender thelypody	<i>Thelypodium sagittatum</i>	G4	S2		X	Not	No
Slender thelypody	<i>Thelypodium satittatum ssp. Sagittatum</i>	G4T4	S2			Not	No
Scotch false asphodel	<i>Tofieldia pusilla</i>	G5	S2		X	Not	No
Cushion townsend daisy	<i>Townsendia condensata</i>	G4	S1		X	Not	No
Showy townsend daisy	<i>Townsendia florifera</i>	G5	S1		X	Not	No
Bowl clover	<i>Trifolium cyathiferum</i>	G4	S1?			Not	No
Woolly headclover	<i>Trifolium eriocephalum</i>	G5	S2	X	X	Not	No
Hollyleaf clover	<i>Trifolium gymnocarpon</i>	G5	S2	X	X	Not	No
Flatleaf bladderwort	<i>Utricularia intermedia</i>	G5	S1S2	X	X	Known	Yes
Velvetleaf blueberry	<i>Vaccinium myrtilloides</i>	G5	S1		X	Known	Yes
California false hellebore	<i>Veratrum californicum</i>	G5	S1	X	X	Not	No
Nannyberry	<i>Viburnum lentago</i>	G5	S1		X	Not	No
Many flowered viguiera	<i>Viguiera multiflora</i>	G4G5	S1		X	Not	No
White violet	<i>Viola renifolia</i>	G5	S3			Known	Yes
Great spurred violet	<i>Viola selkirkii</i>	G5?	S1	X	X	Known	Yes
Columbian watermeal	<i>Wolffia columbiana</i>	G5	S2		X	Not	No
Golden alexanders	<i>Zizia aurea</i>	G5	SH		X	Not	No

Table 5. Species of concern - Information on range and forest status for wildlife species considered for species of concern for the Kootenai National Forest

Species	Species Range	Reference	Observations on the forest
Vertebrates-amphibians			
Idaho giant salamander <i>Dicamptodon aterrimus</i>	Outside of species range. Southern half of the Idaho Panhandle with a slight extension into western Montana, a small area in the northwest part of southern Idaho and possibly in Mineral county in western MT, based on two unverified sightings. Present distribution known only from southwest MT.	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No record
Birds			
Greater sage grouse <i>Centrocercus urophasianus</i>	Outside of species range.	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	
Mountain plover <i>Charadrius montanus</i>	Outside species range, eastern MT. Shortgrass prairie/ prairie dog towns. A rare migrant west of the continental divide (MT field guide 2007).	NatureServe explorer species report, page 4. MT CFWCS	No record
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	Very limited data for the area west of the continental divide in Montana. Three specimens of the cuckoo have been collected since the early 1960s, and there are few recorded sightings of the cuckoo since the early 1900s. A few records indicate that yellow billed cuckoos do occur in the Flathead River area but no confirmed breeding information exists (Lenard 2001 in MT CFWCS, USFWS 2008). May be seen locally in the southern portion of the state along the larger stream corridors. Little to no information for MT. West of the crest of the Rocky Mtns. (USFWS 2008)	NatureServe explorer species report, USFWS species assessment and listing priority assignment form (2008). Montana field guide (2009).	No record
Peregrine falcon <i>Falco peregrinus</i>	Yes.		Yes
Bald eagle <i>Haliaeetus leucocephalus</i>	Yes.		Yes – nesting on both NFS and private lands
American white pelican <i>Pelecanus erythrorhynchos</i>	Outside species primary range. Migratory. MT breeding colonies are in the eastern prairie regions. 4 breeding colonies in MT, Medicine Lake, Bowdoin, Arod Lakes and Canyon Ferry.	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No record
Columbian sharp-tailed grouse <i>Tympanuchus phasianellus columbianus</i>	Yes, southern edge of populations in Canada. Possibly extirpated. one recent breeding lek on the forest on private lands. no birds on the lek the last several years.	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	Yes – but occurrence on NFS lands rare
Fish			
Blue sucker <i>Cycleptus elongates</i>	Outside of species range. Eastern MT. (MT field guide)	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No record
Burbot- lower Kootenai R. population <i>Lota lota</i>	Yes.	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	Known
Sturgeon chub <i>Macrhybopsis gelida</i>	Outside of species range. Found in the large eastern MT prairie river drainages. (MT field guide)	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No record
Sicklefin chub <i>Macrhybopsis meeki</i>	Outside of species range. Found in the plains region of MT. (MT field guide)	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No record
Yellowstone cutthroat trout <i>Oncorhynchus clarkia bouveri</i>	Outside of species primary range. Native to the Yellowstone R. Species has been introduced into the area. (MT field guide)	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No
Westslope cutthroat trout <i>Oncorhynchus clarkia lewisi</i>	Yes	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	Known
California golden trout <i>Oncorhynchus mykiss aquabonita</i>	Outside of species range. Exotic non-native. (MT field guide)	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No
Arctic grayling- upper Missouri R. fluvial population <i>Thymallus arcticus pop. 2</i>	Outside of species range. (MT field guide)	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No
Mammals			
Black-footed ferret <i>Mustela nigripes</i>	Outside species range, eastern MT.	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No record
Swift fox <i>Vulpes velox</i>	Outside species range.	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No record
Invertebrates - insects			
Beetles			

Species	Species Range	Reference	Observations on the forest
Ghost tiger beetle <i>Cincindela lepida</i>	Outside known range. Species unknown for MT. No information in MNHP. or NatureServe for MT. (MT field guide.)	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No record. SNR
Oblique-lined tiger beetle <i>Cincindela tranquebarica vibex</i>	Outside species range. No information available in NatureServe for MT or in MNHP. Southern MT. 1 observation in Beaverhead county. (MT field guide.)	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No record. SNR
Brown's microcylloepus riffle beetle <i>Microcylloepus browni</i>	Outside species range. Single occurrence, eastern MT. Endemic to 4 warm water seep areas downstream of Bridger Creek, MT. (MT field guide.)	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No record
Warm spring Zaitzevian riffle beetle <i>Zaitzevia thermae</i>	Outside known range. Single occurrence eastern MT. Endemic to warm spring area at mouth of Bridger Canyon. Present on less than one mile of stream length(MT field guide.)	NatureServe Explorer species report 2008, MNHP field guide 2008, MNHP TRACKER 2008	No record
Butterflies			
Arogos skipper <i>Atrytone arogos</i>	Outside species range, eastern U.S. southeastern MT. (MT field guide.) not listed for either Lincoln or Sanders counties (Butterflies and moths of NA 2007).	NatureServe explorer species report. MNHP field guide 2008. (Butterflies and moths of NA 2007).	No record. SNR
Iowa skipper <i>Atrytone arogos iowa</i>	Outside species range. Native prairie. No information in MNHP. (MT field guide). Not listed for either Lincoln or Sanders counties (Butterflies and moths of NA 2007).	NatureServe explorer species report, (Butterflies and moths of NA 2007).	No record. SNR
Alberta fritillary <i>Boloria Alberta</i>	No. Mountain cordillera of BC and Alberta Glacier NP. (Brock and Kaufman 2003). (MT field guide.) Not listed for either Lincoln or Sanders counties (Butterflies and moths of NA 2007).	Very little information available in NatureServe. No information available in MT CFWCS. MNHP field guide 2008. (Butterflies and moths of NA 2007).	No record/suspected. Known to occur in Glacier NP (USDI 2006)
Bog fritillary <i>Boloria eunomia ursadentis</i>	No information available in NatureServe, MNHP, or other references for this subspecies. Range unknown. Species <i>Boloria eunomia</i> (bog fritillary) wide ranging from upper Great Lakes and northeast through most of arctic Canada. Rare and very local in the Rockies (WY and CO). Would be at the southern extent of Canadian populations) not listed for either Lincoln or Sanders counties (Butterflies and moths of NA 2007).	NatureServe explorer species report. <i>Boloria eunomia</i> not identified as occurring in Glacier NP. MNHP field guide 2008. (Butterflies and moths of NA 2007).	No record.
Relict fritillary <i>Boloria kriemhild</i>	Outside known range. Central Rocky mountains of MT, WY, ID and UT. Based on ranking species does not meet criteria for species of concern (NatureServe 2006). not listed for either Lincoln or Sanders counties (Butterflies and moths of NA 2007).	Brock and Kaufman, field guide to butterflies of North America. MNHP field guide 2008. (Butterflies and moths of NA 2007). NatureServe explorer species report.	No record
Western sulphur <i>Colias occidentalis</i>	Yes - Limited range, local and uncommon within its range. Southern BC, WA, OR, northern UT, western MT, ID, and northern CA. Based on ranking species does not meet criteria for species of concern (NatureServe 2006).	MNHP field guide 2008. (Butterflies and moths of NA 2007). NatureServe explorer species report.	No record
Gillette's checkerspot <i>Euphydryas gillettii</i>	Yes. Rocky mountains, southern Alberta, MT, western WY, central ID. Known only from Beaverhead county, MT (Listed for Sanders county (Butterflies and moths of NA 2007).	Brock and Kaufman, field guide to butterflies of North America. MNHP field guide 2008. (Butterflies and moths of NA 2007). NatureServe explorer species report.	No record
Ottoo skipper <i>Hesperia ottoe</i>	Outside species range. Found in eastern MT. Native prairie. (MT field guide). Based on ranking species does not meet criteria for species of concern (NatureServe 2006). not listed for either Lincoln or Sanders counties (Butterflies and moths of NA 2007).	Brock and Kaufman, field guide to butterflies of North America. MNHP field guide 2008. (Butterflies and moths of NA 2007). NatureServe explorer species report.	No record
Swale (Wyoming) satyr <i>Neominois wyomingo</i>	Outside known range. Isolated pockets in central Rockies. Limited range, apparently somewhat local within it. (MT field guide). Based on ranking species does not meet criteria for species of concern (NatureServe 2006). not listed for either Lincoln or Sanders counties (Butterflies and moths of NA 2007).	Brock and Kaufman, field guide to butterflies of North America. MNHP field guide 2008. (Butterflies and moths of NA 2007). NatureServe explorer species report.	No record. SNR
Caddisflies			
A Agapetus caddisfly <i>Agapetus montanus</i>	Yes. Lincoln and Sanders counties plus others.	MNHP field guide 2008. NatureServe explorer species report,2008.	
A caddisfly <i>Allomyia bifosa</i>	Outside species range. Glacier NP. Wyoming, BC. Very limited info in MNHP. and NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	No record. SNR
A caddisfly <i>Allomyia hector</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	No record. SNR
A caddisfly <i>Apatania comosa</i>	Outside species range. Blackfoot R. , Lolo Cr. and Bitterroot R. Very limited info in MNHP. and NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Asynarchus circopa</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Ceraclea cophia</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Cryptochia furcata</i>	Outside species range. WA. BC. NW MT. In Madison R. Gallatin R. basin, Rattlesnake Cr. And Dog Cr. Very limited info in MNHP. and NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Glossosoma idaho</i>	No info in MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.

Species	Species Range	Reference	Observations on the forest
A caddisfly <i>Goereilla baumanni</i>	Outside species range. Missoula and mineral counties. Known to occur only in the Northern Rocky Mtns Refugium area. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Lepidostoma apornum</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Lepidostoma knulli</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Limnephilus alberta</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Neophylax sinuatus</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Neotrichia ersitis</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
Alsea Ochrotrichian Micro caddisfly <i>Ochrotrichia alsea</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Ochrotrichia potomus</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
Tombstone Prairie Oligophlebodes caddisfly <i>Oligophlebodes mostbento</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Philocasca banksi</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Polycentropus demingi</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Psychoglypha prita</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
Alexander's Rhyacophilan caddisfly <i>Rhyacophila alexanderi</i>	Outside species range. Bitterroot NF. Lake county, Manitoba. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	No record.
A caddisfly <i>Rhyacophila belona</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Rhyacophila donaldi</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Rhyacophila ebria</i>	Outside species range. Glacier NP. Manitoba, BC. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	No record.
A caddisfly <i>Rhyacophila gemona</i>	Outside species range. WA. MT. Lake county. No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A Rhyacophila caddisfly <i>Rhyacophila glaciera</i>	Outside species range. Glacier NP. Waterton and Jasper NP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	No record.
A caddisfly <i>Rhyacophila kernada</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A Rhyacophila caddisfly <i>Rhyacophila newelli</i>	Outside species range. MT. AB. BC. Missoula county. Limited knowledge. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	No record.
A caddisfly <i>Rhyacophila ophrys</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Rhyacophila potteri</i>	Suspected. ID. MT. Known from 4 localities in MT. Likely to occur in a continuous distribution along the MT/ID border north to BC and Alberta. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Rhyacophila rickeri</i>	No info in MNHP. Very limited info in NatureServe. On MT species of concern list but NatureServe explorer does not list for MT.	MNHP field guide 2008. NatureServe explorer species report,2008.	
A caddisfly <i>Rhyacophila robusta</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Rhyacophila unimaculata</i>	Outside species range. BC. Lake county MT. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly	Outside species range. WA. BC Western MT. Missoula, Mineral and in the Clark fork in Sanders county Known	MNHP field guide 2008. NatureServe explorer species	SNR No record.

Species	Species Range	Reference	Observations on the forest
<i>Rossiana montana</i>	from Clearwater River in Idaho and adjacent in the Clark Fork. Very limited info in NatureServe.	report,2008.	
A caddisfly <i>Sericostriata surdickae</i>	Outside species range. Missoula, Mineral, Granite, Powell, Clearwater River in Idaho and adjacent in the Clark Fork. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
A caddisfly <i>Zumatrichia notosa</i>	Range unknown. No info in MNHP or NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	SNR No record.
Damselflies			
Last best place damselfly <i>Enallagma optimolocus</i>	Outside species range. Known from 3 locations in MT in Flathead, Lewis and Clark, and Madison counties. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report,2008.	No record. SNR
Grasshoppers			
Rehn's slow grasshopper <i>Arigiacris rehni</i>	Range unknown. No info in MNHP. Very limited info in NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	No record. SNR
A grasshopper <i>Barricris petraea</i>	Range unknown, no information available in MNHP. Very limited info in NatureServe.	NatureServe explorer species report. MNHP field guide 2008.	No record. SNR
A spur-throat grasshopper <i>Melanoplus lanthanus</i>	Range unknown. A new MT grasshopper, shrubland/chaparral. No info in MNHP. Very limited info in NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	No record. SNR
A spur-throat grasshopper <i>Melanoplus missoulae</i>	Range unknown, grassland/herbaceous. No information available in MNHP. Very limited info in NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	No record. SNR
A spur-throat grasshopper <i>Melanoplus picropidzae</i>	Range unknown, grassland/herbaceous. No information available in MNHP. Very limited info in NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	No record. SNR
A spur-throat grasshopper <i>Melanoplus sp. 1</i>	Range unknown, alpine, grassland/herbaceous. No information available in MNHP. Very limited info in NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	No record. SNR
A spur-throat grasshopper <i>Melanoplus sp. 15</i>	Range unknown, grassland/herbaceous. No information available in MNHP. Very limited info in NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	No record. SNR
Mayflies			
A mayfly <i>Ameletus bellulus</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
A mayfly <i>Ameletus majusculus</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
A mayfly <i>Ameletus shepherdii</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
A mayfly <i>Ameletus sparsatus</i>	Outside species range. Known only from Gallatin county in MT. And southern Idaho. Southwest MT. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
A mayfly <i>Ameletus vernalis</i>	No info MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
A mayfly <i>Analetis eximia</i>	Outside species range. Known from 1 location in Hill county. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
A mayfly <i>Anepeorus rusticus</i>	Outside species range. Known from 2 sites in Powder River, and possibly occurs in Yellowstone R. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
A mayfly <i>Caudatella edmundsi</i>	Outside species range. Endemic to Northern Rocky Mtn Refugium area. Beaverhead, Deerlodge, Missoula, Mineral, Granite, Powell and Sanders counties. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
A mayfly <i>Caudatella jacobii</i>	Outside species range. BC. OR. MT. Known from Northern Rocky Mtn Refugium area. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Lolo mayfly <i>Caurinella idahoensis</i>	Outside species range. Known from Northern Rocky Mtn Refugium area. endemic to western Mt and ID. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
A mayfly <i>Heterocloeon rubrolaterale</i>	Outside species range. In MT known from Missouri R. Species not found in MNHP field guide. Very limited info in NatureServe.	NatureServe Explorer species report. NatureServe explorer species report 2008.	No record. SNR
A mayfly <i>Macdunnua nipawinia</i>	Outside species range. Recently discovered in Mt in Richland county. Very limited info in MNHP and NatureServe.	MNHP field NatureServe explorer species report 2008. guide 2008.	No record. SNR
A mayfly <i>Rhithrogena virilis</i>	Range unknown. No info in MNHP or NatureServe. Listed for MT, BC and Alberta.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Stoneflies			
Glacier snowfly <i>Bolshecapnia milami</i>	Outside species range. No info in MNHP. known from Flathead and Lake counties. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Mission mountains snowfly	Outside species range. Species not found in MNHP field guide. known from Flathead, Lake and Missoula counties	NatureServe explorer species report 2008.	No record. SNR

Species	Species Range	Reference	Observations on the forest
<i>Bolshecapnia missiona</i>	(NatureServe). Very limited info in NatureServe.		
Ice snowfly <i>Bolshecapnia spenceri</i>	Outside species range. No info in MNHP. known from Flathead and Glacier counties (NatureServe). Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Cascades stripetail <i>Cascadoperla trictura</i>	Outside species range. Known from 2 collections in Missoula county. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Notched stripetail <i>Isoperla sordida</i>	Range unknown. No info in MNHP or NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Mist forestfly <i>Lednia tumana</i>	Outside species range. Glacier and Banff NP. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record.
Tiny forestfly <i>Malenka tina</i>	Outside species range. Missoula county. No specific collection records for MT. Although reported to be from Missoula county (Bauman et al. in MNHP 2008). Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Giant needelfly <i>Megaleuctra stigmata</i>	Outside species range. Known from Lake and Missoula counties (MNHP 2008). NatureServe (2008) also lists for Flathead, Glacier and Powell counties. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Utah needelfly <i>Perlomyia utahensis</i>	Range unknown. No info in MNHP. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Autumn springfly <i>Pictiella expansa</i>	Suspected. In MT known from Flathead and Gallatin counties. Known from adjacent Boundary, Bonner, and Shoshone counties in Idaho.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Alberta springfly <i>Setvena bradleyi</i>	Range unknown. No info in MNHP or NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Clearwater roachfly <i>Soliperla salish</i>	Outside species range. In MT known only from Northern Rocky Mtn Refugium area. Mineral county. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Idaho forestfly <i>Soyedina potteri</i>	Outside species range. In MT known only from Northern Rocky Mtn Refugium area. Mineral county. Very limited info in NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
A stonefly <i>Suwallia salish</i>	Outside species range. Known only from Flathead Lake (NatureServe 2008). No info in MNHP.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record. SNR
Cordilleran forestfly <i>Zapada cordillera</i>	Suspected.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record.
Glacier forestfly <i>Zapada glacier</i>	Outside species range. Known only from Glacier NP. Very limited info in MNHP and NatureServe.	MNHP field guide 2008. NatureServe explorer species report 2008.	No record.
Millipedes and centipedes			
A millipede <i>Adrietyla cucullata</i>	Range unknown. Very limited info in MNHP and NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	No record
A millipede <i>Austrotyla montani</i>	Range unknown. Very limited info in MNHP and NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	No record
A millipede <i>Corypus cochlearis</i>	Yes - Range unknown. Very limited info in MNHP and NatureServe. 1 observation on the forest	NatureServe explorer species report, MNHP field guide 2008.	No record
A millipede	Range unknown. Very limited info in MNHP and NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	No record
A millipede <i>Endopus parvipes</i>	Range unknown.. Very limited info in MNHP and NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	No record
A millipede <i>Lophomus laxis</i>	Range unknown. Very limited info in MNHP and NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	No record
A millipede <i>Orophe cabinetus</i>	Yes. Little info MNHP. No information available from NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	Yes
A millipede <i>Orthogmus oculatus</i>	Yes. Little info MNHP. No information available from NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	Yes
A millipede <i>Taiyutyla curvata</i>	Yes. Little info MNHP. No information available from NatureServe.	NatureServe explorer species report, MNHP field guide 2008.	Yes
Mollusks			
Rocky Mountain capshell <i>Acroloxus coloradensis</i>	Outside known range. Very few, extremely small, isolated populations. Glacier NP, freshwater. High altitude lakes and ponds.	NatureServe explorer species report. MNHP 2007.	No record
Washington dusksnail <i>Ammicola sp. 2</i>	Northern WA and one site in NW MT. Freshwater. Lakes.	NatureServe explorer species report.	No record
Chrome ambersnail <i>Catinella rehderi</i>	Outside species range. Central MT.	NatureServe explorer species report.	No record
Kingston Oregonian <i>Cryptomastix sanburni</i>	Extremely limited range. Possibly extirpated. Habitats unknown. Reported from 5 sites on Coeur d'Alene River, Hope to Kingston.	NatureServe explorer species report. MNHP 2007.	No record

Species	Species Range	Reference	Observations on the forest
Lake disc <i>Discus brunsoni</i>	Outside known range. Known from one site, McDonald Lake.	NatureServe explorer species report,	No record
Shortface lanx <i>Fisherola nuttalli</i>	Freshwater, streams and rivers. Presently not known for MT. Columbia River drainage of the Pacific Northwest, including ID, WA, OR, and MT.	NatureServe explorer species report. Presumed extirpated in MT. No sightings in past 50 years (Stagliano et al. 2007).	No record
Ashy pebblesnail <i>Fluminicola fuscus</i>	Outside known range. Kootenai river in BC. In swift current on stable gravel to boulder substrate. Possibly extirpated. Freshwater.	NatureServe explorer species report, MNHP field guide 2008.	No record
Marbled jumping slug <i>Hemphillia danielsi</i>	Outside known range. Known only from eastern side of Bitterroot Mtns. Ravalli, mineral and lake Co. moderate elev. rich PP. Persistence of moisture a significant feature.	NatureServe explorer species report. MNHP 2007.	No record
Pygmy slug <i>Kootenaia burkei</i>	Yes. Adjacent to perennial water.		Yes
Magnum mantleslug (spotted slug) <i>Mangipelta mycophaga</i>	Yes. NW MT, northern ID, NE WA, BC. Upper Kootenai, upper/middle/lower Clark fork.		Yes
Alpine mountainsnail <i>Oreohelix alpina</i>	Outside known range. Talus above treeline. Known from two sites, Swan range, and Mission range.	NatureServe explorer species report. MNHP field guide 2008.	No record
Bitterroot mountainsnail <i>Oreohelix amariradix</i>	Outside known range. Known only from Lolo Cr, near Missoula, MT.	NatureServe explorer species report. MNHP field guide 2008.	No record
Keeled mountainsnail <i>Oreohelix carinjifera</i>	Outside known range. Clark Fork River drainage, Powell and Granite counties.	NatureServe explorer species report. MNHP 2007.	No record
Carinate mountainsnail <i>Oreohelix elrodi</i>	Outside known range. Limited range, restricted mobility and habitat. Known only from Lake County.	NatureServe explorer species report. MNHP field guide 2008.	No record
Berry's mountainsnail <i>Oreohelix strigosa berryi</i>	Outside known range. Restricted to two disjunct ranges although may occur in a third.	NatureServe explorer species report. MNHP field guide 2008.	No record
Gallatin mountainsnail <i>Oreohelix yavapai mariae</i>	Outside known range. Known only from type locality at Squaw Cr	NatureServe explorer species report. MNHP 2007.	No record
Bearmouth mountainsnail <i>Oreohelix sp. 3</i>	Outside known range. Clark Fork river valley between Clinton and Garrison. Not found in MNHP field guide.	NatureServe explorer species report, MNHP field guide 2008.	No record
Drummond mountainsnail <i>Oreohelix sp. 4</i>	Outside known range. Clark Fork Valley between Clinton and Garrison. Known from one site. Not found in MNHP field guide.	NatureServe explorer species report, MNHP field guide 2008.	No record
Brunson mountainsnail <i>Oreohelix sp.</i>	Outside known range. Known only from one site. Bitterroot Mns. Not found in MNHP field guide.	NatureServe explorer species report, MNHP field guide 2008.	No record
Kintla lake mountainsnail <i>Oreohelix sp. 6</i>	Outside known range. Glacier NP, Granite Co. Not found in MNHP field guide.	NatureServe explorer species report,	No record
Kitchen creek mountainsnail <i>Oreohelix sp. 7</i>	Outside known range. Lolo NF, Granite and Ravalli Co. Not found in MNHP field guide.	NatureServe explorer species report,	No record
Missoula mountainsnail <i>Oreohelix sp. 10</i>	Outside known range. Missoula and Granite Co. Not found in MNHP field guide.	NatureServe explorer species report,	No record
Subcarinate mountainsnail <i>Oreohelix sp. 11</i>	Outside known range. Know only from Mission Mtns. Conifer forest. Not found in MNHP field guide.	NatureServe explorer species report,	No record
Byrne resort mountainsnail <i>Oreohelix sp. 31</i>	Outside known range. Clark fork valley, near Bearmouth. Not found in MNHP field guide.	NatureServe explorer species report, MNHP field guide 2008.	No record
Oblique ambersnail <i>Oxyloma nuttallianum</i>	No information available in NatureServe or MNHP. Not ranked or under review for Montana. Not listed in MT NHP.	NatureServe explorer species report,	No record
Cloaked physa, (large-mantle physa) <i>Physa megalochlamys</i>	Outside of species range. Limited distribution. Freshwater snail.	NatureServe explorer species report. MNHP field guide 2008.	No record
Rotund physa <i>Physella columbiana</i>	Outside known range. Originally found in WA and OR. Possibly extinct. Freshwater.	NatureServe explorer species report,	No record
Humped coin <i>Polygyrella polygyrella</i>	Yes. NW MT, northern ID. Prospect Cr. And Glidden Gulch in Sanders Co.	MNHP 2007.	Yes
Northern tightcoil <i>Pristiloma arcticum</i>	No info MNHP.	NatureServe explorer species report.	No record
Black-footed tightcoil <i>Pristiloma chersinella</i>	High elevation in British Columbia. Pacific Northwest. Habitats unknown. Based on ranking species does not meet criteria for species of concern (NatureServe 2006). No info MNHP.	NatureServe explorer species report, MNHP field guide 2008.	No record

Species	Species Range	Reference	Observations on the forest
Shiny tightcoil <i>Pristiloma wascoense</i>	No information available in NatureServe or MNHP.	NatureServe explorer species report,	No record
Smoky taildropper <i>Prophysaon humile</i>	Yes. Northern ID, and NW MT. Terrestrial.	NatureServe explorer species report.	Yes
<i>Prophysaon humile</i>	Outside known range. One location thermal spring Canyon Ferry reservoir. Subaquatic.	NatureServe explorer species report, MNHP field guide 2008.	No record
<i>Pyrgulosis bedfordensis</i> <i>Stagnicola elrodi</i> ***	Outside known range. Found in only one lake, Flathead Lake. Freshwater.	NatureServe explorer species report, MNHP field guide 2008.	No record
Longmouth pondsnail <i>Stagnicola elrodiana</i> ***	Outside known range. Known from only two lakes, Sin-yale-a-min and McDonald. Freshwater.	NatureServe explorer species report, MNHP field guide 2008.	No record
Mountain marshsnail <i>Stagnicola montanensis</i> ***	Outside known range. Freshwater. Known only from Ravalli Co.	NatureServe explorer species report, MNHP field guide 2008.	No record
Widelip pondsnail <i>Stagnicola traski</i>	CA to WY. North to southern Alberta. potential in British Columbia. Extirpated from UT. Freshwater.	NatureServe explorer species report, MNHP field guide 2008.	No record
Lyre mantleslug <i>Udosarx lyrata</i>	Outside species range. Known only from northern ID and NW MT. Missoula and Ravalli Co. terrestrial – habitat unknown.	NatureServe explorer species report. MNHP field guide 2008.	No record
Lyre mantleslug <i>Udosarx lyrata lyrata</i>	Outside known range. Historical range, Bitterroot Mtns. Upper Clearwater River and Clark Fork drainages. Clearwater NF, ID. Lolo NF. Not found in MNHP field guide.	NatureServe explorer species report,	No record
Russell mantleslug <i>Udosarx lyrata russelli</i>	Outside known range. Known from single locality on Lolo NF. Not found in MNHP field guide.	NatureServe explorer species report,	No record
Cylindrical vertigo <i>Vertigo binneyana</i>	No current populations known. May be extirpated. Habitats unknown/terrestrial	NatureServe explorer species report, MNHP field guide 2008.	No record
Sheathed slug <i>Zacoleus idahoensis</i>	Yes. Local endemic. Lake and Lincoln Co. DF forests? Based on ranking species does not meet criteria for species of concern (NatureServe 2006).	NatureServe explorer species report.	Yes
Invertebrate - other			
A cave obligate harvestman <i>Cryptobunus cavicolus</i>	Outside of species range. Known only from Jefferson Co. subterranean, subterranean obligate.	NatureServe explorer species report. MNHP 2007.	No record
A freshwater sponge <i>Ephydatia cooperensis</i>	Outside of species range. Known from 3 lakes in northern Rocky Mtns. Known only from Lewis and Clark county in Montana.	NatureServe explorer species report. MNHP 2007.	No record
Crustaceans			
A cave obligate isopod <i>Salmasellus steganothrix</i>	Outside known range. Reported only from Alberta, Canada. Flathead Co. collected from stomach of rainbow trout. subterranean obligate. No information available.	NatureServe explorer species report. MNHP field guide 2008.	No record
Glacier amphipod <i>Stygobromus glacialis</i>	Outside known range. Caves in Glacier N P. Subaquatic, subterranean obligate.	NatureServe explorer species report. MNHP field guide 2008.	No record
A cave obligate amphipod <i>Stygobromus montanensis</i>	Subaquatic, subterranean obligate. No information available in NatureServe.	NatureServe explorer species report. MNHP field guide 2008.	No record
A cave obligate amphipod <i>Stygobromus obscurus</i>	Outside known range. Known only from Ravalli Co. Subaquatic, subterranean obligate.	NatureServe explorer species report. MNHP field guide 2008.	No record
A cave obligate amphipod <i>Stygobromus puteanus</i>	Outside known range. Known only from Gallatin Co. Subaquatic, subterranean obligate.	NatureServe explorer species report. MNHP field guide 2008.	No record
A cave obligate amphipod <i>Stygobromus tritus</i>	Subaquatic, subterranean obligate. No information available in NatureServe. Known only from Missoula and Ravalli counties in Montana.	NatureServe explorer species report. MNHP field guide 2008.	No record
Diplurans, springtails, and proturans			
A springtail <i>Oncopodura cruciata</i>	Outside of species range. No information available in NatureServe.	NatureServe explorer species report. MNHP 2007.	No record

Table 6. Species of concern - Information on habitat and population status for wildlife species of concern for the Kootenai National Forest

Species common name	Habitat	Habitat abundance and distribution	Population abundance and distribution	Major Risks	Conservation needs
Mammals					
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	Breed in large blocks of riparian habitats, particularly woodlands with cottonwoods and willows. Dense understory foliage important in nest selection.	In the northern Rocky Mtns extremely rare and local as a breeding bird (Hughes 199 in USFWS 2008). While breeds in southeast Montana, southern Idaho, northeast and southwest Wyoming, west Colorado, and Utah, it is quite rare or absent in the higher Rocky Mtns.	Montana included in Historical occurrence but no in current occurrence ((USFWS 2008). Estimated 52% decline in statewide surveys in New Mexico, Arizona, and California. Numbers too low to establish trends in Idaho, Montana Utah, Nevada, and Colorado. Extirpated as a breeding bird in Washington, Oregon, and BC.	Loss of riparian habitat due to conversion for agricultural and other uses. Dams and other river flow management, stream channelization and stabilization, and livestock grazing.	MBTA
Peregrine falcon <i>Falco peregrinus</i>	High cliffs, preys on small birds.	Cliffs occur mostly along major river corridors and Cabinet Mtns wilderness. Although a minor component, well distributed across the forest.	Seasonal KNF & IPNF. Four known active nest sites on KNF associated with the Kootenai River, Bull Lake/River, and Clark Fork river. Widespread with increasing populations in many areas. range wide estimates not available (NatureServe).	Disturbance at nest sites. loss of habitat of primary prey, poachers robbing nests, shooting by hunters, and food chain contamination (NatureServe). MT and elsewhere proposed to allow removal of young for falconry.	Provide habitat for prey – small (generally migratory) bird species. provide secure habitat conditions around active nest sites.
Bald eagle <i>Haliaeetus leucocephalus</i>	Nests in large trees generally within ¼ mile of large lakes, rivers	Widespread along major river corridors and larger Lakes.	Fairly common on the forest. number of nests have continually increased over the past 20+ years. Similar status over its range. Continual increase in number of nests and wintering birds throughout its range.	Disturbance at nest sites.	Provide secure habitat conditions around active nest locations.
Columbian sharp-tailed grouse <i>Tympanuchus phasianellus columbianus</i>	Grassland. Native bunchgrass and shrub steppe communities. Deciduous shrubs are critical for winter food and escape cover (NatureServe).	Grasslands are a very minor component of the forest, mostly occurring on private lands. FS lands provide little habitat for this species. Montana PIF states that not enough contiguous habitat is available to support viable populations over the long term.	In the past decade there was a breeding lek near Eureka on private land owned by the Nature Conservancy. No birds seen on lek for past 4-5 years. Very few observations on NFS lands. Possibly extirpated. Population has been augmented on at least two occasions with a total of 78 birds. No birds have been observed on the lek for the past 3-4 years. Formerly widespread from BC and northern California to Montana and Colorado, now occupies less than 10% of its former range.	Disturbance at breeding sites (leks). Mortality. Historic lek surrounded by major activities on private lands. Habitat loss and degradation due to agricultural practices and livestock overgrazing.	Provide secure habitat conditions at known leks.
Fish					
Burbot	Mainstem Kootenai River only.				
Westslope cutthroat trout	Found throughout the forest in a number of streams. some isolated pops.				
Invertebrates – insects					
Butterflies					
Western sulphur <i>Colias occidentalis</i>	See species of interest.				
Gillette's checkerspot <i>Euphydryas gillettei</i>	Valleys, glades, open wooded areas in mountains, often near streams. host plants include honeysuckle family including twin berry honeysuckle (<i>Lonicera involucrata</i>), and snowberry (<i>Symphoricarpos albus</i>) and the figwort family including speedwell (<i>Veronica wormskjoldii</i>). (Butterflies and Moths of NA 2007).	Unknown. Although twinberry habitats common across the forest. Very rare or local throughout its range or found locally in a restricted range (21 to 100 occurrences). threatened throughout its range (Butterflies and Moths of NA 2007).	Unknown. very local and stays near larval foodplants. Globally rare. Occurs mostly as very widely scattered colonies. Populations could be very quickly (one season) eradicated if grazing were severe enough. Aquatic protections.	Isolation of colonies (extirpation), grazing. Isolation of colonies makes species vulnerable to permanent local extirpation from any kind of temporary habitat disruption including browsing by large ungulates.	Provide secure habitat conditions at known locations. Maintain ecosystem components, especially fire disturbance. Aquatic/riparian protection. Ensure presence of sufficient habitats in appropriate successional condition (Butterflies and Moths of NA 2007). All populations should be monitored and

Species common name	Habitat	Habitat abundance and distribution	Population abundance and distribution	Major Risks	Conservation needs
					conserved (Ibid).
Caddisflies					
A Agapetus caddisfly – <i>Agapetus montanus</i>	Upper surfaces and sides of cobbles and boulders in moderately high gradient, fast flowing, foothills to mountain streams. higher elevation cold mountain streams.	Idaho, Montana, and Manitoba.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	Intolerant of silt and sedimentation. Improper mgmt practices in the riparian, zone that would increase fine sediment in the streambed substrate and otherwise degrade aquatic habitat.	
A caddisfly <i>Rhyacophila potteri</i>	Small streams or seeps with abundant mosses. Moderate gradient perennially flowing headwater seeps and streams.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database..likely that <i>R. potteri</i> occurs in a continuous distribution along the Montana-Idaho border north to British Columbia and Alberta. May have evolved from an isolated population of the <i>R. Verrula</i> along the MT/ID border and southern BC and AB.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	Mismanagement of forested riparian areas including sediment and temperature increases.	
Stoneflies					
Autumn springfly <i>Pictetiella expansa</i>	High quality small rocky higher elevation pristine mountain aquatic eco system.	High elev. rocky mtns. of CO, ID, MT, UT, WY. Fairly common on the forest, well distributed.	Known from 3 locations in Flathead and Gallatin counties. In Idaho found in 26 streams in Boundary, Bonner, Shoshone, Clearwater, Benewah, Blaine, Caribou, Bonneville, and Teton counties.	Specific threats to the species has not been identified. Changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality. Degradation of riparian and aquatic habitats.	
Cordilleran forestfly <i>Zapada cordillera</i>	Spring influenced creeks and small streams. A rare species due to habitat specificity., never abundant when collected. Restricted to large spring influenced habitats (NatureServe).	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	Known from scattered localities in California, Oregon, Washington, Idaho and Montana. Occurrences in the northern rocky mountain region appear to be disjunct glacial refugium populations. Scattered localities in Flathead and Glacier counties and from Mineral and Missoula counties.	Specific threats to the species has not been identified. Changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality. Degradation of riparian and aquatic habitats.	
Millipedes					
A millipede <i>Corypua cochlearis</i>	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	1 observation noted in MNHP tracker database on the forest.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.
A millipede <i>Orophe cabinetus</i>	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	Recorded from around Flathead Lake, I-90 west of Missoula, and Sanders county.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.
A millipede <i>Orthogmus oculatus</i>	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	Recorded from Sanders county.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.
A millipede <i>Taiyutyla curvata</i>	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	Recorded from Sanders county.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.
Invertebrates - Mollusks					
Pygmy slug <i>Kootenai burkei</i>	Western hemlock forests, western red cedar, grand fir, Douglas-fir, black cottonwood, paper birch, and red alder. Near perennial water. Down wood, moss mats, and deciduous tree leaves as substrate.	Known to occur in Mineral and Sanders counties on the Kootenai and Lolo NF.	Loss and degradation of habitat. Little is known about the threats to this species. May include logging, development, roads, grazing.	Limit surface disturbance at known sites (Idaho CWCS). Provide secure habitat conditions at known locations.	

Species common name	Habitat	Habitat abundance and distribution	Population abundance and distribution	Major Risks	Conservation needs
Magnum mantle slug (spotted slug) <i>Magnipelta mycophaga</i>	Yearlong KNF & IPNF. Found only at undisturbed sites, intolerant of habitat alteration. Moist, cool, and relatively undisturbed forest with a diverse understory and intact duff layer. Canopy includes western redcedar, western hemlock, Douglas-fir, cottonwood, mountain maple, and paper birch.	Low to mid elevation, often with water in the general vicinity. Moist cool sites in relatively undisturbed forest with an intact duff layer, such as found in moist valleys, ravines and talus areas. Spruce-fir appears to be the most frequent forest association. 25 localities in 6 counties; Flathead, Granite, Lincoln, Mineral, Missoula and Sanders counties on the Lolo NF.	Loss and degradation of habitat. logging, grazing, fire. (Hendricks 2003). Absent from all but relatively undisturbed sites. logging, grazing.		Provide secure habitat conditions at known locations.
Humped coin <i>Polygyrella polygyrella</i>	Undisturbed open spruce and Douglas-fir forests having diverse forbs, mosses, and deciduous shrubs in the understory. Near basalt, schist, or limestone outcroppings and permanent or persistent water. Forested talus. Canopy includes western redcedar, western hemlock, grand fir, Douglas-fir, alder, black cottonwood, and mountain maple.	Present in adjacent Washington and Oregon. Known to occur in mineral and Sanders counties on the Kootenai and Lolo NF.	Logging, grazing, roads, severe fires. Development. Quarry expansion.		Provide secure habitat conditions at known locations.
Smokey taidropper <i>Prophysaon humile</i>	Low-medium elevation pine and spruce forest. sites with perennial moisture and much downed wood are preferable. Especially if accompanied by a diverse understory with a strong deciduous and forb component. Canopy includes western redcedar, western hemlock, grand fir, Douglas-fir, subalpine fir, Engelmann spruce, lodgepole pine, alder, paper birch and cottonwood.	Known to occur in Flathead, Lake, Lincoln, Mineral, Missoula, and Sanders counties on the Flathead, Kootenai and Lolo NF.	Loss and degradation of habitat. Surface disturbance from activities such as mining and timber harvest. Development, mining and smelting, roads, habitat loss and degradation		Limit surface disturbance at known sites (Idaho CWCS). Aquatic/riparian protection. Provide secure habitat conditions at known locations.

Table 7. Species of Interest. Information on wildlife species under consideration as potential species of interest range and status for the Kootenai National Forest

Species common name	Range within forest	Reference	Observation on the forest
Vertebrates			
Amphibians			
Western toad <i>Bufo boreas</i>	Yes		Yearlong
Great plains toad <i>Bufo cognatus</i>	Outside of species range. Great plains, southwestern US, and northern Mexico. Eastern MT.	NatureServe explorer, species report, p. 5	No record
Coeur d'Alene salamander <i>Plethodon idahoensis</i>	Yes. Eastern edge of species range		Yearlong
Northern leopard frog <i>Rana pipiens</i>	Yes. Western edge of species range		Yearlong
Plains spadefoot <i>Spea bombifrons</i>	Outside of species range. south central Canada to north central Mexico, west to western Montana, eastern Colorado, eastern Arizona, east to western Iowa, eastern Missouri, and central Arkansas. East and central MT.	NatureServe explorer, species report, p. 5	No record
Reptiles			
Spiny softshell <i>Apalone spinifera</i>	Outside of species range. Montana to southern Quebec, south to northern Mexico and Florida panhandle. Eastern MT.	NatureServe explorer, species report	No record
Snapping turtle <i>Chelydra serpentina</i>	Outside of species range. southern Alberta to Nova Scotia, south to the Gulf coast, and northern SA. Custer, McCone, Rosebud, Sanders, Yellowstone Co. in Montana.	NatureServe explorer, species report	No record
Northern alligator lizard <i>Elgaria coerulea</i>	Yes		Yearlong
Western skink <i>Eumeces skiltonianus</i>	Yes		Yearlong
Western hog-nosed snake <i>Heterodon nasicus</i>	Outside of species range. southern Alberta, southern Saskatchewan, and southern Manitoba southward through the Great Plains region to southeastern Arizona and central Mexico. Eastern MT.	NatureServe explorer, species report, p. 5	No record
Milksnake <i>Lampropeltis triangulum</i>	Outside of species range. southern Maine, Great lakes region, and Montana south to northern SA. Eastern MT.	NatureServe explorer, species report	No record
Smooth green snake <i>Liochlorophis vernalis</i>	Outside of species range. Nova Scotia west across southern Canada to southeastern Saskatchewan south and west to northern New Jersey, western Maryland, Virginia, West Virginia, southern Ohio, northwestern Indiana, Illinois, Missouri, Nebraska, New Mexico, and Utah. Eastern Montana - Sheridan Co.	NatureServe explorer, species report	No record
Greater short-horned lizard <i>Phrynosoma hernandesi</i>	Outside of species range. southern Alberta and southern Saskatchewan south through eastern Montana, western Dakotas, Wyoming, western Nebraska, Colorado, Utah, eastern Nevada, New Mexico, Arizona, and western Texas.	NatureServe explorer, species report, p. 5	No record
Common sagebrush lizard <i>Sceloporus graciosus</i>	Outside of species range. Washington, southern Idaho, Southern Montana, south to Utah, Nevada, northern New Mexico and Arizona.	NatureServe explorer, species report, p. 5	No record
Birds			
Northern goshawk <i>Accipiter gentilis</i>	Yes		Yearlong
Clarks grebe <i>Aechmophorus clarkii</i>	Outside of species range.		
Baird's sparrow <i>Ammodramus bairdii</i>	Outside of species range. southeastern Alberta, southern Saskatchewan, and southern Manitoba south to central and eastern Montana, northeastern Wyoming, southern South Dakota, southeastern North Dakota, and northwest central Minnesota.	NatureServe explorer, species report, p. 5. MT animal field guide	No record

	Range within forest	Reference	Observation on the forest
Species common name			
Leconte's sparrow** <i>Ammodramus leconteii</i>	Outside of species range. northeastern BC and southern Mackenzie to central ?Quebec, south to southern Alberta, northern Montana southern Saskatchewan, North Dakota, central Minnesota, northern Wisconsin, and northern Michigan (NatureServe 2008). Extreme northeast MT, area around Glacier NP (Montana field guide 2008).	NatureServe explorer, species report, p. 4. MT animal field guide	No record.
Nelson's sharp-tailed sparrow** <i>Ammodramus nelsoni</i>	Outside of species range. east central BC, southern Mackenzie, northern Alberta, central Saskatchewan, and central Manitoba, south to south central Alberta, southern Saskatchewan, southern Manitoba, North Dakota, northeastern South Dakota, and northwestern Minnesota. Extreme northeast MT (Montana field guide 2008)..	NatureServe explorer, species report, p. 4. MT animal field guide	No record
Grasshopper sparrow <i>Ammodramus savannarum</i>	Yes	MNHP	Seasonal. No direct evidence of breeding
Sage sparrow* <i>Amphispiza belli</i>	Outside of species range. Southwestern corner of the state (Montana field guide 2008). Seen fewer than 20 times in the state.	MT animal field guide	No record
Sprague's pipit <i>Anthus spragueii</i>	Outside of species range.	MT animal field guide	No record
Golden eagle <i>Aquila chrysaetos</i>	Yes		Yearlong
Burrowing owl <i>Athene cucularia</i>	Outside of species range. 1 observation on the forest. east of the continental divide in Montana (Montana field guide 2008). South central BC southern Alberta, southern Saskatchewan, southern Manitoba south through western US.	NatureServe explorer, species report, p. 4. MT animal field guide	Accidental. No direct evidence of breeding.
Upland sandpiper <i>Bartramia longicauda</i>	Outside of species range. Considered a transient species for the forest.	MNHP	Transient/accidental. No evidence of breeding.
American bittern <i>Botaurus lentiginosus</i>	Yes		
Ferruginous hawk <i>Buteo regalis</i>	Outside of species range. western edge of species range extends to the east of the forest (Montana field guide 2008)..	NatureServe explorer, species report, p. 5. MT animal field guide	Transient/no record
Swainsons hawk <i>Buteo swainsoni</i>	Outside of species range. western edge of species range extends to the east and south of the forest (Montana field guide 2008).. migratory	MT animal field guide	Transient/accidental. No direct evidence of breeding.
Lark bunting <i>Calamospiza melanocorys</i>	Outside of species range. east of the continental divide in Montana. 1 observation in Tobacco Valley. No evidence of breeding	NatureServe explorer, species report, p. 5. MT animal field guide	Transient/accidental.
McGown's longspur <i>Calcarius mccownii</i>	Outside of species range. east of the continental divide in Montana (Montana field guide 2008).		No record
Chestnut collared longspur <i>Calcarius ornatus</i>	Outside of species range. east of the continental divide in Montana (Montana field guide 2008).. Southern Alberta to southern Manitoba, south east to the Rocky Mtns to northeastern Colorado, western Kansas, northcentral Nebraska, and western Minnesota.	NatureServe explorer, species report, p. 5. MT animal field guide	No record
Baird's sandpiper <i>Calidris bairdii</i>	Outside of species range. Migratory.	NatureServe explorer, species report. MT animal field guide	Migrant/no record
Sanderling <i>Calidris alba</i>	Outside of species range, not in MT animal field guide	MNHP	No record
Cassins finch <i>Carpodacus cassinii</i>	Yes.		
Greater sage grouse <i>Centrocercus urophasianus</i>	Outside of species range	NatureServe explorer, species report, p. 6. MNHP	No record
Snowy plover* <i>Charadrius alexandrinus</i>	Outside of species range. range does not include Montana (Montana field guide 2008).. Not in MT animal field guide. Seen fewer than 20 times in the state.	MNHP. Not listed for MT in NatureServe.	No record
Black tern <i>Childonias niger</i>	Western edge of species range. Migrant only.	MT animal field guide	Seasonal. No direct evidence of breeding
Sedge wren**	Outside of species range. eastern Alberta east across southern Canada, to central Maine and	NatureServe explorer, species report, p. 4. MT	No record

	Range within forest	Reference	Observation on the forest
Species common name			
<i>Cistothorus platensis</i>	New Brunswick, south to eastern Arkansas, southern Illinois, central Kentucky, western west Virginia, and southeastern Virginia, west to Dakotas, and Kansas. Extreme northeast MT (Montana field guide 2008).	animal field guide	
Yellow-billed cuckoo <i>Coccyzus americanus</i>	Yes	MT animal field guide	No record
Olive-sided flycatcher <i>Contopus cooperi</i>	Yes		Seasonal
Yellow rail* <i>Coturnicops noveboracensis</i>	Outside of species range. northeast corner of Montana (Montana field guide 2008). Seen fewer than 20 times in the state.	NatureServe explorer, species report, p. 4. MT animal field guide	No record
Trumpeter swan <i>Cygnus buccinator</i>	Outside of species range.	NatureServe explorer, species report, p. 5. MT animal field guide	No record
Black swift <i>Cypseloides niger</i>	Yes	MNHP	Seasonal
Bobolink <i>Dolichonyx oryzivorus</i>	Yes. Edge of species range	MNHP	Seasonal/transient. No direct evidence of breeding.
Alder flycatcher** <i>Empidonax alnorum</i>	Outside of species range. small isolated range in Teton county in Montana (Montana field guide 2008). Central Alaska and Yukon east across central Canada to southern Labrador and Newfoundland, south to southern BC, northern North Dakota, Great lakes region east. at the southern edge of species range. Considered rare and local in Montana. Pine butte fen, Blackleaf game range. 1 observation on the forest with indirect evidence of breeding.	NatureServe explorer, species report page 5.	1 observation in the Fisher River. No direct evidence of breeding.
Prairie falcon <i>Falco mexicanus</i>	Outside species range. Winter use.	MT animal field guide	Transient/accidental.
Common loon <i>Gavia immer</i>	Yes		Seasonal
Sandhill crane <i>Grus canadensis</i>	Outside of breeding range, migrant.	Mt animal field guide. MNHP.	Migrant
Pinyon jay <i>Gymnorhinus cyanocephalus</i>	Outside of species range		
Harlequin duck <i>Histrionicus histrionicus</i>	Yes		Seasonal
Caspian tern <i>Hydroprogne caspia</i>	Outside of species range	NatureServe explorer, species report, p. 5. MT animal field guide	No record
White-tailed ptarmigan <i>Lagopus leucura</i>	Yes		Accidental. 1 observation 1981. no evidence of breeding.
Loggerhead shrike <i>Lanius ludovicianus</i>	Outside of species range.	NatureServe explorer, species report, p. 6.	Transient/accidental. No direct evidence of breeding.
Franklins gull <i>Larus pipixcan</i>	Migrant only.	MT animal field guide	No record
Black rosy finch <i>Leucosticte atrata</i>	Outside of species range. northwest corner of the state (Montana field guide 2008).mountains from central Idaho southwestern and south central Montana and northwestern and north central Wyoming south to southeastern Oregon, northeastern and east central Nevada and central Utah.	Montana animal field guide. MNHP.	No record
Gray crowned rosy finch <i>Leucosticte tephrocotis</i>	Yes	MNHP	Yearlong
Marbled godwit <i>Limosa fedoa</i>	Migrant	MT animal field guide.	Migrant/no record
Red-headed woodpecker	Outside of species range.	MT animal field guide	No record

	Range within forest	Reference	Observation on the forest
Species common name			
<i>Menalperes erythrocephalus</i>			
Lewis's woodpecker <i>Melanerpes lewis</i>	Yes		Seasonal
Black and white warbler <i>Mniotilta varia</i>	Outside of species range	NatureServe explorer, species report, p. 5. MT animal field guide	No record
Clarks nutcracker <i>Nucifraga columbiana</i>	Yes.		
Long-billed curlew <i>Numerius americanus</i>	Yes	MNHP	Seasonal
Whimbrel <i>Nutterinus phaeopus</i>	Outside of species range	MNHP	No record
Black-crowned night heron <i>Nycticorax nycticorax</i>	Outside of species range	NatureServe explorer, species report, p. 5. MNHP.	No record
Sage thrasher <i>Oreoscoptes montanus</i>	Outside of species range	MT animal field guide	No record
Flammulated owl <i>Otus flammeolus</i>	Yes		Seasonal
Wilson's phalarope <i>Phalaropus tricolor</i>	Outside of species range, No direct evidence of breeding. 1 observation on the forest.	MT animal field guide	Migrant/accidental.
White-headed woodpecker* <i>Picoides albolarvatus</i>	Outside of species range. Not in MT animal field guide.	NatureServe explorer, species report, p. 3, 4. not shown for MT in NatureServe.	Accidental. Seen fewer than 20 times in the state.
Black-backed woodpecker <i>Picoides arcticus</i>	Yes	MNHP	Yearlong
White-faced ibis <i>Plegadis chihi</i>	Outside of species range. transient	NatureServe explorer, species report, p. 4. MNHP.	Accidental
Boreal chickadee <i>Poecile hudsonica</i>	Yes. Southern edge of species range	MNHP	Yearlong
American golden plover <i>Pluvialis dominica</i>	Outside of species range. Migratory.	NatureServe explorer, species report. Not in MNHP.	Migrant/no record.
Blue-gray gnatcatcher** <i>Polioptila caerulea</i>	Outside of species range. Pryor Mtns.	NatureServe explorer, species report, p. 4. MT animal field guide	No record. Considered rare and local in the state.
Broad-tailed hummingbird* <i>Selasphorus platycercus</i>	Outside of species range	NatureServe explorer, species report, p. 3. MT animal field guide	Accidental. Seen fewer than 20 times in the state.
Eastern bluebird <i>Sialia sialis</i>	Outside of species range	NatureServe explorer, species report, p. 5. MT animal field guide	No record
Pygmy nuthatch <i>Sitta pygmaea</i>	Yes		Yearlong
Dicksissel* <i>Spiza americana</i>	Outside of species range. Seen fewer than 20 times in the state.	NatureServe explorer, species report, p. 5. MT animal field guide	No record
Red-naped sapsucker <i>Sphyrapicus nuchalis</i>	Yes		Seasonal
Williamson's sapsucker <i>Sphyrapicus thryoideus</i>	Yes		Seasonal
Brewer's sparrow <i>Spizella breweri</i>	Yes.	MNHP	Seasonal. Direct evidence of breeding.
Forster's tern <i>Sterna forsteri</i>	Outside of species range. Migrant.	MT animal field guide	No record

	Range within forest	Reference	Observation on the forest
Species common name			
Common tern <i>Sterna hirundo</i>	Outside of species range	NatureServe explorer, species report, p. 4	Migrant/accidental. No evidence of breeding.
Great gray owl <i>Strix nebulosa</i>	Yes		Yearlong
Northern hawk-owl <i>Surnia ulula</i>	Southern edge of species range.	No documentation of occurrence during breeding season (NHP, 2004)	Accidental. No evidence of breeding
Solitary sandpiper <i>Tringa solitaria</i>	Considered a transient species in MT.	MNHP	Migrant/accidental. No evidence of breeding.
Cassin's kingbird <i>Tyrannus vociferans</i>	Outside of species range	NatureServe explorer, species report, p. 4. MT animal field guide	No record
Barn owl** <i>Tyto alba</i>	Outside of species range. North of normal breeding range. Considered transient species in the state. SE portion. Bitterroot valley. 1 observation on the forest.	NatureServe explorer, species report, p. 5. MT animal field guide. MNHP.	Accidental. Considered rare and local in the state.
Virginia's warbler <i>Vermivora virginiae</i>	Outside of species range	Not included in MT animal field guide. MNHP. Not shown for MT in NatureServe.	No record
Mammals -			
Pallid bat <i>Antrozous pallidus</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide. MNHP	No record
Northern short-tailed shrew <i>Blarina brevicauda</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide. MNHP	No record
American bison <i>Bison bison</i>	Outside of species range	NatureServe explorer, species report,	No record
Pygmy rabbit <i>Brachylagus idahoensis</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide. MNHP	No record
Rocky Mountain elk <i>Cervus canadensis</i>	Yes		
Hispid pocketmouse <i>Chaetodipus hispidus</i>	Outside of species range	NatureServe explorer, species report . MT animal field guide. MNHP	No record
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	Yes	NatureServe explorer, species report	Seasonal
White-tailed prairie dog <i>Cynomys leucurus</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide	No record
Black-tailed prairie dog <i>Cynomys ludovicianus</i>	Outside of species range	NatureServe explorer, species report,	No record
Spotted bat <i>Euderma maculatum</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide. MNHP	No record
North American wolverine <i>Gulo gulo luxos</i>	Yes		Yearlong
Eastern red bat <i>Lasiurus borealis</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide. MNHP	No record
Hoary bat <i>Lasiurus cenerius</i>	Yes.		
Black-tailed jackrabbit <i>Lepus californicus</i>	Outside of species range	NatureServe explorer, species report,	No record
Hoary marmot <i>Marmota monax</i>	Yes.		
Fisher	Yes		Yearlong

	Range within forest	Reference	Observation on the forest
Species common name			
<i>Martes pennanti</i>			
Fringed myotis <i>Myotis thysanodes</i>	Yes		Seasonal
Northern myotis <i>Myotis septentrionalis</i>	Outside of species range	NatureServe explorer, species report . MT animal field guide. MNHP	No record
Uinta chipmunk <i>Neotamias umbrinus</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide	No record
Mountain goat <i>Oreamnos americanus</i>	Yes		
Rocky Mountain bighorn sheep <i>Ovis Canadensis</i>	Yes		
Great basin pocketmouse <i>Perognathus parvus</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide. MNHP	No record
Arctic shrew <i>Sorex arcticus</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide	No record
Merriam's shrew <i>Sorex merriami</i>	Outside of species range	NatureServe explorer, species report . MT animal field guide. MNHP	No record
Dwarf shrew <i>Sorex nanus</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide. MNHP	No record
Preble's shrew <i>Sorex preblei</i>	No	NatureServe explorer, species report. MT animal field guide. MNHP	No record
Western spotted skunk <i>Spilogale gracilis</i>	Outside of species range	NatureServe explorer, species report. MT animal field guide	No record
Northern bog lemming <i>Synaptomys borealis</i>	Yes		Yearlong
Meadow jumping mouse <i>Zapus hudsonius</i>	Outside of species range	NatureServe explorer, species report . MT animal field guide. MNHP	No record
<i>Zapus hudsonius</i>			
Torrent sculpin <i>Cottus rhotheus</i>	Yes		Known
Spoonhead sculpin <i>Cottus ricei</i>	Outside species range.		No record
Shortnose gar <i>Lepisosteus platostomus</i>	Outside species range. Eastern MT	NatureServe explorer, species report. MNHP field guide 2008.	No record
Pearl dace <i>Margariscus margarita</i>	Outside species range. Eastern MT	NatureServe explorer, species report. MNHP field guide 2008.	No record
Inland redband trout <i>Oncorhynchus mykiss gairdneri</i>	Yes	NatureServe explorer, species report. MNHP field guide 2008.	Known
Trout perch <i>Percopsis omiscomaycus</i>	Outside species range. Eastern MT	NatureServe explorer, species report. MNHP field guide 2008.	No record
Northern redbelly X finescale dace <i>Phoxinus eos X phosinus neogaeus</i>	Outside species range. Eastern MT.		No record
Paddlefish <i>Polyodon spathula</i>	Outside species range. Eastern MT	NatureServe explorer, species report. MNHP field guide 2008.	No record
Lake trout	Yes	NatureServe explorer, species report. MNHP field	Known

	Range within forest	Reference	Observation on the forest
Species common name			
<i>Salvelinus namaycush</i>		guide 2008.	
Sauger <i>Sander canadensis</i>	Outside species range. Eastern MT	NatureServe explorer, species report. MNHP field guide 2008.	No record
Arctic grayling <i>Thymallus arcticus</i>	Outside species range	NatureServe explorer, species report. MNHP field guide 2008.	Stocked previously, not endemic.
Invertebrates - insects			
Butterflies			
Astarte fritillary <i>Boloria astarte</i>	Outside species range. Rocky Mtns of Alberta and MT. BC and WA. Known range includes Glacier NP only.	NatureServe explorer, species report MNHP field guide 2008. information is not complete	No record
Astarte fritillary <i>Boloria astarte astarte</i>	No info in MNHP.	NatureServe explorer, species report MNHP field guide 2008. information is not complete	No record
Bog fritillary <i>Boloria eunomia</i>	Outside species range. Known range includes Glacier NP. And area Southeast of Bozeman. AK to Labrador, south to CO in Rocky Mtns. To WI and ME.	NatureServe explorer, species report MNHP field guide 2008. information is not complete	No record
Frigga fritillary <i>Boloria frigga</i>	Outside species range. Northern Alaska and Canada, in rocky Mtns. to Colorado. Known range includes Glacier NP south and area southeast of Bozeman.	NatureServe explorer, species report MNHP field guide 2008. information is not complete	No record
Labrador sulphur <i>Colias nastes</i>	Outside species range. Known range includes Glacier NP. and south (MNHP). AK to BC. South to borders of WA and MT (NatureServe).	NatureServe explorer, species report MNHP field guide 2008. information is not complete	No record
Western sulphur <i>Colias occidentalis</i>	Yes MNHP range map includes entire Western MT. Southern BC, WA, OR, UT, western MT, ID and northern CA. extreme southern BC and northwestern US south to north coastal California and central Utah (Butterflies and Moths of NA 2007).	NatureServe explorer, species report MNHP field guide 2008. information is not complete.	No record
Monarch <i>Damus plexipus</i>	Listed for winter habitat only. outside species winter habitat.		
Colorado alpine <i>Erebia callias</i>	Outside of species range. Known range includes Glacier NP. and area Southeast of Bozeman. South central MT. Western WY. NE UT.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Magdalena alpine <i>Erebia magdalena</i>	Outside of species range. Southern Mt. South to CO. known range includes area southeast of Bozeman. AK and Yukon. Disjunct in southern MT, south in Rocky Mtns to NM.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Northern marble <i>Euchloe creusa</i>	Outside species range. Known range includes Glacier NP. AK, Yukon, NW territory. South in the Canadian Rockies to MT border.	NatureServe explorer, species report MNHP field guide 2008. information is not complete	No record
White admiral <i>Limenitis arthemis</i>	Yes MNHP range map includes entire Northern MT. New England south to FL, west to MT and AZ. Alaska to BC.	NatureServe explorer, species report MNHP field guide 2008. information is not complete	No record
White-veined arctic <i>Oeneis bore</i>	Outside species range. Known range includes area Southeast of Bozeman. Arctic AK, Canada, Greenland, Alberta, MT, WY, CO, Labrador.	NatureServe explorer, species report MNHP field guide 2008. information is not complete	No record
Melissa arctic <i>Oeneis melissa</i>	Outside species range. Known range includes Glacier NP. And area South of Bozeman	NatureServe explorer, species report MNHP field guide 2008. information is not complete	No record
Indra swallowtail <i>Papilio indra</i>	Yes MNHP range map includes entire western half of MT. Western US.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Tawny crescent <i>Phyciodes batesii</i>	Outside of species range. Eastern MT. Eastern US. AK to Newfoundland. South to NH, in the west extends south in the Rocky Mtns to CO and NM.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Lakota crescent <i>Phyciodes batesii lakota</i>	Outside of species range. Eastern MT. Western MI through WI, MN, Dakotas and NE.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Gray comma <i>Polygonia progne</i>	Northwest territories and BC south along Pacific coast to central California, southeast through Montana, Utah, Colorado, and the Dakotas to eastern Nebraska, central Kansas, and central Arkansas; east through southern Canada and the northern US to Maine and the Maritimes. Range for Montana does not include the western portion of the state (Montana field guide 2008). Butterflies and moths of NA identify the species to Lincoln and Sanders counties.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete. Butterflies and moths of NA 2007.	

	Range within forest	Reference	Observation on the forest
Species common name			
Eyed brown <i>Satyrodes eurydice</i>	Outside of species range. Northeastern MT. Southern NW territories, south through Dakotas to CO. and east to Nova Scotia and DE.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Damselflies			
Paiute dancer <i>Argia Alberta</i>	Outside species range. Only known from warm springs from western and central areas of the state.	NatureServe explorer, species report. MNHP field guide 2008.	No record
Prairie bluet <i>Coenagrion angulatum</i>	Outside species range. Known from single record in Hill county.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Subarctic bluet <i>Coenagrion interrotatum</i>	Outside species range. Known only from Spencer and Howe Lakes.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Dragonflies			
Lance-tipped darner <i>Aeshna constricta</i>	Outside species range. Known from a pond in Rosebud county.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Subarctic darner <i>Aeshna subarctica</i>	Outside species range. Known only from Mud Lake near Skalkaho Pass. Probably occurs in other boreal areas of western MT.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	Suspected
Zigzag darner <i>Aeshna sitchensis</i>	Outside species range. Wet meadows in the Swan R. Valley, Skalkaho Pass and Indian Meadows.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	Suspected
Eastern ringtail <i>Erpetocomphus designatus</i>	Outside species range. Warm springs in the Little Rocky Mtns. SE US. Furthest record west is NV.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Western pondhawk <i>Erythemis collocata</i>	Outside species range. Potosi warm spring. Tobacco Root Mtns.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Boreal whiteface <i>Leucorrhinia borealis</i>	Outside species range. Pond in the Little Belt Mtns. Judith Basin county, Rockies south to CO and UT. Upper Midwest and northern great plains. Canada west and north of Ontario.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	Suspected
Ringed emerald <i>Somatochlora albicincta</i>	Outside species range. Rarely collected and only from Mud Lake near Skalkaho Pass. Should be present at other boreal lentic sites.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	Suspected
Hudsonian emerald <i>Somatochlora hudsonica</i>	MNHP range map includes western MT. No other information available.	NatureServe explorer, species report no info. MNHP field guide 2008. information is not complete	
Brush-tipped emerald <i>Somatochlora walshii</i>	Loon Lake in Lincoln county and a boggy stream near West glacier	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	Known
Brimstone clubtail <i>Stylurus intricatus</i>	Outside species range. Eastern MT.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Red-veined meadowhawk <i>Sympetrum madidum</i>	Outside species range. NW territories east to Manitoba, extending south into northern CA, ID, and MT. In MT only documented in the southeastern part of the state.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Mayflies			
A mayfly <i>Caenis youngi</i>	Outside species range. Known from Beaverhead, Cascade, Flathead, Gallatin, Lake, and Madison counties.	NatureServe explorer, species report no info. MNHP field guide 2008. information is not complete	
A mayfly <i>Ephemerella mucronata</i>	Unknown – no info available	NatureServe explorer, species report. MNHP field guide 2008.	
A sand dwelling mayfly <i>Homoeoneuria alleni</i>	Outside species range. Saskatchewan and intermountain west. In MT. 2 sites on the powder River and 1 in the lower Yellowstone River.	NatureServe explorer, species report no info. MNHP field guide 2008. information is not complete	
A mayfly <i>Lachlania saskatchewanensis</i>	Outside species range. Until recently known only from Saskatchewan. Recently recorded from MT.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	
A mayfly <i>Raptoheptagenia cruentata</i>	Unknown - No info available	NatureServe explorer, species report no info. MNHP field guide 2008. information is not complete	
Stoneflies			
A stonefly <i>Isocapnia crinita</i>	Outside species range. Glacier NP southeast to Bozeman.	NatureServe explorer, species report no info. MNHP field guide 2008. information is not complete	
A stonefly	Outside species range. Known only from northern Rocky Mtns. Seems restricted to the	NatureServe explorer, species report no info. MNHP	

	Range within forest	Reference	Observation on the forest
Species common name			
<i>Isocapnia integra</i>	North Fork Flathead and Banff NP.	field guide 2008. information is not complete	
A stonefly <i>Isoperla petersoni</i>	Outside species range. Glacier NP southeast to Bozeman.	NatureServe explorer, species report no info. MNHP field guide 2008. information is not complete	
A stonefly <i>Utacapnia columbiana</i>	Yes. Fisher River.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	
Invertebrates - Mollusks			
Rocky Mountain dusksnail <i>Colligyrus greggi</i>	Outside of species range. Limited to SW MT. SE ID. Western WY.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Striate disc <i>Discus shimckii</i>	Yes	NatureServe explorer, species report. MNHP field guide 2008.	Known
Robust lancetooth <i>Haplotrema vancouverense</i>	Yes	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	Known
Pale jumping slug <i>Hemphilia camelus</i>	Yes	NatureServe explorer, species report. MNHP field guide 2008.	Known
Western pearlshell mussel <i>Margaritifera falcata</i>	Yes	NatureServe explorer, species report. MNHP field guide 2008.	Known
Meadow ramshorn <i>Planorbula campestris</i>	Outside of species range. No information in MT fieldguide. Southern Manitoba, ND.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Prairie sprite* <i>Promenetus exacuouus megas</i>	Unknown. Known originally from western MT and WY. May be found in NW MT kettle lakes that are undisturbed. Northern WA and ID.	NatureServe explorer, species report. Montana field guide	No record
Reticulate tailedropper <i>Prophyson andersoni</i>	Yes	Montana field guide	Known
Fir pinwheel <i>Radiodiscus abietum</i>	Yes	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	Known
Threeridge valvata <i>Valvata tricarinata</i>	Unknown. Flathead Indian reservation, lakes in the Clark Fork and Flathead drainages. Originally found in Quebec, and New Brunswick, west to AB, and south to WY, AR, and VA. More work is necessary to determine the species current status in WA, ID and MT.	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	No record
Sheathed slug <i>Zacholeus idahoensis</i>	Yes. local endemic. Lake and Lincoln Co.	NatureServe explorer, species report. MNHP field guide 2008.	Known
Invertebrates - other			
A freshwater sponge <i>Heteromeyenia baileyi</i>	Yes	NatureServe explorer, species report. MNHP field guide 2008. information is not complete	Known
A crayfish <i>Pacifastacus gambelii</i>	Outside species range. Missouri drainage in MT, WY and UT. OR, WA, ID, MT, NV.	NatureServe explorer, species report. MNHP field guide 2008. info	No record

Table 8. Information on species habitats, populations and major risks and threats

Species common name	Habitats	Habitat abundance and distribution	Population abundance and distribution	Major risk factors/threats	Conservation strategies
Vertebrates - Amphibians					
Western (Boreal) toad <i>Bufo boreas</i>	Ponds, lakes, moist forests and grasslands. Low elev. beaver ponds, reservoirs, streams, marshes, lake shores, potholes, wet meadows, and marshes. And high elev. ponds, fens, and tarns at or near treeline. (MNHP 2008). Utilizes a variety of habitats, prefer shallow areas with mud bottoms. Remain fairly close to wet area during the day but may range widely at night. No info specific to migration in MT. Elsewhere migrates between aquatic breeding and terrestrial nonbreeding habitats.	Habitat is well distributed across the forest. breeding ponds impacted by past mgmt activities but significance unknown. Once considered the most abundant amphibian of the western third of MT, still encountered widely and frequently though be no means commonly and is no longer ranked as the most abundant amphibian. Experienced regional pop. declines in the state.	Species appears to be well distributed across the forest. pop. size unknown. Individual population decline or extirpation possible. Local extirpation due to restricted mobility and fragmentation. Invasive species. population declines or extinctions have yet been documented in MT. Pop sizes difficult to measure and no estimates are available.	Habitat loss and degradation. Disease and parasites. Invasive species. Roadkill mortality.	
Coeur d'Alene salamander <i>Plethodon idahoensis</i>	Springs and seeps, waterfall spray zones, and edges of streams. seepages and streamside talus, deep talus mixed with moist soil on well shaded north facing slopes.	Habitat occurs in small isolated locations across the forest. regional endemic, Montana is the eastern edge of range. In Montana known from about 45 locations in 5 northwestern counties; Lincoln, Sanders, Mineral, Missoula, and Ravalli.	Occurs in several small disjunct populations across the forest. Pop. numbers unknown. Individual population decline or extirpation possible. Populations have declined from historical levels (Idaho CWCS-northern leopard frog). small pop. size, low productivity and possible isolation leads to increased probability of extinction no estimates of population size available for the state	Habitat loss and degradation. Disease and parasites. Vulnerable to highway construction, timber harvest, populations may be isolated by roads, timber harvest.	
Northern leopard frog <i>Rana pipiens</i>	Permanent water sources during all life stages. A variety of wetland situations, including marshes, pond margins, and slow moving sections of streams and rivers. (Idaho CWCS). Low elev. and valley bottom ponds, spillway ponds, beaver ponds, stock reservoirs, lakes, creeks, intermittent streams, warm water springs, potholes and marshes. Require a mosaic of habitats. separate sites are used for breeding and overwintering, although they may occur in the same location.	Habitat rare on NFS lands. known from 1 active location on NFS lands. historically known from several sites. occurs in all but 7 Montana counties, all west of the continental divide. Formerly present in intermountain valleys, especially in the Flathead and lower Clark Fork river drainages. Recently documented in only 2 western sites near Kalispell and Eureka.	Small range in North Idaho, western Montana and B.C. rare on the forest. In northern Idaho, populations were found in the Kootenai, Pend Oreille, and Clark Fork Rivers prior to 1955, but populations may no longer persist in this region. Little information on this species available. Northern Idaho and northwestern Montana. Individual population decline or extirpation possible. Only 1 known population on the forest, near Eureka. Effects of small isolated population	Habitat loss and degradation. Disease and parasites. Invasive species. Introduced animals.	
Reptiles					
Northern alligator lizard <i>Elgaria coerulea</i>	Dry open forest to cool moist areas near streams. Hides under logs and rocks. Areas with bushes, trees, and grassy areas needed to provide cover and foraging sites. little specific info. on habitat associations in MT. Several observations on south facing slopes in fine to coarse talus. Secretive.	Habitat fairly common and well distributed across the forest. reduction in down wood, especially in warm/dry habitat types. likely further reduction with emphasis on reduction in the wildland urban interface. may be locally abundant in some areas. range restricted to NW counties.	Known from only a few observations. Pop. numbers unknown. Secretive. Life history not well known. Uncommon. On edge of primary range. restricted to NW counties in MT.	Habitat loss and degradation. Disease and parasites. Invasive species.	
Western skink <i>Eumeces skiltonianus</i>	Soil, fallen log/down wood. Rocky areas near streams or on dry hillsides. Partial to open wooded foothills, usually associated with rocks. Often under cover. Digs burrows in soil. In Sanders county found in open ponderosa pine in or near talus. Grasslands on southwest aspects. Gentle terrain with rocky areas imbedded, to rocky and steeper terrain with scattered PP and DF.	Habitat fairly common and well distributed across the forest. reduction in down wood, especially in warm/dry habitat types. likely further reduction with emphasis on reduction in the wildland urban interface.	Known from only a few observations. Pop. numbers unknown	Little information is available for MT.	
Birds					
Northern goshawk <i>Accipiter gentilis</i>	Wide variety of cover types but nests usually in mature forest stands >25 acres with high canopy. goshawks in MT tend to nest predominantly in mature large tract conifer forests with a high canopy cover (69%), relatively gentle slope (21%) and little to sparse undergrowth. All nest trees were either LP or DF with an average dbh of 33.6 cm and average	Habitat common and well distributed across the forest. Considered to be declining in numbers near Fortine (Weydemeyer 1975). Maj reports northern goshawk population in region 1 are increasing or stable in many forests. habitat abundant and wide spread throughout the forest. use of	Nesting common across the forest, although small portion of historical nests active. Of 20 potential nesting territories only 4 confirmed active. Found region wide. No downward trend in population or habitat availability found during evaluations conducted to determine sensitive species status, 1988-1991 and currently (Montana PIF, version	Loss and degradation of habitat. Disturbance near nest sites. Fire exclusion.	

Species common name	Habitats	Habitat abundance and distribution	Population abundance and distribution	Major risk factors/threats	Conservation strategies
	height of 21.9 meters. In another study in MT DF, PP and GF were the trees most selected for nesting. Nests usually located near water or clearings. Hunt in closed canopy habitats as more open generalists in terms of prey selection.	known historic nest sites very uncommon (less than 10% use of known nest sites).	1.1, 2000).		
Grasshopper sparrow <i>Ammodramus savannarum</i>	Grasslands of intermediate height often associated with clumped vegetation interspersed with patches of bare ground. Prefers open prairies with intermittent brush although not particular to heavy brush cover. Grasslands of intermediate height.	Grasslands rare on the forest. mostly on private lands in the Tobacco Valley and Pleasant Valley areas. Habitat and species rare on the forest. prefers open prairies. edge of species range. Known only from Tobacco Valley area-grassland habitats on private lands.	Rare. Not known to occur on NFS lands. Large range, significant population declines in NA and probably elsewhere. BBS data indicate a significant decline in NA between 1966 and 1989. experienced rangewide population declines including the northern Rockies physiographic area which includes the Kootenai NF. Does well in many CRP plantings but is sensitive to grazing.	Loss, degradation and incompatible management of grassland habitat. Cultivation, urban sprawl, and reforestation. Termination of CRP program. no info for MT.	
Golden eagle <i>Aquila chrysaetos</i>	Occurs primarily in Dry, open and semi-open areas. Prairies, tundra. Nests on cliffs and large trees and hunt over prairie and woodlands.	Habitat rare on the forest. Prefers open prairies. Rare on the forest. known to nest only on private lands. not considered a species of concern for MT.	Rare. Not known to occur on NFS lands. locally very uncommon to rare. 3-4 known nests on the forest on private land.	Disturbance at nest sites. Access management (road kills). Habitat loss and degradation. Powerlines. Lead poisoning.	
American bittern <i>Botaurus lentiginosus</i>	Shallow wetlands with dense growths of robust emergents.		Widespread distribution but populations are declining. Abundance difficult to estimate due to its secretive nature.	Loss and degradation of habitat.	Protect habitat through land purchases and easements. Preservation of wetland habitats, particularly large (greater than 25 acres) shallow wetlands with dense growths of emergents.
Cassin's finch <i>Carpodacus cassinii</i>	Open coniferous forest. usually nests in conifer 3-25 m above the ground. Eats seeds and buds, insects and berries. Forages high in trees or on the ground.	Considered in Montana. A fairly large number of observations on the forest (MNHP 2008).			
Black tern <i>Chiononias niger</i>	Wetlands, marshes, prairie potholes, and small ponds. Semi-colony breeders in shallow freshwater marshes with emergent vegetation. In MT approximately 30-50% of wetland complex is emergent vegetation.	Habitat rare on the forest. known only from the Noxon reservoir area of the forest. Rare on the forest. known to occur only in Noxon reservoir area on private lands. breeding not known to occur on the forest habitat on NFS lands rare.	Rare on the forest. seasonal. pop. numbers unknown. Not known to occur on NFS lands. Black terns are limited to breeding locations with appropriate habitat, size, and vegetation composition. Appropriate habitat in Montana is patchy at best. Threats not related to activities on FS lands.	Loss or degradation of wetlands for breeding and migration. Pesticide reduction of favored insect foods. Disturbance in nesting colonies, although tolerant of nearby human activity. Water level fluctuation.	
Yellow-billed cuckoo <i>Coccyzus americanus</i>					
Olive-sided flycatcher <i>Coturnicops noveboracensis</i>	Open or semi open mature and older montane and northern coniferous forest. Large conifer snags. generally breeds in the montane and boreal forests in the mountains of western North America. Highly adapted to the dynamics of a landscape frequently altered by fire. More often associated with post fire habitat than any other major habitat type, but may also be found in forest openings (clear cuts and other disturbed forest habitat), open forests with a low percentage of canopy cover, and forest edges near natural meadows, wetlands, or canyons. Affinity for forested edges near water may be a product of a higher presence of insects in these areas. common in spruce and aspen. Uncommon in mixed conifer, ponderosa pine, aspen, and cedar hemlock forests and rarely present in lodgepole pine or pinyon juniper.	Common. Moderate threats. Post fire species. Known or strongly suspected serious declines.	Uncommon. Seasonal	Loss or degradation of habitat. Fire exclusion.	
Black swift <i>Cypseloides niger</i>	Cliffs, waterfalls, caves.	Habitat rare on the forest. known in 1 location associated with wilderness. Habitat rare on the forest. Known only from 1 location on the forest associated with	1 population known to occur. Numbers unknown but considered uncommon. Little information available. Casey 2000. Uncommon. On edge of primary range.	Decreases in water flow. Disturbance at nesting areas.	

Species common name	Habitats	Habitat abundance and distribution	Population abundance and distribution	Major risk factors/threats	Conservation strategies
		wilderness area. species of continental concern but not regional concern. No management activity ongoing in MT but increased recreation use at breeding sites should be discouraged.			
Bobolink <i>Dolichonyx oryzivorus</i>	Tall grass areas, flooded meadows, prairies, deep cultivated grains, and hayfields. Dense relatively tall grasslands with intermediate amounts of litter. Native grasslands and non native tame pastures, haylands, wet meadows, and old fields. Little to no woody vegetation. Prefer large grasslands (>40 hectares).	Grasslands rare on the forest. mostly on private lands in the Tobacco Valley and Pleasant Valley areas. Prefer tall and mixed grass prairies. Habitat rare on the forest, - mostly on private lands. no known breeding on NFS lands.	Rare on the forest. known from the Tobacco Valley area of the forest. not known to occur on NFS lands. Breed widely throughout Montana. Nests locally in wheat fields in Idaho. Still widespread and fairly common, but declining due to changing agricultural practices. BBS data indicate a significant population decline in NA in recent decades, particularly in central NA.	Habitat loss. Decrease in hayfield areas, earlier and more frequent hay cropping, and shift from timothy and clover to alfalfa.	
Prairie falcon <i>Falco mexicanus</i>					
Common loon <i>Gavia immer</i>	Lowland lakes and reservoirs (generally greater than 10 acres in size).	Breeding/rearing habitat uncommon. Mostly on private lands. Uncommon seasonal, nests on several lakes, only a few with adjacent NF lands.	Uncommon. Nesting not known to occur on NFS lands. but FS lands adjacent or surround nesting areas.	Human disturbance at breeding lakes, heavy metal poisoning, fluctuating water levels, increasing numbers of predators. Shoreline development.	
Sandhill crane <i>Grus canadensis</i>					
Harlequin duck <i>Histrionicus histrionicus</i>	Forested mountain streams of relatively low gradient, free of human disturbance. Winters in rough, coastal waters, especially along rocky shores.	Habitat uncommon on the forest.	Uncommon to rare. Known to breed and rear on several streams across the forest. seasonal. Pop. trend considered to be stable.	Loss or degradation of habitat. Destruction of watershed stability and stream flow regimes. Sedimentation and toxic chemical pollution. Human disturbance near breeding areas. Hunting on wintering grounds.	
Loggerhead shrike <i>Lanius ludovicianus</i>					
Gray crowned rosy finch <i>Leucosticte tephrocotis</i>	Barren, rocky, or grassy areas and cliffs, among glaciers or beyond timberline. Nests in rock crevices or holes in cliffs.	Habitat rare on the forest. Not known but suspected to occur on the forest. Habitat abundant and well distributed on the forest.	Large and widespread. Apparently stable.	No threats known.	
Lewis's woodpecker <i>Melanerpes lewis</i>	Open parklike, mature ponderosa pine and riparian cottonwood with dense understory and large snags. Burned coniferous forests. Requires snags of advanced decay for nesting. Migratory woodpecker of open forests and post fire habitat. Excavates and reuses cavities in the soft wood of dead and decaying trees. Breeding habitat in MT consists of open ponderosa pine, burned coniferous forest and in riparian woodland (particularly cottonwood). Open forest canopy that permits flycatching, a dense understory shrub coverage to generate an abundance of insects and large snags for nesting. In underburned forests necessary snag and understory conditions are generally found in older, open stands that lack dense layer of sub canopy trees. Burned forest sites are rarely occupied until a significant shrub layer is developed. Based on the geographic region, specific habitat and the intensity of the burn site occupation may range from 5-22 years post fire, though the species was abundant 2-3 years post fire in a large high intensity burn in western ID. After 2-3 decades post fire the development of young	Recorded during the breeding season in all parts of MT except the NE quarter. Current habitat conditions in MT are significantly inferior in quantity and quality to historic conditions. opportunities in dry forests are present to significantly improve habitat over coming decades. Opportunities in burned and riparian cottonwood habitat however will require major shifts in policies and actions before benefits can be realized. Dry forest - The conversion and expansion of mature dry forest stands to second growth throughout the range of Lewis has created undesirable high density vegetation conditions. Currently blocks of appropriate pp habitat are rare in MT. Major restoration of xeric forest ecosystems is currently underway, within region 1 project that 50% of dry pp and df habitat approximately 2 million acres will be restored in the next 20 years to more natural open parkland conditions dominated by large mature trees	Rare. Seasonal Known or strongly suspected serious declines. Based on bbs data, populations in NA have declined 60% from 1966 to 1991. in MNT trends are strongly downward for the same time period but the number of survey routes is insufficient for statistical analysis. local declines were reported in the Fortine area of Lincoln county, MT (Wedemeyer 1975) though local changes must be interpreted against the relatively uncommon status and sporadic distribution of the species. southwestern BC and AB south to southern NM and AR west to southern CA and east to eastern CO. approximating the distribution of pp in NA. Range contractions in the 20 th century have occurred in the western and southern extremes of historic range, western BC, NW sections of WA and OR, and portions of southern CA.	Loss and degradation of habitat. Loss of large Douglas-fir and mixed conifer snags. Fire suppression. Fire exclusion. Quality and quantity of habitat in BC continues to decline for what are already small and declining populations of Lewis's.	

Species common name	Habitats	Habitat abundance and distribution	Population abundance and distribution	Major risk factors/threats	Conservation strategies
	second growth forest again creates conditions unsuitable for Lewis's woodpeckers. In BC confined to relatively few habitats at lower elevations with a strong link to older aged open canopied ponderosa pine and riparian stands of large black cottonwood trees. Also abundant in a 18 year old burn of mature Douglas-fir forest.	(USDA FS 1998). Once restored the FS has an opportunity to manage these areas to meet habitats of identified wildlife species including Lewis. Post fire – areas now burned by stand replacement fires constitute a small proportion of historic levels of post fire habitat. The results of effective fire suppression for species closely associated with stand replacement fire conditions are potentially devastating. Compounding the lack of post fire habitats is post fire timber harvest on those few areas that do burn. Riparian cottonwood – in a state of decline throughout American West due to the effects of human activities and disturbance regimes. Cavity nesting habitat due to snag attrition historic and current logging of large cottonwoods and farmland conversion and competition with European starlings may further limit nesting opportunities. Future viability of cottonwood threatened by flood control irrigation, and grazing, that combine to thwart cottonwood regeneration dependent on periodic flooding and resultant disturbed substrates.			
Clarks nutcracker <i>Numerius americanus</i>					
Long-billed curlew <i>Numerius americanus</i>	Open short grass or mixed prairie with level to slightly rolling topography, generally avoid areas with trees, high density shrubs and tall, dense grasses. Prairies and grassy meadows, generally near water. Nests on ground usually in flat areas with short grass. Presence of short grass prairie is a requirement. Have adapted well to nesting in croplands if the vegetation is of the correct height. Well drained native grasslands and agricultural land with a gentle rolling topography. Require large blocks of grasslands.	Grasslands rare on the forest. mostly on private lands in the Tobacco Valley and Pleasant Valley areas. Habitat and species rare on the forest. prefers open prairies. edge of species range. Known only from Tobacco Valley area-grassland habitats on private lands.	Rare. Not known to occur or nest on NFS lands. Local population declines but not widespread. Extirpated from eastern U.S. north American populations have declined in the past 25 years as suitable nesting habitat has been converted to other uses. Formerly listed as a category 2 candidate for federally threatened and endangered status. Breeding habitat in the state appears to be fragmented and unprotected. In Montana they can be found breeding and migrating throughout the state, however they are more common east of the Rockies, particularly along the Rocky Mountain front. There are a few records from the extreme western edge of the state.	Loss of habitat. Cultivation of grassland. Hunting along Atlantic coast. Pesticides. Grazing. Disturbance of nest sites.	
Flammulated owl <i>Otus flammeolus</i>	Dry montane forests with brushy understory or open grasslands nearby. Low/mid elevation multi-storied, open to semi-open mature and old ponderosa pine and dry Douglas-fir forests. Preference for mature open dry forests. breed primarily in open mature montane pine forests from southern BC to southern Mexico. Ponderosa pine and Jeffrey pine preferred habitats though mixed coniferous stands occasionally used. Considered rare until recently (1990s). Adapted to foraging in open forest conditions. Nest primarily in cavities excavated by woodpeckers in large trees and snags. Ecological factors positively affecting owls include large scale	Habitat fairly well distributed. Impacted by past and ongoing mgmt activities. Common seasonal, nesting known throughout the warm/dry portion of the forest. Habitat and species considered fairly common on the forest. considered to be a significant habitat loss – large diameter ponderosa pine, with open understories.	Uncommon. Pop. numbers unknown but appear to be fairly well distributed across the forest during seasonal use period. Seasonal. Comply with snag and down woody debris guidelines. Vegetation restoration to maintain two or more canopy layers and adjacent to forest/grass or forest/shrub ecotones.	Loss of mature ponderosa pine and Douglas-fir forest. Fire suppression. Disturbance near breeding, nesting and rearing sites. Loss of large snags and lack of snag recruitment. Conversion and expansion of mature dry forest stands to second growth created undesirable high density vegetation conditions. Blocks of suitable habitat are rare in MT. Major restoration of ponderosa pine and Douglas-fir dominated	

Species common name	Habitats	Habitat abundance and distribution	Population abundance and distribution	Major risk factors/threats	Conservation strategies
	open forest, forest openings, and small patches of dense vegetation. It appears that owls use and perhaps need a limited amount of clustered dense vegetation in their breeding territory.			sites in western MT. McCallum (1994) believes the most immediate threat to the species in NA may be the elimination of snags through firewood gathering and other logging.	
Wilson's phalarope <i>Phalaropus tricolor</i>					
Black-backed woodpecker <i>Picoides arcticus</i>	Well distributed and recently burned or insect infested areas. Found in association with subalpine fir and Engelmann spruce in higher elevations and ponderosa pine, Douglas-fir and lodgepole pine at lower elevations. Closed boreal and montane coniferous forests. A Montana/Wyoming study (Hutto 1995) found they are essentially restricted to early post fire habitats. Primary excavators, they may be more limited by foraging resources than nesting or roosting resources (Montana PIF). Both Goggans et al. (1987) and Caton (1996) concluded that managing snags for nesting alone does not provide for the habitat needs of black-backed woodpeckers. Areas that have undergone disturbance or in patches in mature and old growth forests.	Habitat amount and distribution varies	Naturally low, pop. numbers vary dependent on habitat but unknown. found in 7 of 8 planning units. irruptive species. dependent on fire habitats.	Fire suppression. Salvage harvest of post fire and insect infested areas. Human disturbance near nest sites. Loss of snags.	
Boreal chickadee <i>Poecile hudsonica</i>	Little information for Montana exists. Boreal coniferous and mixed forests in vicinity of white cedar and hemlock swamps, and in birches and streamside willows. Nests in natural cavities or abandoned woodpecker holes, or in a cavity dug by a pair in rotten tree stub.	Montana is in the southern extreme of the breeding range. Southern extreme of species range. Habitat abundant and well distributed on the forest. little information on breeding habitat available for MT.	Uncommon. Pop. numbers unknown. Considered at risk or high risk in MT due to limited or potentially declining numbers, extent or habitat making it vulnerable to global extinction or extirpation in the state.	Little information available. Loss and degradation of habitat, particularly snags.	
Pygmy nuthatch <i>Sitta pygmaea</i>	Late seral, large diameter, live ponderosa pine stands, and large snags.	Rare on the forest. habitat loss on the forest considered significant – large diameter ponderosa pine snags.	Rare.	Loss and degradation of habitat (including large snags). fire exclusion. Grazing.	
Red-naped sapsucker <i>Sphyrapicus nuchalis</i>	Mixed conifer forests. Nests in cavity in live tree, frequently near water.	Very little info for the KNF.	Uncommon	Loss and degradation of habitat (including snags)	
Williamson's sapsucker <i>Sphyrapicus thyroideus</i>	Mixed conifer forests. Constructs nesting cavity in standing snag/hollow tree. Mainly mature and old growth mixed conifer and ponderosa pine forests, as well as aspen stands. In MT range restricted to the main chain of the Rocky Mtns. Migrate to southwest US and Mexico. Primary excavators, seem to be severely restricted to large diameter trees and snags for their nesting (and roosting?), except when nesting in aspen. Use western larch, DF, and grand fir types as well as aspen and ponderosa pine. Prefer stands with less than 75% canopy closure, 2-3 canopy layers, and >10 snags per hectare.	Very little info for the KNF.	Uncommon. poorly sampled by BBS so population trends unknown.	Loss and degradation of habitat (including snags).	
Brewer's sparrow <i>Spizella breweri</i>	Little information for Montana. Sagebrush.	Very little habitat on KNF, almost none on NF lands. the sagebrush form is a sagebrush obligate which has shown significant population declines throughout much of its range including PA 64 which includes the Kootenai. Very little is known about distribution and habitat needs of the timberline form. Prefers sagebrush or grassland habitats. known only from	Very little habitat on KNF, almost none on NF lands. the sagebrush form is a sagebrush obligate which has shown significant population declines throughout much of its range including PA 64 which includes the Kootenai. Very little is known about distribution and habitat needs of the timberline form. Prefers sagebrush or grassland habitats. known only from Tobacco Valley or Pleasant Valley areas – on private lands. habitat rare on NFS	Little information available. Habitat loss and degradation, grazing, invasive grasses, fire, brood parasitism, predators, pesticides. Widespread long-term decline and threats to shrub-steppe breeding habitats.	

Species common name	Habitats	Habitat abundance and distribution	Population abundance and distribution	Major risk factors/threats	Conservation strategies
		Tobacco Valley or Pleasant Valley areas – on private lands. habitat rare on NFS lands.	lands.		
Great gray owl <i>Strix nebulosa</i>	Coniferous and hardwood forests, especially pine, spruce, paper birch, and poplar. Most commonly near extensive meadows. In Montana lodgepole pine/Douglas-fir. Nest in tops of large broken off tree trunks, in old nests of other large birds or in debris platforms from dwarf mistletoe.	Habitat uncommon but appears to be well distributed across the forest. Habitat appears to be well distributed across the forest.	No evident population decline throughout its range. Pop. trend uncertain for MT. Known nests will be protected.	Loss and degradation of habitat. Forest succession of large meadows. Disturbance at nest sites. Over-grazing meadows.	
Northern hawk owl <i>Surnia ulula</i>	Open coniferous or mixed forest, forest edge and clearings, old deciduous forest burns, dense shrubby areas, swamps, scrubby second growth woodland and muskeg. Nests in hollow tops of dead spruces, birches, natural tree hollows, abandoned woodpecker holes, deserted nests of crows and birds of prey.	Habitat common and well distributed across the forest. Appears to be at the southern extreme for this species. Trend in Canada is stable. On the edge of primary range. No known breeding on forest. Southern edge of species range. Movements into MT may be in response to prey abundance.	No documentation of known occurrence during breeding season. Considered accidental in MT (infrequent and outside usual range). The majority of the records for the state are for transient individuals (MNHP 2005). 1 observation on the forest. Habitat abundant and well distributed throughout the forest. known nests will be protected.	Loss and degradation of habitat, especially snags. Disturbance near nest sites. Fire exclusion. Montana PIF lists this species as a priority IV – non-priority, due to occurrence as rare migrants only, extremely peripheral occurrence, or lack of imminent risk (widespread, generalist, increasing).	
Mammals					
Rocky mountain Elk <i>Cervus canadensis</i>	Habitat generalist. Summer range – mid to high elevation. Winter range low elevation south facing slopes. Mainly coniferous forests interspersed with natural man made openings (mountain meadows, grasslands, burns and logged areas). basic habitat components include security, shelter (may use to maintain thermal equilibrium) and forage production. High open road densities affect habitat effectiveness, good winter range critical.	Habitat well distributed across the forest. herds have large area requirements and have distinct summer and winter ranges. Crucial winter range	Common, several small populations across the forest. combination of introduced and possibly remnant. Occurs in herds of various sizes, generally less than 20 animals. Proximity to humans and roads.	Loss and degradation of habitat. Access management – road and recreation impacts. Fire exclusion. Invasive species – particularly winter range. Hunting.	
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	caves and abandoned mines used for maternity roosts and hibernacula, use of buildings in late summer has also been reported. Habitats in the vicinity of roosts include DF, LP, PP.	Natural caves rare on the forest. abandoned mines relatively common, mostly on private lands. No hibernacula or roosting sites known to occur on the forest.	Rare to Uncommon. Pop. numbers unknown. present yearround in MT.	Habitat loss and degradation. Loss of large snags. Degradation of riparian habitat. very sensitive to human disturbance.	
North American wolverine <i>Gulo gulo</i>	High elevation roadless/wilderness. In NW MT and AK tend to occupy higher elev. in summer and lower elev in winter. Large home range. Limited to alpine tundra and boreal and mountain forests (primarily coniferous) in the western mountains, especially wilderness areas. dens in caves, rock crevices, under fallen trees, in thickets or similar sites. avoid clearcuts and burns. Medium scattered timber, with young dense timber used least.	Denning habitat uncommon. <1% of the forest. Wilderness and roadless lands. limited distribution to high elevation remote areas.	Uncommon to rare although pop. numbers unknown. Solitary and wide ranging. Occur at relatively low densities. Were nearly extinct in MT during the 1900s and have been increasing in numbers and range since. Recovery originated in NW MT and spread to its current range. Classified as a furbearer in MT.	Human disturbance - especially winter rec. at denning sites. (heli skiers, snowmobiles, motorized vehicles can disturb or displace wolverines). Roadless area management. Trapping. Habitat loss. Limited distribution. Effects of small population size. Dependent on recruitment of dispersers from BC. Large highways and associated corridors fragment habitat and creates barriers or impediments to movement.	
Hoary bat <i>Lasiurus cinereus</i>					
Hoary marmot <i>Marmota monax</i>					
Fisher <i>Martes pennanti</i>	Low/mid elevation multi-storied, mature and older forest with riparian habitat, down large wood, forest connectivity. Dens in Tree hollows, under logs, or in ground or rocky crevices, or they rest in branches of conifers. Occur primarily in dense coniferous or mixed forests, including early	Reintroduced or population augmented on the forest. occur mainly in remote areas. Extinct in MT by the 1930s. reintroduction efforts in 1959 and 1990 in Lincoln, Granite and Missoula counties resulted in establishment of population in those	Uncommon to rare. Pop. numbers unknown. Pop. augmented. Limited in abundance and extent and may be isolated from other populations	Trapping, loss and degradation of habitat (including snags and down logs). Loss of prey habitat. small pop. size, low productivity and possible isolation leads to increased probability of extinction	

Species common name	Habitats	Habitat abundance and distribution	Population abundance and distribution	Major risk factors/threats	Conservation strategies
	successional forest with denser overhead cover. Optimal conditions are forest tracts of 245 acres or more, interconnected with other large areas of suitable habitat. a dense understory of young conifers, shrubs, and herbaceous cover is important in winter. Forest structure which affects prey abundance and vulnerability and provides denning and resting sites is probably more important than tree species composition. Forest structure can be characterized by a diversity of tree shapes and sizes, understory vegetation, snags and fallen limbs and trees and tree limbs close to the ground. Large snags (>20" dbh) are important for maternal den sites.	counties. Recent introduction were made in the Cabinet Mountains between 1988 and 1991. managed as a furbearer with a limited harvest of 7 animals.			
Fringed myotis <i>Myotis thysanodes</i>	Ponderosa pine and Douglas fir forest while foraging over willow/cottonwood areas along creeks and over pools, and in caves. Found primarily in desert shrublands, sagebrush-grassland, and woodland habitats (pp forest, oak, and pine habitat, DF). Nursery colonies in caves, mines and sometimes buildings.		Population numbers unknown but considered uncommon to rare.		
Mountain goat <i>Oreamnos americanus</i>	Alpine and subalpine habitat. Usually at timberline or above. High elevation roadless/wilderness. precipitous terrain, steep south facing slopes in winter. Sometimes enter subalpine forest. snow is an important influence on winter distribution. Winter habitat: cliffy terrain, south facing canyon walls, windblown ridgetops, spring: south and west facing slopes, summer: meadows, cliffs, ravines, and forests.	Habitat uncommon, in wilderness and/or roadless areas.	Uncommon. Occur in 2 small populations.	Loss and degradation of habitat. Mining. Human-caused disturbance, especially winter recreation. Hunting. High quality hunting big game species by permit only. vehicle access linked to population declines. Low productivity and sociobio characteristics combine to make sensitive to overharvest. May leave traditional areas to disturbances – logging.	
Bighorn sheep <i>Ovis canadensis</i>	Mid elevation steep lands and high elevation roadless/wilderness. Cliffs, mountain slopes, rolling foothills, sometimes cross intermountain valleys. Min. snow depth important in winter, availability of high quality green forage most important in spring and summer. Semi open to open veg. types preferred.	Majority of Habitat occurs in roadless and wilderness areas. occur in 3 locations across the forest.	Uncommon. 3 small herds. Only 1 native herd.	Loss and degradation of habitat. Fire exclusion. Invasive species. Access management. Hunting. High quality hunting big game species by permit only.	
Northern bog lemming <i>Synaptomys borealis</i>	Sphagnum bogs, fens, wet meadows, moist mixed and coniferous forests, alpine sedge meadows and mossy streamsidess. in MT found in at least 9 community types; ES, SF, birch, willow, sedge, spike rush, or combinations of the above often occurring wet meadows, fens, or bog like environments. Areas with extensive moss mats, especially sphagnum.	Habitat occurs in small isolated locations on the forest.	Uncommon to rare. Naturally rare, occur in several very small pop. Individual population decline or extirpation possible	Habitat loss and degradation. Human disturbance. Grazing. Changes in water regimes. Invasive species.	
Fish					
Torrent sculpin <i>Cottus rhotheus</i>	Fast, freshwater streams of the Kootenai River drainage. Riffles of cold, clear streams but are also taken in lakes. Hide in stones on the bottom.	Pools and glides in streams generally in small gravel and rock.			
Inland redband trout <i>Oncorhynchus mukiss gairdneri</i>	Stream resident fish. Prefer cool, clean, relatively low gradient streams but in some circumstances are able to withstand wider temperature variations than westslope cutthroat trout.	Cool waters of lakes, rivers, and streams.	Hybridization, activities that elevate temperature, alter hydrology, increase sedimentation. Known from several small populations. Pop. numbers unknown. MFWP stocking into several areas on the forest.	Hybridization with non-native species	

Species common name	Habitats	Habitat abundance and distribution	Population abundance and distribution	Major risk factors/threats	Conservation strategies
Lake trout <i>Salvelinus namaycush</i>	Native to St. Mary and Missouri River drainages. Introduced elsewhere. Very deep, cold lakes and reservoirs. With some rocky bottom and abundant forage fish.	Known to occur in Noxon reservoir and mainstem Kootenai River.	Known to occur only in Noxon reservoir and mainstem Kootenai river. Does not occur on NFS lands.	None known.	
Invertebrates – Insects					
Butterflies					
Western sulphur <i>Colias occidentalis</i>	No info in MNHP. Ocean bluffs, forest openings, mountain slopes, and subalpine meadows with substantial populations of various herbaceous legumes. Occurs in generally forested (especially DF) landscapes but in a variety of habitats. larval foodplants are various legumes including milk-vetches, golden banner, lotis and Oxytropis. Very rare or local throughout its range or found locally in a restricted range or apparently secure globally, though it might be quite rare in parts of its range, especially at the periphery (Butterflies and Moths of NA 2007). Open areas including meadows, sagebrush flats, conifer forest openings, powerline cuts.	Unknown. No info. for state of MT or locally.	Unknown. No info. for state of MT or locally. Lack of information, habitat not well understood.	Clearcutting, fire suppression and resultant invasion of meadows and glades by dense woody vegetation, and invasion of aggressive alien weeds. Overgrazing and logging. Some populations affected by grazing and fire suppression (Butterflies and Moths of NA 2007). Management needs not reported (Ibid). Improper logging, invasive alien weeds (Ibid).	
White admiral <i>Limenitis arthemis</i>		Unknown. No info. for state of MT or locally.	Unknown. No info. for state of MT or locally.		
Indra swallowtail <i>Papilio indra</i>		Unknown. No info. for state of MT or locally.	Unknown. No info. for state of MT or locally.		
Gray comma <i>Polygonia progne</i>	Along dirt roads, streamsides and within clearings in rich deciduous or coniferous woods, in aspen parks, yards and gardens. Often in hilly terrain or canyons. Host plants include gooseberries (ribes) and azalea (Rhododendron).			No management needs reported. Conservation not usually required. (Butterflies and Moths of NA 2007).	
Dragonflies					
Hudsonian emerald <i>Somatochlora walshii</i>	No info in MNHP or NatureServe. Adults fly along grassy margins of mountain lakes and ponds.	Unknown. No info. for state of MT or locally. MT predicted range includes western 1/3 of the state.	Unknown. No info. for state of MT or locally.		
Brush tipped emerald <i>Somatochlora intricatus</i>	Loon Lake in Lincoln county and a boggy stream near west Glacier.	Unknown. No info. for state of MT or locally. MT predicted range includes NW corner of the state.	Unknown. No info. for state of MT or locally.		
Stoneflies					
<i>Utacapnia columbiana</i>	No info in MNHP or NatureServe although known to occur in Fisher River	No information available in MNHP or NatureServe. Known from location in Lincoln county. MT predicted range includes the very NW corner of the state.	No information available in MNHP or NatureServe.	No information available in MNHP or NatureServe.	
Invertebrates - Mollusks					
Striate Disc <i>Discus shimckii</i>	Spruce/fir intermixed with aspen or old broadleaf trees and shrubs. Soils often are from weathering limestone. Active most often in litter in lowland forest, but sometimes on downed wood and rock surfaces. Slopes are often north facing and shaded. Tends to be associated with quaking aspen at MT sites where it was documented. Most recently found at sites with canopies including Engelmann spruce, Douglas-Fir, Subalpine Fir, and Lodgepole Pine but with scattered also present.	Pop. sizes are not reported. Can be abundant in colonies but colony sites are relatively small in extent. Widely distributed in the Rocky Mtns. Of Arizona, NM, UT, CO, and Wy. With populations also extant in the black Hills. It is also found in MT in the Canadian rockies. Documented from 5 MT. counties including Lincoln.	Documented in 5 counties; Gallatin, Hill, Lincoln, Park and Sweetgrass.	Loss and degradation of habitat. Changes in water quality. Degradation due to timber harvest and livestock grazing. Fire is also a concern. Stand replacement fires could permanently eliminate populations in isolated colonies.	
Robust lancetooth <i>Haplotrema vancouverense</i>	No info in MNHP or NatureServe.	MNHP predicted distribution includes portions of Lincoln and Sanders counties.	No information available in MNHP or NatureServe.		

Species common name	Habitats	Habitat abundance and distribution	Population abundance and distribution	Major risk factors/threats	Conservation strategies
Pale jumping slug <i>Hemphillia camelus</i>	No info in MNHP or NatureServe.	MNHP predicted distribution includes western 1/3 of the state.	No information available in MNHP or NatureServe.		
Western pearlshell mussel <i>Margaritifera falcata</i>	Cold, clear, streams and rivers. Often in reaches having fast current and coarse substrate. Larva are parasitic on salmonids. Montana's only cold water trout stream mussel- only native mussel west of divide.	MNHP predicted distribution includes portions of Lincoln and Sanders counties. Cold, well oxygenated low gradient streams with gravel/sand bottom. Larva parasitic on salmonids.	Pollution, sedimentation, may be reduced to isolated populations	Loss and degradation of habitat. Changes in water quality. The loss of host fish populations. Collection. Found in AK, CA, ID, MT, NV, OR, WA, WY, and British Columbia. Extirpated in UT. Range Widespread in area, but spotty in viable population coverage. Montana's populations have showed significant declines, in comparison to Idaho's. Declining in terms of area occupied and number of sites with viable individuals. Global short term trend declining (10-30%). Global long term trend – substantial to moderate decline (25-50%).	
Prairie sprite <i>Promenetus exacuus megas</i>	Historical range not well known. Portions of northern WA and ID, western MT and western WY.	Little info available. In MT found at 13 sites in six counties; Lake, Lincoln, Mineral, Missoula, Ravalli and Sanders. All sites are west of the Continental Divide. MT predicted distribution includes western portion of the state.	Probably declining in most sites, although other sites remain stable. Existing sites should be protected. (NatureServe). widespread and somewhat common in northern ID and NW MT. Extirpated in some locations. Probably once very common and widespread. Lost most of its habitat and most of its historic sites.	Known originally from western MT, found in NW kettle lakes that are undisturbed, exact extent unknown. Total population declining in both numbers of populations and number of individuals.	
Reticulate tailedropper <i>Prophysaon andersoni</i>	No info in MNHP or NatureServe. MNHP shows predicted distribution in Sanders county. Moist forest floor conditions, abundant coarse woody debris	Known to occur on Kootenai in small isolated pop. MT predicted distribution includes a very small area of Sanders county.	No information available in MNHP or NatureServe. Isolated populations vulnerable.	No info in MNHP or NatureServe. MNHP. Isolated populations vulnerable.	
Fir pinwheel <i>Radiodiscus abietum</i>	Most often found in moist and rocky DF forest at mid elev. in valleys and ravines. Western red cedar form the canopy in Montana locations. Often found in talus of a variety of rock types or under fallen logs.			Logging and grazing over most of the range are probably the greatest threats, through alteration of appropriate habitat. alteration of habitat from fire, highway and road construction. rural housing development and land clearing could represent threats, as could fire suppression retardants and chemical methods of weed control.	
Sheathed slug <i>Zacoleus idahoensis</i>	Most occurrences in ID are in moist microsites in relatively intact DF, PP, and ES forests. rocky substrate including sedimentary, igneous and metamorphic types.	Documented only in northern ID and NW MT. Recorded from 4 sites in MT in 4 counties; Granite, Lake, Lincoln, and Sanders. MT predicted distribution includes the western portion of the state.	No information available in MNHP or NatureServe. Local endemic. Loss of historic sites and loss of most habitat (NatureServe).	Logging and grazing over most of the known and potential ranges. Highway construction severe forest fires. Species has lost most of its habitat at most historic sites. known from 1 site on the forest. local endemic, loss of historic sites, and loss of most habitat.	

Species common name	Habitats	Habitat abundance and distribution	Population abundance and distribution	Major risk factors/threats	Conservation strategies
Sheathed slug <i>Zacoleus idahoensis</i>	Kootenai falls. Absent from sites disturbed by timber harvest and livestock grazing. Include as a group with other aquatic associated mollusks.	Douglas-fir, spruce, and ponderosa pine forests that have a diverse understory of forbs and bryophytes. Typically in moist valleys, gorges, ravines, and talus fields near permanent water.	Loss and degradation of habitat. Logging, grazing, fires, and roads. (Hendricks 2003)	Limit surface disturbance at known sites (Idaho CWCS). Aquatic/riparian protection.	
Invertebrates - other					
A freshwater sponge <i>Heteromeyenia baileyi</i>	No info available in MNHP or NatureServe although known to occur in upper Kootenai.	No information available in MNHP or NatureServe. Known from location in Lincoln county.	No information available in MNHP or NatureServe.	No information available.	

Table 9. Information on species habitat and population abundance and distribution - “throughout its range”

Species common name	Habitat abundance and distribution	Population abundance and distribution
Vertebrates		
Amphibians		
Boreal toad, <i>Bufo boreas</i>	Small range in northern ID, western MT, southeastern BC. Regional endemic, MT is eastern limit in distribution. 45 locations in 5 counties. Range wide declines in the western U.S. Most known sites on FS lands.	Unknown but may exceed 10,000. from 97-192 documented sites (164 in ID, 28 in MT). Known from more than 30 sites on the forest. Apparently secure. Trend unknown, likely stable in extent of occurrence, stable to declining in population size, area of occupancy and number/condition of occurrences. A unique genetic resource in ID, MT, BC.
Coeur d’Alene salamander <i>Plethodon idahoensis</i>	Large range throughout much of the US and southern Canada. Many and/or large occurrences throughout most of its range. Historically present in intermountain valleys west of the Continental Divide but in recent years documented in only two locations near Kalispell and near Eureka. Prairie regions of eastern 2/3 of state east of divide.	Still common in many areas populations have declined in some areas due to habitat loss and degradation, overexploitation, interactions with non-native species and unknown causes. Likely in the hundreds of thousands or millions. Population trend probably declining in size, area of occupancy and condition of occurrences. 10 historic breeding sites - Known from one active site on the forest. Populations appear to have declined in MT. Where the species is no longer extant in most localities where historically it occurred. Extirpated from most of historical range in WA. Recent extirpations are reported in all of western MT and across much of the neighboring states.
Northern leopard frog <i>Rana pipiens</i>	Widely distributed and found in appropriate habitat throughout most of the state. Mountains and intermountain valleys of the western third of the state. Known from approx. 35 breeding sites on the forest.	In previous decades considered most abundant amphibian in western third of state. No longer common. Surveys since early 1990s indicate regional population declines. Range wide declines.
Reptiles		
Northern alligator lizard <i>Elgaria coerulea</i>	West of continental divide in northwest MT. The southern and eastern limit of distribution in the Rocky Mts. Northern portion of ID. Central CA, to southern BC. East to ID and MT.	Rarely encountered and poorly documented. Fewer than a dozen records have been reported. Population trend unknown. One of only two lizards that give birth to live young rather than laying eggs
Western skink <i>Emeces skiltonianus</i>	Central BC to southern Baja CA. east to western MT, ID, eastern UT, north central AZ, and southern NV.	Total adult population size unknown. Locally common in many areas. secretive. Represented by large number of occurrences. Stable, trends not documented but extent of occurrence area of occupancy, number of subpopulations, and population size are large and probably relatively stable.
Birds		
Northern goshawk <i>Accipiter gentilis</i>	Relatively abundant and widespread. Holarctic. West and central AK to eastern Canada south to central CA across the US except southeast US. Nesting range in the eastern US is currently expanding as second growth forests mature. In the west habitat reducing and thus populations.	Relatively common in the main part of its range. Conclusive data supporting the purported decline in populations in the western US is lacking. Population trends are difficult to determine. No hard evidence of a significant decline in recent decades but probably declining in some areas as a result of habitat alteration. (NatureServe)
Grasshopper sparrow <i>Ammodramus savaannarum</i>	Large range, extending from southern Canada to northern South America. Breeding eastern WA across northern ID, most of MT, southern BC across southern Canada to Manitoba, eastern ½ of US. Winters southern US, Mexico, central America.	Significant population declines in NA and probably elsewhere due to loss, degradation and incompatible management of grassland habitat. BBS data indicate a significant decline in NA between 1966 and 1989.
Golden eagle <i>Aquila chrysaetos</i>	Widespread distribution throughout the northern hemisphere. Breeds NA, mainly western and northern AK, east across Canada, south to northern Mexico east except southeast US.	Still relatively common in some areas. local threats/declines – do not yet comprise a major conservation problem from a global perspective. Declined in early 1900s due to eradication campaigns. In eastern NA reappearing in some sites in historic nesting range. May be decreasing in the northeastern US, declines in part of range in Canada noted.
American bittern <i>Botaurus lentiginosus</i>	Over half of the original wetlands in the conterminous US have been destroyed (Tiner 1984 in NatureServe 2008).	Substantial to moderate decline (decline of 25-75%). Long term data not available. BBS data (1966-1987) indicate a decline in the north central US. And possibly in New England (USFWS 1987 in NatureServe 2008).
Black tern <i>Chlidonias niger</i>	Widespread distribution and relatively abundant. Loss of breeding habitat appropriate habitat in MT is patchy.	Abundance unknown. severely to rapidly declining decline of 30% to >70%. No breeding records for the forest. Special status in several states, (state listed as endangered or threatened, special concern, watch list). Proposed for threatened listing in Canada.
Olive-sided flycatcher <i>Coturnicops noveboracensis</i>	Large breeding range in wooded areas of Canada, AK, and the western and northeastern US. Winters mtns of SA. In MT breeds throughout mountainous areas of western portion of state.	Total population not known. Declines relatively similar across range, although they appear more severe in the central and eastern regions. Still secure in many areas, but a large significant decline (a loss of 68% from 1966-2000) has occurred in recent decades. Due probably to habitat changes in the breeding range and/or in migration and wintering areas.
Black swift <i>Cypseloides niger</i>	In MT northwestern portion of state. Migrates south. in Idaho breeding in north fork of Coeur d’Alene river, seen in boundary, Bonner, Shoshone Clearwater counties.	Large numbers seen in migration, breed over a large area. breeding sites very localized. Stable, 81-300 occurrences. 10000 to >1MM individuals. 2 confirmed breeding records. Unconfirmed breeding in cabinet mtn range. Apparently secure (unknown). Limited breeding distribution in inaccessible breeding habitat.
Bobolink <i>Dolichonyx oryzivorus</i>	Breed widely throughout MT. Near Fortine. Southern BC east across southern Canada to NS. South to OR, UT, portions of Midwest and NJ. Winter in central and southern SA.	Still widespread and fairly common, but declining due to changing agricultural practices. Population trend declining (10-30%).
Common loon <i>Gavia immer</i>	Winters on coast. Breeds Iceland, Greenland, and across Canada and the northern US to Alaska, south to CA, MT ND across to New England. Winters along coasts. In MT breeding range restricted to lower elevation forested glacial lakes in the northwest corner of the state. Considered imperiled in MT. Historically believed to have nested throughout western half of state. Winter along west coast of WA to CA. Northward range contraction documented within the last 100-150 years.	Although no precise continent-wide estimate of populations available, some 500000 to 600000 adults probably inhabit the US and Canada. Most in Canada and Alaska. In Canada and Alaska appear to be stable. Large declines in breeding populations in northeastern US. global population secure however many local populations are small and isolated and vulnerable to extinction. several states that supported breeding loons have lost them.
Harlequin duck <i>Histrionicus histrionicus</i>	Pacific population - Alaska and western Canada south to eastern OR, east central CA, ID and WY. Breeding Eurasia and two disjunct regions in NA. Winters Eurasia	Although globally widespread, atlantic population may be reaching critically low levels and pacific population has experienced substantial declines. In 1990 identified as potentially imperiled in western MT. By 1991 Considered as a candidate for listing

Species common name	Habitat abundance and distribution	Population abundance and distribution
	Aleutian and Pribilof islands to central CA. in MT range is small and fragmented primarily in northwest MT and parts of Yellowstone ecotype. Known to breed on several streams on the forest estimate 30 breeding pairs. Harlequin duck working group	on ESA. Both breeding and wintering distribution and abundance appear to be declining in western NA. The pacific NA population appear to be stable in some areas (ID, MT, WY) and declining in others. Atlantic populations significant decline this century and continues to dc line.
White-tailed ptarmigan <i>Lagopus leucura</i>	Central AK, north Yukon, south to cascade mountains in WA and in rocky mtns from BC and Alberta south to northern NM. In MT alpine and subalpine northwestern portion of state.	
Gray crowned rosy finch <i>Leucosticte tephrocotis</i>	Breeds western and north central AK, central Yukon, BC and southwestern Alberta south through Cascades Sierra Nevada and Rocky Mtns. To central ID, northwestern Mt.	Populations are large and widespread. Apparently stable.
Lewis's woodpecker <i>Melanerpes lewis</i>	Large range in western US and adjacent southern Canada but distribution can be spotty. Breeding southern BC, Alberta, MT, southwestern SD and northwestern NE to south central CA central AZ southern NM and eastern CO. winters northern OR, southern ID, central CO south central NE south to northern Mexico. In MT western and southern.	Apparently declining in abundance and may have declined 60% or more since the 1960s. no estimates of population size. Declined in BC by more than 50%. Populations tend to be scattered and irregular and are considered rare, uncommon or irregularly common throughout range. Local abundance may be cyclical or irregular.
Long-billed curlew <i>Numerius americanus</i>	In MT breeds widely throughout the state, although more common east of the Rocky Mtns. Breeds Southern BC, Alberta, Saskatchewan, Manitoba south to eastern WA, NE CA, NV, UT, CO NM and northern TX east to KA. Winters southern US Mexico etc.	Total population estimated to be 20,000. population declines in western US are local not widespread. Extirpated from eastern US by cultivation of grassland. Fall populations decimated by hunting.
Flammulated owl <i>Otus flammeolus</i>	Widespread distribution in western NA. Total population numbers unavailable. locally common in quality habitat. for the northern Rockies the few available data indicate a significant decline. Breeding southern BC western MT and northern CO south to southern CA, southern AZ southern NM western TX to Mexico. Winters central Mexico. In MT range restricted to western portion of state.	But loss and fragmentation of mature forest habitat suggests that populations are declining. In ID widely distributed throughout montane forests. no trend data available. probably decline in population during this century, although species is poorly monitored (PIF). Population data inadequate for trend assessment. Low reproductive rate.
Black-backed woodpecker <i>Picoides arcticus</i>	In MT northwestern portion of the state. Habitat severely reduced	
Boreal chickadee <i>Poecile hudsonica</i>	Western and central AK to Saskatchewan and Labrador south to WA, MT, MN and northern new England. In MT northwestern portion of state.	Three confirmed breeding records including Lincoln county. Also overwintered in Lincoln county.
Pygmy nuthatch <i>Sitta pygmaea</i>	Southern BC northern ID, western MT central WY, and southwestern SD south to northern Baja CA, southern NV central and southeastern AZ, central NM, extreme western TX. Heterogeneous stands of a mixture of well-spaced old pines and vigorous trees of intermediate age.	Known from breeding record near Fortine. In northern ID occur as common resident. BBS data – statistically significant declines in ID 1966-2004 and more recent period 1980-2004.
Brewers sparrow <i>Spizella brewerii</i>	Breed widely throughout MT. Fairly large range in western north America.	Declining in many areas of the US. Significant decline throughout range during last 10-20 years.
Red-naped sapsucker <i>Sphyrapicus nuchalis</i>	Breeding rocky mountain region from south central BC southwestern Alberta and western MT, south east of cascades to east central CA, southern NV central AZ southern NM and extreme western TX. Winters southern CA, NV, AZ Nm south to Mexico.	Populations appear to be stable to increasing overall with areas of local declines. Related to loss of cottonwood and aspen nesting habitats.
Williamson's sapsucker <i>Sphyrapicus thryoideus</i>	Breeds southern BC, ID, western MT and WY, south in mtns to northern and east central CA, central AZ southern NM and northern Baja CA. winters south to Baja. .	Stable to increasing.
Great gray owl <i>Strix nebulosa</i>	Large circumboreal range. Breeds central AK to northern Ontario south locally in mountains to CA, ID, MT WY across to northern MN and southcentral Ontario. In MT limited to mountainous region, western MT.	No decline evident in vast majority of the range, apparently stable but few data available for most areas. usually uncommon but may be locally abundant.
Northern hawk owl <i>Surnia ulula</i>		
Mammals -		
Rocky Mtn elk <i>Cervus canadensis</i>	Formerly widespread in Canada and the US, now mostly restricted to the west, with small reintroduced populations elsewhere.	
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	Throughout western NA from BC south to Mexico, east to the Black Hills. isolated populations in gypsum caves and limestone regions. In MT range unknown.	Apparently secure in western US and Mexico. Quite rare in other parts of the range. Very little known in MT about distribution and relative abundance. Abundant in western US and Mexico. Rare in east and northwest. Two eastern subspecies listed as endangered.
North American wolverine <i>Gulo gulo</i>	Remote wilderness from Labrador east to Alaska, and south to mountainous regions of western US.	Populations in Canada and Alaska are probably in good condition. Status not well known in many portions of the range. Total population size unknown. Outside of Alaska, ID and MT likely have the largest populations in the US (perhaps a few hundred in each state). May be fewer than 750 in the contiguous US. Presently extirpated from most of the southern part of the historical range including all of the northcentral and northeastern US and most of southeastern and south central Canada. Extirpated from

Species common name	Habitat abundance and distribution	Population abundance and distribution
		most of range in contiguous US. Promising signs of semi-recovery in selected western states. Global long term trend – extirpated from large portions of their range in southern and eastern Canada and now considered to be endangered. Numbers declined steadily in US in latter half of 1800s. in MT rebounding from near extinction from 1920-1940. Declining in southern Mtns of BC, may be extirpated on Vancouver Island, declining throughout Alberta. Rare and possibly declining in southern boreal forest of Saskatchewan. Still trapped in MT. Poor breeding success, high juvenile mortality, and slow sexual maturity.
Fisher <i>Martes pennanti</i>	Large range in northern NA. Quebec, maritime provinces and New England west across boreal Canada to SE Alaska, south in western Mtns to UT, WY, ID, and CA.	Extirpation from southern portion of range, due mainly to habitat loss. Adequate population data are unavailable but the species currently is regarded as secure. West coast dps – threatened with extirpation due to size and isolation. Warranted but precluded from ESA listing by higher priority actions. Total fisher population size unknown. Extinct in MT by the 1930s. Reintroductions on the forest on several occasions, did not do well. Current population unknown. global long term trend -substantial decline. Recovered in some of the central and eastern portions of their historic range through reintroductions etc. Still absent from former range southeast of the Great Lakes.
Fringed myotis <i>Myotis thysanodes</i>		
Mountain goat <i>Oreamnos americanus</i>	Mtns of northwestern NA from southeast AK to WA, western MT and southern ID. Introduced in other states and areas. southern portion of range.	On the forest 2 small populations, one in wilderness area.
Bighorn sheep <i>Ovis canadensis</i>	Still widespread in western NA from Canada to Mexico, although populations are much smaller than in the past. Southwestern BC and Alberta south through rocky Mtns, Sierra Nevada, and desert Mtns to Baja CA.	CA peninsular populations listed as endangered. Sierra Nevada population listed as endangered. Several subspecies probably O. Canadensis Canadensis. In 1991 total population estimated at 71,000 (38000 Rocky Mtn sheep). No numbers for total population at this time. In 1915 there were only 1775-3400 rocky Mountain bighorn sheep in Canada. Increases occurred but devastating die offs occurred as domestic sheep were introduced. By 1960 US populations was 15,000-18,000. Long term trend substantial decline (decline of 50-75%). short term trend - recent trend seem more or less stable. Long term trend great decline, from approximately 15,000-200,000 before 1800 to a few thousand at the turn of the century. Local extirpations and reintroductions in many parts of range. Distribution naturally fragmented due to discontinuity of habitat.
Northern bog lemming <i>Synaptomys borealis</i>	Widespread distribution extending from AK to Labrador and south to portions of the northern US. Populations are localized. Population sizes are not known for any location. Nowhere does it appear common.	In MT southern margin of global distribution in the Rocky Mtns. 18 sites mainly on FS lands.
Fish		
Torrent sculpin <i>Cottus rhotheus</i>		
Inland redband trout <i>Oncorhynchus mykiss gairdneri</i>		
Lake trout <i>Salvelinus namaycush</i>		
Invertebrates - insects		
Butterflies		
Western sulphur <i>Colias occidentalis</i>	limited range	local and uncommon in much of its range
White admiral <i>Limnitis arthemis</i>	New England south to central Florida, west to MT and AZ, Alaska to BC.	Extremely widespread and abundant. Globally secure (G5)
Indra swallowtail <i>Papilio indra</i> Grassy comma <i>progne</i>	Widespread in western US. Some subspecies are very localized.	Globally secure (G5)
Dragonflies		
Hudsonian emerald <i>matochlora walshii</i>	AK, all Canadian provinces, MT, WY, CO.	Globally secure (G5)
Brush-tipped emerald <i>Somatochlora intricatus</i>	all northern US states and adjacent Canadian provinces.	Globally secure (G5)
Stoneflies		
<i>Utacpnia columbiana</i>	AK, MT, Yukon, and Manitoba.	No information available in MNHP or NatureServe.
Invertebrates - Mollusks		
Striate disc <i>Iscus shimckii</i>	Distribution data known to be incomplete or has not been reviewed. NatureServe. Widely distributed in Rocky Mountains of AZ, NM, UT, CO, and WY. Populations also extant in Black Hills. Also found north of Montana in the Canadian Rockies.	No information available in MNHP or NatureServe. Globally secure (G5)
Robust lancetooth	Distribution data known to be incomplete or has not been reviewed. BC, AK south to	No information available in MNHP or NatureServe. Globally secure (G5)

Species common name	Habitat abundance and distribution	Population abundance and distribution
<i>Haplotrema vancouverense</i>	CA, ID and MT.	
Pale jumping slug <i>Hemphillia camelus</i>	WA, ID, AB, BC.	No information available in MNHP or NatureServe.
Western pearlshell mussel <i>Margaritifera falcata</i>	AK, south to CA, east to UT, WY and MT.	Widespread and maintains hundreds of occurrences with perhaps hundreds of thousands of individuals, but is declining in terms of area occupied and number of sites and individuals. Global short term trend – declining (10-30%), likely extirpated from parts of OR and UT. Global long term trend – moderate decline (25-50%). Now extirpated along much of the snake and Columbia rivers, and remnant populations show few signs of reproduction. Widespread declines, formerly very abundant.
Fir pinwheel <i>Promenetes exacuuous megas</i>	Known from extreme northeastern OR, extreme NE and SE WA, northern ID, and NW MT. Widespread and somewhat common in northern ID and northwest MT with several new locations for 2005. nowhere abundant. Most old ID sites unsuccessfully checked, with species being extirpated in all but one. Distribution data known to be incomplete or not been reviewed.	Known to survive in several of original sites, extirpated in others. Current distribution and abundance unknown. Probably declining in most sites, other sites remain viable. Species was probably once very common and widespread, it has lost most of its habitat and most historic sites. but a fair number of other sites probably remain viable.
Reticulate tailedropper <i>Prophysaon andersoni</i>	BC, AK south to CA, ID and MT.	Globally secure (G5).
Sheathed slug <i>Radiodiscus abietum</i>	ID, MT WA.	Local endemic, loss of historic sites and loss of most habitat. global short term trend (10-30%) once very common and widespread, has lost most of its habitats and most historic sites due to threats.
Invertebrates - other		
A Freshwater sponge <i>Heteromeyenia baileyi</i>	MT. Known only from Lincoln county. Incomplete.	No information available in MNHP or NatureServe.

The forest has very little information on population numbers for most species. Information from other sources are used to determine numbers or trends in populations. (Montana fish, Wildlife and Parks, Montana Natural Heritage Program, etc.).

Table 10. Information on species of interest habitats and major risks and threats

Species common name	Habitats		Major risk factors/threats
Vertebrates - Amphibians			
Western (Boreal) toad <i>Bufo boreas</i>	Largely terrestrial but generally found within a fair proximity of water. Habitats range from mountain meadows to brushy desert flats. Ponds, lakes, moist forests and grasslands. Low elev. beaver ponds, reservoirs, streams, marshes, lake shores, potholes, wet meadows, and marshes. And high elev. ponds, fens, and tarns at or near treeline. (MNHP 2008). Utilizes a variety of habitats, prefer shallow areas with mud bottoms. Remain fairly close to wet area during the day but may range widely at night. No info specific to migration in MT. Elsewhere migrates between aquatic breeding and terrestrial nonbreeding habitats.		Habitat loss and degradation. Disease and parasites. Invasive species. Roadkill mortality.
Coeur d'Alene salamander <i>Plethodon idahoensis</i>	Springs and seeps, waterfall spray zones, and edges of streams. seepages and streamside talus, deep talus mixed with moist soil on well shaded north facing slopes. 3 major types of habitat: springs or seepages, spray zones of waterfalls, and edges of streams, often associated with fractured rock formations. Moist talus, seeps and splash zones which may be situated in open forests, meadows, or riparian areas. eggs deposited terrestrially under rocks or logs.	Irregularly distributed across northern ID, western Mt, and southeastern BC. Populations in Idaho comprise the core of the range. Majority of the records are from the St JNoe and North fork Clear river basins, but also occurs in the Selway, Kootenai, and Moyie drainages.	Population size has not been estimated. Groves (1988) who reported relative abundance at 34 Idaho sites during 1987, found small numbers (< or equal to 5 individuals observed) at 68% of the sites. population trend uncertain, 95% of the known occurrences in Idaho and Montana have been verified extant since 1987 (Cassirreer et al. 1994.). but population trend data have not been collected.
Northern leopard frog <i>Rana pipiens</i>	Permanent water sources during all life stages. A variety of wetland situations, including marshes, pond margins, and slow moving sections of streams and rivers. (Idaho CWCS). Low elev. and valley bottom ponds, spillway ponds, beaver ponds, stock reservoirs, lakes, creeks, intermittent streams, warm water springs, potholes and marshes. Require a mosaic of habitats. separate sites are used for breeding and overwintering, although they may occur in the same location. Heavily vegetated marshes, ponds, streams etc. breed in areas that are also heavily vegetated. Ponds, lakes, marshes.	Widely distributed across much northern and central NA. Populations are sparsely distributed in the western portion of its range. In northern Idaho found in the Kootenai, Pend Oreille, and Clark Fork rivers prior to 1955 but populations may no longer persist in this region.	Populations have declined from historical levels (Groves and Peterson 1992). Lack of recent sightings suggests a population decline and possible extirpation of the species in Idaho. Declines also reported in eastern WA, and western MT.
Reptiles			
Northern alligator lizard <i>Elgaria coerulea</i>	Dry open forest to cool moist areas near streams. Hides under logs and rocks. Areas with bushes, trees, and grassy areas needed to provide cover and foraging sites. little specific info. on habitat associations in MT. Several observations on south facing slopes in fine to coarse talus. Secretive. Forest clearings or edges, under logs and other surface debris. Also found in talus slopes associated with forests.	Few records for this species, possibly due to lack of surveys.	Habitat loss and degradation. Disease and parasites. Invasive species.
Birds			
Northern goshawk <i>Accipiter gentilis</i>		Wide variety of cover types but nests usually in mature forest stands >25 acres with high canopy. goshawks in MT tend to nest predominantly in mature large tract conifer forests with a high canopy cover (69%), relatively gentle slope (21%) and little to sparse undergrowth. All nest trees were either LP or DF with an average dbh of 33.6 cm and average height of 21.9 meters. In another study in MT DF, PP and GF were the trees most selected for nesting. Nests usually located near water or clearings. Hunt in closed canopy habitats as more open generalists in terms of prey selection.	Loss and degradation of habitat. Disturbance near nest sites. Fire exclusion.
Western grebe <i>Aechmophus occidentalis</i>	Colonial waterbirds that nest on freshwater lakes or marshes with extensive open water, where they feed primarily on fish (Storer and Nuechterlein 1992 in Id CWCS). Floating platform nest in emergent vegetation.	Two subspecies are recognized; A.o.occidentalis occurring throughout most of the range and A.o.ephemeralis which breeds on the Mexican plateau. (Id CWCS). Population trend include both the western and Clarks grebes. BBS data for the US indicate no changes or potential slight increases during the period 1966-2004 and 1980-2004 and significant increases (+3.3% [per year] during the period 1966-1979 (Sauer et al. 2005 in Id CWCS). BBS data for Idaho indicate sharp declines during the period 1966-2004 (-9.3% per year) and 1980-2004 (-11.8% per year)(Sauer et al. 2005 in Id CWCS). Trend data for the period 1966-1979 for Idaho are not available. However interpretation of BBS trend data for colonial waterbirds should be done cautiously.	Water quality and water level fluctuations (Trost and Gerstall 1994 in Id CWCS). Disturbance by humans at nesting colonies. Gill nets and oil spills cause mortality on wintering grounds. Pesticides. Close off important breeding areas to recreational activities during the nesting period. Intermountain West Waterbird Conservation Plan (Ivey and Herziger 2005 in Id CWCS).
Boreal owl <i>Aegolius funereus</i>	Boreal and subalpine forested habitats of the Rocky Mtn states (Hayward et al. 1993 in Id CWCS). Mature, mixed stands of subalpine fir, and Engelmann spruce are favored, with nesting associated with deciduous (primarily aspen) and mixed deciduous conifer habitats (Ibid). also uses Douglas-fir, lodgepole	7 recognized subspecies of which 6 are from Eurasia (Hayward and Hayward 1993 in Id CWCS). A.f.richardsoni is the only recognized subspecies found in NA. State abundance is estimated at 1,000-3,000 individuals based on the extent of spruce-fir habitat in Idaho.	Intensive timber harvest (e.g. clearcutting), which often eliminates large diameter snags and live trees used for nesting, reduces primary prey populations, and removes forest structure needed for foraging and roosting (Hayward

Species common name	Habitats	Major risk factors/threats	
	pine, and mature mixed conifer. In Idaho and Montana 75% of sites are above 5184 feet elevation. Nest in natural cavities and old woodpecker holes in snags and live trees, favoring cavities created by large woodpeckers (Mansell and Low 1980 in Id CWCS). Prey mainly consists of red-backed voles (<i>Clethrionomys gapperi</i>), deer mice (<i>Peromyscus</i> spp.), shrews (<i>Sorex</i> spp.), and pocket gophers (<i>Thomomys talpoides</i>).	1997 in Id CWCS). Maintain overall forest structure and composition. Management should involve retention of large diameter snags, protection and restoration of aspen, and retention of subnivean structural features important to the small mammal prey base.	
Grasshopper sparrow <i>Ammodramus savannarum</i>	Grasslands of intermediate height often associated with clumped vegetation interspersed with patches of bare ground. Prefers open prairies with intermittent brush although not particular to heavy brush cover. Prairies, old fields, open grasslands, cultivated fields, and savannas. Prefer moderately open grasslands and prairies with patchy bare ground, occupying lush areas with shrub cover in arid grasslands of the west (Vickery 1996 in Id cWCS0).	Twelve subspecies are recognized altogether four of which breed in NA. <i>A.s. perpallidus</i> is the subspecies that breeds in Idaho (Vickery 1996 in Id CWCS0. In Idaho locally abundant wherever suitable habitat occurs throughout the Snake River plain in the south and Palouse in the north (Groves et al. 1997a in Id cWCS). And is estimated to have a population size of approximately 68000 individuals (Rosenberg 2004 in Id cWCS). Undergoing significant population declines throughout its range. BBS data reveal statistically significant declines at the level of the US (-3.7% per year) the western BBS region (-6.9% per year) and in Idaho (-7.3% per year) during the period 1966-2004 (Sauer et al. 2005 in Id cWCS0. trend analyses indicate steeper declines during the more recent period 1980-2004).	Loss, degradation and incompatible management of grassland habitat. Cultivation, urban sprawl, and reforestation. Termination of CRP program. no info for MT.
Northern pintail <i>Anas acuta</i>	In Idaho this species breeds in the Panhandle and along the Snake River Plain (IBIS). Wintering birds are similarly distributed but in higher numbers. Lakes, marshes, rivers, and ponds in grasslands, barrens, dry tundra and open boreal forests (Groves et al. 1997). Typically nests in open country with shallow, seasonal, or intermittent wetlands and low vegetation.	The average number of pintail in Idaho detected on mid winter waterfowl counts during the 20 year period 1983-2003 is approximately 1,800 birds (Hemker 2004 in Id CWCS). BBS data indicate widespread population declines for the northern pintail, especially in the west. In the western BBS region numbers have declined at a rate of 4.4% per year during the period 1966-2004, 4.8% per year during the period 1966-1979, and 3.6% per year during the period 1980-2004 (Sauer et al. 2005 in Id CWCS). Similar results were reported for Idaho (-4.4% and -4.6%) for the same time periods. Current population numbers continent wide are 30-40% below the 1955-2004 average (Wilkins and Otto 2005 in Id CWCS).	Hunting, habitat degradation on both breeding and wintering grounds. Drainage of wetlands. In Idaho wintering populations are of primary concern, especially as ducks on winter wetlands compete against agricultural and urban users for limited water and space as human populations escalate (Austing and Miller 1995 in Id CWCS). North American waterfowl Management Plan (1986), Idaho PIF/Idaho steering committee of the Intermountain West Joint Venture for wetland restoration.
Golden eagle <i>Aquila chrysaetos</i>	Occurs primarily in Dry, open and semi-open areas. Prairies, tundra. Nests on cliffs and large trees and hunt over prairie and woodlands.		Disturbance at nest sites. Access management (road kills). Habitat loss and degradation. Powerlines. Lead poisoning.
Short eared owl <i>Asio flammeus</i>	Typically associated with marshes, grasslands, tundra, and agricultural lands (e.g. pastures, stubble fields, and hay fields). Utilize wooded areas in winter but rarely breed in forests (except in areas that have been cleared of trees (Johnsgard 2002 in Id CWCS). Breeding habitat typically supports sufficient vegetation (primarily grasses and forbs) to provide ground nesting and roosting cover and are in close proximity to productive and open hunting areas with abundant supplies of small mammals (Ibid).	Up to 9 subspecies designated worldwide, 5 or 6 of which are island endemics. All NA birds are within the race <i>A.f. flammeus</i> . the most widely distributed subspecies. Short eared owl populations were "down in numbers" or "greatly down in numbers" in all 7 NA regions (Holt and Leasure 1993 in Id CWCS). BBS data from 1966-2004 shows a -3.6% per year downward trend in Idaho and a -4.8% downward trend for the U.S. and Canada combined (Sauer et al. 2005 in Id CWCS). These trend estimates are to be interpreted with caution (Ibid). The estimate of population size in Idaho is about 32,000 individuals (Rosenberg 2004 in Id CWCS).	Habitat loss and degradation and human disturbance (Holt and Leasure 1993 in Id CWCS). Agricultural activities. mortality – vehicle collisions.
Lesser scaup <i>Aythya affinis</i>	Fresh to moderately brackish seasonal, and semipermanent wetlands and lakes with emergent vegetation such as bulrush and cattail. Prefers smaller bodies of water. Nests on dry ground usually close to water but also in native prairie, hayfields, or even sparse shrub patches.	A year-round resident in the Panhandle and south central regions. The average number of scaup (both lesser and greater) in Idaho detected on mid winter waterfowl surveys during the 20 year period 1983-2003 is approximately 6,000 birds (Hemker 2004 in Id CWCS). Knowledge of population size, trends, and to some extent geographic distribution is confounded by the inability to distinguish between lesser and greater scaup on surveys. BBS data indicate population declines for the long term period 1966-2004 (-4.0% per year) and statistically significant declines for the more recent short term period 1980-2004 (-4.0% per year). (Sauer et al. 2005 in Id CWCS). Current population numbers continent wide approximately 35% below the 1955-2004 average (Wilkins and Otto 2005 in Id CWCS). Throughout the western BBS region population trends also appear to be declining, whereas in the US as a whole numbers are apparently stable.	Loss or degradation of wetlands. Many threats elsewhere throughout its range do not apply to Idaho (over harvest, oil spills, organochlorine contamination, mercury and lead poisoning, getting caught in fishing nets). Id CWCS). North American waterfowl Management Plan (1986), Idaho PIF/Idaho steering committee of the Intermountain West Joint Venture for wetland restoration.
Upland sandpiper <i>Bartramania longicauda</i>	Nest in upland prairie habitat. preferred habitat includes a wide variety of croplands, pastures, wet or high elevation meadows, and native prairie types over relatively smooth topography (McAllister and Demers 1993 in Id CWCS). Surveys at historical locations turned up no nests or sightings. Whether nesting still occurs in Washington and Idaho is unknown.	No subspecies. Declined dramatically at the turn of the century as a result of intensive market hunting (Bolster 1980 in Id CWCS). The populations rebounded when hunting was prohibited with the Migratory Bird Treaty Act of 1916 yet has made another decline, mostly in the northeast and northwest, due to modern farming methods, conversion of prairie to croplands,	Loss of habitat to agriculture and urban development and heavy grazing. In northern Idaho grassland habitat in the Rathdrum prairie and Spokane Valley area has been largely lost to housing and commercial developments (Thieman 1988, McAllister and Demers 1993 in Id CWCS).

Species common name	Habitats	Major risk factors/threats	
		<p>fragmentation, and housing developments. BBS data report a significant increase from 1966-1979 (+3.1% per year) in the US and then a significant decline from 1980-2004 (-1.0% per year) (Sauer et al. in Id CWCS). Population east of the Rockies are in steep decline or are already extirpated (McAllister and Demers 1993). In Idaho trend data are not available.</p>	
<p>Black tern <i>Chlidonias niger</i></p>	<p>Wetlands, marshes, prairie potholes, and small ponds. Semi-colony breeders in shallow freshwater marshes with emergent vegetation. Approximately 30-50% of wetland complex is emergent vegetation. Breed semicolonially (clusters of 11-50 nests) in shallow freshwater marshes with emergent vegetation (e.g. margins of lakes, ponds, rivers, islands, or sloughs) (Dunn and Agro 1995 in Id CWCS).</p>	<p>Population size of this species is unknown, although the US breeding population is estimated to be in the low hundreds of thousands (Shuford 1999 in Id CWCS). In Idaho the breeding population of terns is approximately 200 individuals (Ivey and Herziger 2005 in Id CWCS). Nesting in 5-10 different locations per year. In northern Idaho Kootenai National Wildlife Refuge and Westmond Lake appear to be fairly consistent nesting locations for 30 and 125 pairs respectively (Moulton in Id CWCS). Experienced a 61% decline during the 30 year period between 1966-1996 with fairly recent stabilization or slight increases (Ibid). BBS data which indicate sharp declines during the period 1966-1979 in the US (-10.1% per year) and during the periods 1966-1979 (-5.4% per year) and 1980-2004 (-3.3% per year) for the western BBS region. (Sauer et al. 2005 in Id CWCS). In contrast BBS data suggest increases in the US during the period 1980-2004 (+7.7% per year) and 1966-2004 (+2.8% per year) (Sauer et al. 2005 in Id CWCS).</p>	<p>Loss or degradation of wetlands for breeding and migration. Pesticide reduction of favored insect foods. Disturbance in nesting colonies, although tolerant of nearby human activity. Water level fluctuation. Loss of marsh habitat. Most (>90%) of breeding locations are within National Wildlife Refuge or IDFG Wildlife Management Area boundaries.</p>
<p>Black swift <i>Cypseloides niger</i></p>	<p>Cliffs, waterfalls, caves.</p>		<p>Decreases in water flow. Disturbance at nesting areas.</p>
<p>Merlin <i>Falco mexicanus</i></p>	<p>Merlins hunt in open country and feed on small to medium sized birds, rodents, insects and occasionally bats (Craig and Craig 1989 in Id CWCS). Nesting habitat has been shrub steppe dominated by sagebrush and snags were placed in juniper trees. Typically use abandoned stick nests built by raptors, corvids or other birds.</p>	<p>Ten subspecies recognized, 3 of which occur in NA and all 3 of which have been documented in Idaho; the Taiga merlin (<i>F.c.columbarius</i>), Richardson's or prairie merlin (<i>F.c.richardsonii</i>), and the black merlin (<i>F.c.suckleyi</i>). An analysis of sightings from Idaho confirms that the merlin is a common migrant and locally abundant winter resident, but a rare breeder (Craig and Craig 1989 in Id CWCS). Eight nests have been verified in Idaho, although other successful nesting attempts are suspected (Ibid). Population trends are difficult to assess as spring breeding bird surveys, autumn raptor migration monitoring, and mid winter bird counts are inappropriate for this species. BBS data, (although questionable) reveal a stable to slightly increasing population trend at the level of the S (+3.6% per year) and in the western BBS region (+5.0% per year) and stable to slightly decreasing trends in Idaho (-2.9% per year) during the period 1966-2004 (Sauer et al. 2005 in Id CWCS).</p>	<p>Increase in agricultural lands has caused losses of both nest sites and prey species for merlins (Trimble 1975 in Id CWCS). Habitat modification by humans is the greatest threat in the future (Cade 1982 in Id CWCS). Environmental contaminants.</p>
<p>Common loon <i>Gavia immer</i></p>	<p>Lowland lakes and reservoirs (generally greater than 10 acres in size). Breed in clear oligotrophic lakes (with fish) with forested, tundra or rocky shorelines bays, islands, and floating logs (McIntyre and Barr 1997 in Id CWCS). Lakes are usually larger than 22 acres in size below 5905 feet elevation with adequate fish prey, nesting and nursery habitat.</p>	<p>The population size in NA is unknown, although it is estimated that 1320 breeding adults are in the Great Basin and Northern Rocky Mts (Ivey and Herziger 2005 in Id CWCS). Despite major attempts to locate common loon nests in Idaho, nesting birds have never been confirmed except on Indian Lake in Teton county. Birds have been spotted in breeding plumage on 13 lakes in northern and southeastern Idaho during the breeding season. In northern Idaho panhandle common loons with flightless chicks have been reported in Bonner county on the northern end of Priest Lake, Upepr Priest Lake, and the Clark Fork delta of Pend Oreille Lake (Taylor 2001, Oules in Id CWCS). BBS data suggest a recent (1980-2004) statistically significant increase in the US (+2.4% per year) and western BBS regions (+1.9% per year) (Sauer et al. 2005 in Id CWCS). Trend data for Idaho is not available.</p>	<p>Human disturbance at breeding lakes, heavy metal poisoning, fluctuating water levels, increasing numbers of predators. Shoreline development. Shooting. Underwater fish traps, gill nets, oil spills, and water level instability. Degradation of habitat through shoreline development, campsites, human recreational use of nesting and nursery sites. Breeding conservation programs run mostly by dedicated volunteers have been successfully established in many northern states. Nesting platforms have been placed in Upper Priest, Priest, Pend Oreille, and Coeur d'Alene lakes in northern Idaho as part of the IBIS program.</p>
<p>Sandhill crane <i>Grus canadensis</i></p>			
<p>Harlequin duck <i>Histrionicus histrionicus</i></p>	<p>Forested mountain streams of relatively low gradient, free of human disturbance. Winters in rough, coastal waters, especially along rocky shores. Sea ducks that move inland to breed. Breeding occurs along clear, swiftly flowing streams.</p>	<p>Population size is unknown although the western NA population has been estimated at 150,000-200,000 with a wintering population of 1,000 and a breeding population of at least 1600 in the US outside Alaska (Cassirer et al. 1996). Approximately 70 pairs are estimated to breed in Idaho (Ibid). Overall population trends unknown. Nijbers breeding in Idaho declined between</p>	<p>Loss or degradation of habitat. Destruction of watershed stability and stream flow regimes. Sedimentation and toxic chemical pollution. Human disturbance near breeding areas. Hunting on wintering grounds. Protection of breeding area watersheds, and coastal</p>

Species common name	Habitats		Major risk factors/threats
California gull <i>Larus californicus</i>	Barren or sparsely vegetated islands in natural lakes, reservoirs, and rivers Winkler 1996 in Id CWCS).	1995-2004 (Cassirer 2004). Patchy distribution of colony sites in the US. BBS data suggest declines during the period 1960-2004 and 1960-1979 in the US (-1.5% and -1.85 per year respectively). western BBS region (-1.3 and -1.5% per year respectively) and Idaho (-3.2% and 8.0% per year respectively) and increases during the period 1980-2004, (+0.3% US, +0.7% western region, and +1.3% Idaho per year). (Sauer et al. 2005 in Id CWCS).	molting and wintering sites.
Hooded merganser <i>Lophodytes cucullatus</i>	Year-round resident in the Panhandle and Upper Snake regions with additional birds spend the winter scattered throughout the southern part of the state. Most closely tied to forested wetland systems throughout its range when nesting (Dugger et al. 1994 in Id CWCS). In Idaho prefers wooded streams and flooded bottomlands during the summer, and open bodies of water in winter (Groves et al. 1997). Nests in tree cavities large enough to hold the incubating bird, and preferably near water.	The average number of mergansers (all species) in Idaho detected in mid winter waterfowl surveys during the 20 year period 1983-2003 is approximately 4,000 birds (Hemker 2004 in Id CWCS). BBS data indicate a stable to increasing population numbers for the hooded merganser, both in Idaho and throughout its range in the west. Sample sizes are low for all BBS analyses because this species is not well suited for detection along roads where BBS data are collected and results should be treated with caution. Citing some historical records, Burleigh (1972 in Id CWCS) notes that this species was at one time apparently much more common in Idaho than it is today.	Habitat alteration on both breeding and wintering grounds, mostly associated with changing forestry practices and especially snag removal (Dugger et al. 1994 in Id CWCS). Effects of acid rain, which changes the pH of water, although this is of greater significance in eastern US. For wintering birds that might be applicable to Idaho relates to river channelization, deforestation, and agricultural practices that reduce the size of forested floodplains and increase sediment loading in streams. NAWMP, primary action should focus on setting forest management goals that include the establishment and conservation of cavity producing trees (>100 years old, >121" dbh) as well as the maintenance of riparian forested corridors
White-winged crossbill <i>Loxia leucoptera</i>	Breeds in conifer forests of the following tree species: white spruce, black spruce, red spruce, sitka spruce, engelmann spruce, and tamarack. The critical factor influencing crossbill breeding is conifer seed availability (Benkman 1990 in Id CWCS).	Three subspecies are recognized: <i>L. leucoptera</i> (northern NA), <i>L. megalopa</i> (mtns of Hispaniola, and <i>L. bigasciata</i> (Palearctic) (Benkman 1992 in Id CWCS). Trend information is highly variable depending on geographic location due in part to the nomadic nature of the species. BBS data show a strong increase in numbers across the country (+11.8% per year 1966-2004) but more stable numbers for the west (+1.2% per year) for the same time period. For the more recent time period (1980-2004) data indicate increases at the US level (-6.9% per year) while populations decline in the west (-8.6% per year). No trend information is available for Idaho.	Current forest practices may be detrimental because construction and maintenance of roads eliminates habitat, shorten logging rotations (forests become shorter lived and therefore less productive), global warming. Increase rotation age.
Lewis's woodpecker <i>Melanerpes lewis</i>	Based on the geographic region, specific habitat and the intensity of the burn site occupation may range from 5-22 years post fire, though the species was abundant 2-3 years post fire in a large high intensity burn in western ID. After 2-3 decades post fire the development of young second growth forest again creates conditions unsuitable for Lewis's woodpeckers. In BC confined to relatively few habitats at lower elevations with a strong link to older aged open canopy ponderosa pine and riparian stands of large black cottonwood trees. Also abundant in a 18 year old burn of mature Douglas-fir forest.	Undergoing population declines, but caution should be used when examining localized data since birds occur sporadically within their range (Tobalske 1997 in Id CWCS). BBS data indicate statistically significant declines between 1966-2004 at the level of the US (-3.1% per year) (Sauer et al. 2005 in Id CWCS). Declines in the western US (-1.5% per year) and Idaho (-1.5% per year) follow the general trend but are not statistically significant.	Loss and degradation of habitat. Loss of large Douglas-fir and mixed conifer snags. Fire suppression. Fire exclusion. Quality and quantity of habitat in BC continues to decline for what are already small and declining populations of Lewis's. declines of up to 90% of the historic pine forests and deciduous riparian habitats in western states have been estimated (Noss et al. 1995 in Id CWCS). And these are 2 of the major breeding habitats for Lewis woodpeckers. Fire suppression in pine forests has promoted forests that support high densities of small diameter trees, which are unsuitable for this species since the birds rely on large snags (average 18.4" dbh) in pine sites in Idaho. In general a reduction of large snags in breeding habitats may limit reproduction (Tobalske 1997 in Id CWCS). Sensitivity to human disturbance is not well understood (Ibid). actions which result in open forests with large snags and a well developed understory will likely benefit this species.
Long-billed curlew <i>Numerius americanus</i>	Open short grass or mixed prairie with level to slightly rolling topography, generally avoid areas with trees, high density shrubs and tall, dense grasses. Prairies and grassy meadows, generally near water. Nests on ground usually in flat areas with short grass. Presence of short grass prairie is a requirement. Have adapted well to nesting in croplands if the vegetation is of the correct height. Well drained native grasslands and agricultural land with a gentle rolling topography. Require large blocks of grasslands.	Total population size is roughly estimated at 20,000 with approximately 11,200 of these along the Pacific flyway (Morrison et al. 2001 in Id CWCS). As of 1980 there were an estimated 3,000-5,000 pairs nesting in southern Idaho (Pampush 1980 in Id CWCS). Current population size of this species in Idaho is unknown. Range-wide long billed curlews are declining particularly in the Great Plains (Brown et al. 2000 in Id CWCS). BBS data indicate slight declines in the US (-1.9% per year) during the period 1966-2004. but did not indicate any population changes in the western BBS region (Sauer et al. 2005 in Id CWCS). During this same analysis BBS data indicate an increase of curlews in Idaho of +2.8% per year. However it has been suggested that	Loss of habitat (Dugger and Dugger 2002 in Id CWCS). Cultivation of grassland. Hunting along Atlantic coast. Pesticides. Grazing. Disturbance of nest sites. protect nesting areas from detrimental disturbance. protect habitats are that are at least 104 acres in size. (enough habitat for at least 1 breeding pair, Redmond et al. 1981 in Id CWCS).

Species common name	Habitats		Major risk factors/threats
		BBS data does not cover trends for this species very well. Lack of population size.	
<p>Flammulated owl <i>Otus flammeolus</i></p>	<p>Dry montane forests with brushy understory or open grasslands nearby. Low/mid elevation multi-storied, open to semi-open mature and old ponderosa pine and dry Douglas-fir forests. Preference for mature open dry forests. Breed primarily in open mature montane pine forests from southern BC to southern Mexico. Ponderosa pine and Jeffrey pine preferred habitats though mixed coniferous stands occasionally used. Considered rare until recently (1990s). Adapted to foraging in open forest conditions. Nest primarily in cavities excavated by woodpeckers in large trees and snags. Ecological factors positively affecting owls include large scale open forest, forest openings, and small patches of dense vegetation. It appears that owls use and perhaps need a limited amount of clustered dense vegetation in their breeding territory. In Idaho Groves et al. (1997) found flammulated owls occupying mid elevation old growth and mature stands of open ponderosa pine, Douglas-fir, and stands co-dominated by these 2 species. Several authors have reported finding flammulated owls in clustered territories across the landscape with large unoccupied spaces in between (McCallum 1994 in Id CWCS).</p>	<p>No recognized subspecies. Groves et al. (1997) considered this species abundant in certain localized habitats of Idaho. The estimate of population size in Idaho is <1,000 individuals (Id CWCS). There are no population trend data for Idaho. Population trend may be in decline due to loss of mature dry ponderosa pine/Douglas-fir/grand fir forest types to human activity (Id CWCS).</p>	<p>Loss of mature ponderosa pine and Douglas-fir forest. Fire suppression. Disturbance near breeding, nesting and rearing sites. Loss of large snags and lack of snag recruitment. Conversion and expansion of mature dry forest stands to second growth created undesirable high density vegetation conditions. Blocks of suitable habitat are rare in MT. Major restoration of ponderosa pine and Douglas-fir dominated sites in western MT. McCallum (1994) believes the most immediate threat to the species in NA may be the elimination of snags through firewood gathering and other logging. Direct habitat loss from intensive timber harvest practices, fire exclusion resulting in altered forest structure, stocking rates, and species composition, pesticides, and cutting of dead trees for firewood (McCallum 1994, Groves et al. 1997 in Id CWCS). Low reproductive potential. Forest practices that remove large diameter pine and Douglas-fir, manage for even age stands and/or remove snags (including firewood gathering) risk reducing microhabitat and landscape parameters required by this species (McCallum 1994). Lack of fire disturbance has created undesirable high density vegetation conditions generally unfavorable for owl foraging. Changes in stand structure may also impact insect populations and habitat suitability for woodpeckers, a species essential to the conservation of all cavity nesting owls (McCallum 1994). The USFS has completed a conservation assessment and developed recommendations for restoring PP ecosystems within the framework of the NFP. The Idaho PIF ponderosa pine task force is developing guidelines targeted to private and public land managers for the restoration of PP ecosystems that will benefit focal bird species including the flammulated owl.</p>
<p>White-headed woodpecker <i>Picoides albolarvatus</i></p>	<p>Montana forests dominated by ponderosa pine in the species northern range. (Garrett et al. 1996 in Id CWCS). Stands are typically multistoried and open canopied mature and old growth ponderosa pine. An indicator of the quality of large diameter ponderosa pine habitats which are used for breeding, roosting, and foraging; large diameter pine trees (with large cones and abundant seed production), relatively open canopy (50-70%) and availability of snags and stumps for nest cavities (IBID).</p>	<p>Two subspecies are recognized, <i>P.a.albolarvatus</i> occurs through most of the range of the species with <i>P.a.gravirostris</i> restricted to the higher mountains of southern California (Id CWCS) the species appears to decrease north of California and it is generally uncommon or rare in Idaho (Garrett et al. 1996 in Id CWCS). The estimate of population size for this species in Idaho is approximately 329 individuals (Rosenberg 2004 in Id CWCS). There are no population trend data for Idaho (Sauer et al. 2005 in Id CWCS). This species like other woodpeckers is not well suited for population trend monitoring by the BBS.</p>	<p>Habitat conversion, including resource harvesting (e.g. clearcutting forests, even aged stand management and snag removal), logging, and changes in ecological processes such as fire suppression (which favors the replacement of fir species over pine), and forest fragmentation have contributed to local declines especially in Washington, Oregon and Idaho (Ibid). The primary threat is the loss of live and dead large diameter ponderosa pine.</p>
<p>Black-backed woodpecker <i>Picoides arcticus</i></p>		<p>Well distributed and recently burned or insect infested areas. Found in association with subalpine fir and Engelmann spruce in higher elevations and ponderosa pine, Douglas-fir and lodgepole pine at lower elevations. Closed boreal and montane coniferous forests. A Montana/Wyoming study (Hutto 1995) found they are essentially restricted to early post fire habitats. Primary excavators, they may be more limited by foraging resources than nesting or roosting resources (Montana PIF). Both Goggans et al. (1987) and Caton (1996) concluded that managing snags for nesting alone does not provide for the habitat needs of black-backed woodpeckers. Areas that have undergone disturbance or in patches in mature and old growth forests.</p>	<p>Fire suppression. Salvage harvest of post fire and insect infested areas. Human disturbance near nest sites. Loss of snags.</p>
<p>American three-toed woodpecker</p>	<p>Generally associated with spruce forests, although their occurrence in other types of coniferous forest varies geographically (Leonard 2001 in Id CWCS).</p>	<p>3 subspecies are recognized. The subspecies in Idaho is likely <i>P.d.fasciatus</i> although a zone of integration has been noted between <i>P.d.fasciatus</i> and</p>	<p>Fragmentation and habitat loss are the main issues of concern for this species. Susceptible to forestry</p>

Species common name	Habitats		Major risk factors/threats
<i>Picoides dorsalis</i>	Flake off bark to forage on bark beetles (Scolytidae), and are typically found in old growth forests and/or disturbed areas that have high densities of bark beetle larvae (Kreisel and Stein 1999, Murphy and Lenhasuen 1998 all in Id CWCS). While any disturbance that produces a large number of dead/decaying trees may be important for this species (i.e. insect outbreaks, flooding, disease) multiple studies have noted the importance of burns for this species (see Leonard 2001). Tend to occur at the highest densities in burns between 0-3 years old, which is when bark beetle densities are the highest (Hoyt and Hannon 2002 in Id CWCS). Also tend to occur in burned forests that have a high density of lightly burned trees (Ibid). old growth forests are also important and use of these forests have been noted throughout the range of this species. typically nest in snags. Goggans et al. (1988) reported that 96.7% of all nests were in snags, and that 84% occurred within unlogged plots.	P.d.dorsalis in northern Montana (Leonard 2001 in Id CWCS). Distribution generally follows the distribution of the boreal forest region. The only woodpecker to occur in both the Nearctic and Palearctic (Leonard 2001 in Id CWCS). Occur as far north as Alaska, and extend through the boreal forests of Canada south in the lower 48 states. Within the western US occur in the Cascade and Blue Mtns of Washington, the Cascade, Blue and Wallowa Mtns of Oregon, the northern and central portions of Idaho and the Rocky Mtns of western Montana (Ibid). population trends difficult to ascertain since this species is highly irruptive and colonizes disturbed forests across the landscape (Ibid). BBS detections are so low as to lend low credibility to trends assigned for this species (Sauer et al. 2005 in Id CWCS).	management practices that reduce dead and decaying trees in the landscape. The removal of dead and decaying trees may occur for a variety of reasons (i.e. salvage logging, fire suppression logging), and these activities have likely negatively influenced populations in recent years (Leonard 2001 in Id CWCS). Logging rotations that do not allow old growth forests to develop have likely been detrimental to this species (Hoyt and Hannon 2002 in Id CWCS). Retain large patches of dead and decaying trees for nesting and foraging. Goggans et al. (1988) suggest retention of 579 acres per pair in old growth mixed conifer forests, a landscape that provides suitable habitat for this species might be a matrix of old growth forests mixed with forests undergoing disturbances (i.e. fire).
Red-necked grebe <i>Podiceps grisegena</i>	Wetlands with emergent vegetation.	Population trend unknown. No statistically significant changes detected by BBS data in the US, western region, or Idaho (Sauer et al. 2005 in Id CWCS). However BBS data likely unreliable.	Pollutants, heavy metals. Susceptible to disturbance by recreationists during nesting. Draining of wetlands and/or drought.
Pygmy nuthatch <i>Sitta pygmaea</i>	Late seral, large diameter, live ponderosa pine stands, and large snags. year round resident in Ponderosa pine and similar pines. In Idaho limited in its distribution to the southern slopes of mtns at elevations of 2000-3500 feet. Although associated with ponderosa pine forests may also inhabit other dry forest habitat types such as Douglas-fir (Kingery and Ghalambor 2001 in Id CWCS). Nests in dead pines and live trees with dead sections, it prefers old growth, mature, undisturbed forests (Szaro and Balda 1982 in Id CWCS). Unlogged forests host significantly more pygmy nuthatches than logged forests (Sydeman et al. 1998 in Id CWCS). Studies suggest this species needs heterogeneous stands with a mixture of well spaced old pines and viruous trees of intermediate age (Balda et al. 1983 in Id CWCS).	Six or seven subspecies have been described. Those occurring north of Mexico are distinct and well characterized while the taxonomy of those in central Mexico remain unsettled (Kingery and Ghalambor 2001 in Id CWCS)./ the subspecies present in Idaho S.p.melanotis occurs from southern BC south into the Cascades, Sierra Nevada, throughout the Rocky Mtns, Black Hills and desert ranges of the Great Basin and southwestern US, south into Mexico (Ibid). there are estimated to be approximately 5300 individuals on a year round basis in Idaho (Rosemberg 290054 in Id CWCS). BBS data indicate statistically significant population declines in Idaho during the logn term period 1966-2004 (-41.1% per year) and the more recent short term period (1980-2004 (-48.3% per year). Across the species broader range throughout the western BBS region and the US as a whole populations appear to have remained more stable (Sauer et al. 2005 in Id CWCS).	Loss and degradation of habitat (including large snags). fire exclusion. Grazing. As a result of timber harvest, fire suppression, and grazing (SLLABANKS ET AL. 2001 IN Id CWCS). Mgmt recommendations might follow Id PIF (2000) or Id Steering Committee of the Intermountain West Joint Venture (2005) emphasizing snag recruitment and retention, return of historical fire regimes and reduced grazing pressure.
Red-naped sapsucker <i>Sphyrapicus nuchalis</i>		Mixed conifer forests. Nests in cavity in live tree, frequently near water.	Loss and degradation of habitat (including snags)
Williamson's sapsucker <i>Sphyrapicus thyroideus</i>		Mixed conifer forests. Constructs nesting cavity in standing snag/hollow tree. Mainly mature and old growth mixed conifer and ponderosa pine forests, as well as aspen stands. In MT range restricted to the main chain of the Rocky Mtns. Migrate to southwest US and Mexico. Primary excavators, seem to be severely restricted to large diameter trees and snags for their nesting (and roosting?), except when nesting in aspen. Use western larch, DF, and grand fir types as well as aspen and ponderosa pine. Prefer stands with less than 75% canopy closure, 2-3 canopy layers, and >10 snags per hectare.	Loss and degradation of habitat (including snags).
Brewer's sparrow <i>Spizella breweri</i>		Little information for Montana. Sagebrush.	Little information available. Habitat loss and degradation, grazing, invasive grasses, fire, brood parasitism, predators, pesticides. Widespread long-term decline and threats to shrub-steppe breeding habitats.
Mammals			
Rocky mountain Elk <i>Cervus canadensis</i>	Habitat generalist. Summer range – mid to high elevation. Winter range low elevation south facing slopes. Mainly coniferous forests interspersed with natural man made openings (mountain meadows, grasslands, burns and logged areas). basic habitat components include security, shelter (may use to maintain thermal equilibrium) and forage production. High open road densities affect habitat effectiveness, good winter range critical.		Loss and degradation of habitat. Access management – road and recreation impacts. Fire exclusion. Invasive species – particularly winter range. Hunting.
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	caves and abandoned mines used for maternity roosts and hibernacula, use of buildings in late summer has also been reported. Habitats in the vicinity of roosts include DF, LP, PP.		Habitat loss and degradation. Loss of large snags. Degradation of riparian habitat. very sensitive to human disturbance.
North American wolverine	High elevation roadless/wilderness. In NW MT and AK tend to		Human disturbance - especially winter rec. at denning sites.

Species common name	Habitats	Major risk factors/threats
<i>Gulo gulo</i>	occupy higher elev. in summer and lower elev in winter. Large home range. Limited to alpine tundra and boreal and mountain forests (primarily coniferous) in the western mountains, especially wilderness areas. dens in caves, rock crevices, under fallen trees, in thickets or similar sites. avoid clearcuts and burns. Medium scattered timber, with young dense timber used least.	(heli skiers, snowmobiles, motorized vehicles can disturb or displace wolverines). Roadless area management. Trapping. Habitat loss. Limited distribution. Effects of small population size. Dependent on recruitment of dispersers from BC. Large highways and associated corridors fragment habitat and creates barriers or impediments to movement.
Fisher <i>Martes pennanti</i>	Low/mid elevation multi-storied, mature and older forest with riparian habitat, down large wood, forest connectivity. Dens in Tree hollows, under logs, or in ground or rocky crevices, or they rest in branches of conifers. Occur primarily in dense coniferous or mixed forests, including early successional forest with denser overhead cover. Optimal conditions are forest tracts of 245 acres or more, interconnected with other large areas of suitable habitat. a dense understory of young conifers, shrubs, and herbaceous cover is important in winter. Forest structure which affects prey abundance and vulnerability and provides denning and resting sites is probably more important than tree species composition. Forest structure can be characterized by a diversity of tree shapes and sizes, understory vegetation, snags and fallen limbs and trees and tree limbs close to the ground. Large snags (>20" dbh) are important for maternal den sites.	Trapping, loss and degradation of habitat (including snags and down logs). Loss of prey habitat. small pop. size, low productivity and possible isolation leads to increased probability of extinction
California myotis <i>Myotis californicus</i>	Little information available to describe habitat affiliations or ecology of this species in Idaho. dry conifer forest, sagebrush steppe, riparian and juniper habitats have been reported. Roost sites in Idaho are poorly known. Mines and caves are reportedly used. Elsewhere, buildings and bridges are major roost types, and individuals are also found under loose tree bark.	The distribution of the species in the state is incompletely documented, and few data indicate habitat needs. the subspecies <i>M.c.californicus</i> occurs in Idaho (Id CWCS). Population trends unknown. Characteristics of roosts used for maternity sites and hibernacula in the state are not known, elsewhere a maternity colony of 52 individuals was reported in a large diameter snag (Bringham et al. 1997 in Id CWCS).
Fringed myotis <i>Myotis thysanodes</i>	Ponderosa pine and Douglas fir forest while foraging over willow/cottonwood areas along creeks and over pools, and in caves. Found primarily in desert shrublands, sagebrush-grassland, and woodland habitats (pp forest, oak, and pine habitat, DF). Nursery colonies in caves, mines and sometimes buildings.	
Red-tailed chipmunk <i>Neotamias ruficaudus</i>	Dense mesic coniferous forests at elevations of 2360 to 78670 feet (Best 1993 in Id CWCS). <i>N.r.ruficaudus</i> typically inhabits wetter forests at higher elevations compared to <i>N.r.simulans</i> (Bennett 1999 in Id CWCS). Engelmann spruce, ponderosa pine, and subalpine fir communities are commonly associated with the species in Idaho. forest openings and edges sustain the highest population numbers, especially where undergrowth is prevalent. Individuals use burrows associated with fallen logs, large log piles, and brush piles for nesting and overwintering.	Endemic to western NA. Two subspecies are recognized; <i>N.r. ruficaudus</i> occurs in eastern Idaho and <i>N.r. simulans</i> occurs in western Idaho. There are no trend data for Idaho.
Mountain goat <i>Oreamnos americanus</i>	Alpine and subalpine habitat. Usually at timberline or above. High elevation roadless/wilderness. precipitous terrain, steep south facing slopes in winter. Sometimes enter subalpine forest. snow is an important influence on winter distribution. Winter habitat: cliffy terrain, south facing canyon walls, windblown ridgetops, spring: south and west facing slopes, summer: meadows, cliffs, ravines, and forests.	Changes in habitat quality (Bennett 1999 in Id CWCS). Requires habitat containing both late and early successional forest tracts. Timber harvest may initially reduce population numbers, but chipmunks usually recover to numbers at or above pre cut levels. however timber harvest that eliminates mature trees may limit populations. Fires that eliminate brush piles, coarse woody debris, and standing dead and live trees may be detrimental. habitat fragmentation may result in genetic isolation and increase the risk of extinction. Changes in subalpine and montane habitats as a result of climate change is a potential threat. Maintain a juxtaposition of seral stages. Limit disturbances that result in a homogeneous environment.
Bighorn sheep <i>Ovis canadensis</i>	Mid elevation steep lands and high elevation roadless/wilderness. Cliffs, mountain slopes, rolling foothills, sometimes cross intermountain valleys. Min. snow depth important in winter, availability of high quality green forage most important in spring	Loss and degradation of habitat. Fire exclusion. Invasive species. Access management. Hunting. High quality hunting big game species by permit only.

Species common name	Habitats		Major risk factors/threats
	and summer. Semi open to open veg. types preferred.		
American pygmy shrew <i>Sorex hoyi</i>	Largely insectivorous. Nests are often in decaying logs or among root masses (Clark et al. 1989 in Id CWCS). Sphagnum moss, wet soil, mammalian tunnel networks, insect tunnel networks, leaf litter, root systems, and stumps are often present (Long 1974). Generally associated with boreal forest and riparian habitats (Ibid). habitat in Idaho includes mesic and subalpine coniferous forests. dominant tree species include western red cedar, western hemlock, engelmann spruce, grand fir, and subalpine fir (Groves 1994 in Id CWCS).	The subspecies occurring in Idaho is <i>S.h.hoyi</i> . in Idaho documented in few scattered localities north of the Clearwater River (Groves 1994 in Id CWCS). No trend data are available for Idaho.	An understanding of the status and ecology of this species has been limited by sampling effort. The lack of information regarding the distribution and habitat requirements has precluded the consideration of this species in resource management decisions.
Northern bog lemming <i>Synaptomys borealis</i>	Most populations in Idaho, Montana, and Washington have been found in peatlands (bogs and Woods 2004 in Id CWCS), particularly sphagnum moss bogs (Reichel and Beckstrom 1994 in Id CWCS). Other records have been documented in wet meadows, mesic coniferous forests, alpine sedge meadows, krummholz spruce fir forests with dense herbaceous and mossy understory and mossy streambanks (Groves et al. 1997a in Id CWCS). In Idaho this species has been found in sphagnum bogs and stands of Engelmann spruce, lodgepole pine, and subalpine fir (Groves and Jensen 1989 in Id CWCS). And occurs most frequently in second growth stands and sometimes in old growth forest (Groves 1994 in Id CWCS).	The subspecies in Idaho is <i>S.b.chapmani</i> . population trend is not known.	Habitat loss and degradation. Human disturbance may be caused by timber harvest, livestock grazing, road construction and snowmobiling (Id CWCS). Protection of bogs and fens where this species occurs is important for the conservation of this species.
Fish			
Torrent sculpin	<i>Cottus rhotheus</i>	Fast, freshwater streams of the Kootenai River drainage. Riffles of cold, clear streams but are also taken in lakes. Hide in stones on the bottom.	
Inland redband trout	<i>Oncorhynchus mukiss gairdneri</i>	Stream resident fish. Prefer cool, clean, relatively low gradient streams but in some circumstances are able to withstand wider temperature variations than westslope cutthroat trout.	Hybridization with non-native species
Lake trout	<i>Salvelinus namaycush</i>	Native to St. Mary and Missouri River drainages. Introduced elsewhere. Very deep, cold lakes and reservoirs. With some rocky bottom and abundant forage fish.	None known.
Arctic grayling	<i>Thymallus arcticus</i>	River dwelling population in upper Big Hole River last remnant of native fish in lower 48. originally widespread throughout upper Missouri river drainage. Introduced into many lakes across western half of MT. Small, cold, clear lakes with tributaries suitable for spawning.	
Invertebrates – Insects			
Butterflies			
Western sulphur	<i>Colias occidentalis</i>	Ocean bluffs, forest openings, mountain slopes, and subalpine meadows with substantial populations of various herbaceous legumes. Occurs in generally forested (especially DF) landscapes but in a variety of habitats. larval foodplants are various legumes including milk-vetches, golden banner, lotis and Oxytropis.	Clearcutting, fire suppression and resultant invasion of meadows and glades by dense woody vegetation, and invasion of aggressive alien weeds. Overgrazing and logging.
Stoneflies			
<i>Cascadoperla trictura</i>	Szczytko and Stewart (1979 in Id CWCS) summarized: the life history and general biology of this species are unknown. Emergence occurs from mid May until July in creeks and rivers. No additional information available.	Baumann et al. (1977 in Id CWCS) considered this species to be rare. No data are available to suggest population trend.	Specific threats to Idaho populations have not been identified. Alteration and degradation of aquatic habitats. changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.
Invertebrates - Mollusks			
Pale jumping slug	<i>Hemphillia camelus</i>	No info in MNHP or NatureServe.	
Western pearlshell mussel –	<i>Margaritifera falcata</i>	Cold, clear, streams and rivers. Often in reaches having fast current and coarse substrate. Larva are parasitic on salmonids. Montana's only cold water trout stream mussel- only native mussel west of divide.	Loss and degradation of habitat. Changes in water quality. The loss of host fish populations. Collection. Found in AK, CA, ID, MT, NV, OR, WA, WY, and British Columbia. Extirpated in UT. Range Widespread in area, but spotty in viable population coverage. Montana's populations have showed significant declines, in comparison to Idaho's.

Species common name	Habitats		Major risk factors/threats
			Declining in terms of area occupied and number of sites with viable individuals. Global short term trend declining (10-30%). Global long term trend – substantial to moderate decline (25-50%).
Reticulate taildropper	<i>Prophysaon andersoni</i>	No info in MNHP or NatureServe. MNHP shows predicted distribution in Sanders county. Moist forest floor conditions, abundant coarse woody debris	No info in MNHP or NatureServe. MNHP. Isolated populations vulnerable.
Fir pinwheel	<i>Radiodiscus abietum</i>	Most often found in moist and rocky DF forest at mid elev. in valleys and ravines. Western red cedar form the canopy in Montana locations. Often found in talus of a variety of rock types or under fallen logs.	Logging and grazing over most of the range are probably the greatest threats, through alteration of appropriate habitat. alteration of habitat from fire, highway and road construction. rural housing development and land clearing could represent threats, as could fire suppression retardants and chemical methods of weed control.
Sheathed slug	<i>Zacoleus idahoensis</i>	Most occurrences in ID are in moist microsites in relatively intact DF, PP, and ES forests. rocky substrate including sedimentary, igneous and metamorphic types.	Logging and grazing over most of the known and potential ranges. Highway construction severe forest fires. Species has lost most of its habitat at most historic sites. known from 1 site on the forest. local endemic, loss of historic sites, and loss of most habitat.

Table 11. Information on species habitat and population abundance and distribution - "In the Plan Area"

Species common name	Species scientific name	Habitat abundance and distribution	Population abundance and distribution
Vertebrates - Amphibians			
Western (Boreal) toad	<i>Bufo boreas</i>	Habitat is well distributed across the forest. breeding ponds impacted by past mgmt activities but significance unknown. Once considered the most abundant amphibian of the western third of MT, still encountered widely and frequently though be no means commonly and is no longer ranked as the most abundant amphibian. Experienced regional pop. declines in the state.	Species appears to be well distributed across the forest. pop. size unknown. Individual population decline or extirpation possible. Local extirpation due to restricted mobility and fragmentation. Invasive species. Pop sizes difficult to measure and no estimates are available.
Coeur d'Alene salamander	<i>Plethodon idahoensis</i>	Habitat occurs in small isolated locations across the forest. regional endemic, Montana is the eastern edge of range.	Occurs in several small disjunct populations across the forest. Pop. numbers unknown. Individual population decline or extirpation possible. Populations have declined from historical levels (Idaho CWCS-northern leopard frog). small pop. size, low productivity and possible isolation leads to increased probability of extinction no estimates of population size available for the state
Northern leopard frog	<i>Rana pipiens</i>	Habitat rare on NFS lands. known from 1 active location on NFS lands. historically known from several sites. occurs in all but 7 Montana counties, all west of the continental divide. Formerly present in intemountain valleys, especially in the Flathead and lower Clark Fork river drainages. Recently documented in only 2 western sites near Kalispell and Eureka.	Small range in North Idaho, western Montana and B.C. rare on the forest. In northern Idaho, populations were found in the Kootenai, Pend Oreille, and Clark Fork Rivers prior to 1955, but populations may no longer persist in this region. Little information on this species available. Northern Idaho and northwestern Montana. Individual population decline or extirpation possible. Effects of small isolated population
Reptiles			
Northern alligator lizard	<i>Elgaria coerulea</i>	Habitat fairly common and well distributed across the forest. reduction in down wood, especially in warm/dry habitat types. likely further reduction with emphasis on reduction in the wildland urban interface. may be locally abundant in some areas. range restricted to NW counties.	Known from only a few observations. Pop. numbers unknown. Secretive. Life history not well known. Uncommon. On edge of primary range. restricted to NW counties in MT.
Western skink	<i>Emeces skiltonianus</i>	Habitat fairly common and well distributed across the forest. reduction in down wood, especially in warm/dry habitat types. likely further reduction with emphasis on reduction in the wildland urban interface.	Known from only a few observations. Pop. numbers unknown
Birds			
Northern goshawk	<i>Accipiter gentilis</i>	Habitat common and well distributed across the forest. Considered to be declining in numbers near Fortine (Weydemeyer 1975). Maj reports northern goshawk populations in region 1 are increasing or stable in many forests. habitat abundant and wide spread throughout the forest. use of known historic nest sites very uncommon (less than 10% use of known nest sites).	Nesting common across the forest, although small portion of historical nests active. Of 20 potential nesting territories only 4 confirmed active. Found region wide. No downward trend in population or habitat availability found during evaluations conducted to determine sensitive species status, 1988-1991 and currently (Montana PIF, version 1.1, 2000).
Grasshopper sparrow	<i>Ammodramus savannarum</i>	Grasslands rare on the forest. mostly on private lands in the Tobacco Valley and Pleasant Valley areas. Habitat and species rare on the forest. prefers open prairies. edge of species range. Known only from Tobacco Valley area-grassland habitats on private lands.	Rare. Not known to occur on NFS lands. Large range, significant population declines in NA and probably elsewhere. BBS data indicate a significant decline in NA between 1966 and 1989. experienced rangewide population declines including the northern rockies physiographic area which includes the Kootenai NF. Does well in many CRP plantings but is sensitive to grazing.
Golden eagle	<i>Aquila chrysaetos</i>	Habitat rare on the forest. Prefers open prairies. Rare on the forest. known to nest only on private lands. not considered a species of concern for MT.	Rare. Not known to occur on NFS lands. locally very uncommon to rare. 3-4 known nests on the forest on private land.
Black tern	<i>Childonias niger</i>	Habitat rare on the forest. known only from the Noxon reservoir area of the forest. Rare on the forest. known to occur only in Noxon reservoir area on private lands. breeding not known to occur on the forest habitat on NFS lands rare.	Rare on the forest. seasonal. pop. numbers unknown. Not known to occur on NFS lands. Black terns are limited to breeding locations with appropriate habitat, size, and vegetation composition. Appropriate habitat in Montana is patchy at best. Threats not related to activities on FS lands.
Olive-sided flycatcher	<i>Coturnicops noveboracensis</i>	Common. Moderate threats. Post fire species. Known or strongly suspected serious declines.	Uncommon. Seasonal
Black swift	<i>Cypseloides niger</i>	Habitat rare on the forest. known in 1 location associated with wilderness. Habitat rare on the forest. Known only from 1 location on the forest associated with wilderness area. species of continental concern but not regional concern. No management activity ongoing in MT but increased recreation use at breeding sites should be discouraged.	1 population known to occur. Numbers unknown but considered uncommon. Little information available. Casey 2000. Uncommon. On edge of primary range.
Bobolink	<i>Dolichonyx oryzivorus</i>	Grasslands rare on the forest. mostly on private lands in the Tobacco Valley and Pleasant Valley areas. Prefer tall and mixed grass prairies. Habitat rare on the forest, - mostly on private lands. no known breeding on NFS lands.	Rare on the forest. known from the Tobacco Valley area of the forest. not known to occur on NFS lands. Breed widely throughout Montana. Nests locally in wheat fields in Idaho. Still widespread and fairly common, but declining due to changing agricultural practices. BBS data indicate a significant population decline in NA in recent decades, particularly in central NA.
Common loon	<i>Gavia immer</i>	Breeding/rearing habitat uncommon. Mostly on private lands. Uncommon seasonal, nests on several lakes, only a few with adjacent NF lands.	Uncommon. Nesting not known to occur on NFS lands. but FS lands adjacent or surround nesting areas.

Species common name	Species scientific name	Habitat abundance and distribution	Population abundance and distribution
Harlequin duck	<i>Histrionicus histrionicus</i>	Habitat uncommon on the forest.	Uncommon to rare. Known to breed and rear on several streams across the forest. seasonal. Pop. trend considered to be stable.
White-tailed ptarmigan	<i>Lagopus leucura</i>	Extremely rare. On edge of primary range. Edge of species range. Known from 1 location in Ten Lakes area.	Rare. Known from 1-2 observations.
Gray crowned rosy finch	<i>Leucosticte tephrocotis</i>	Habitat rare on the forest. Not known but suspected to occur on the forest. Habitat abundant and well distributed on the forest.	Large and widespread. Apparently stable.
Lewis's woodpecker	<i>Melanerpes lewis</i>	Recorded during the breeding season in all parts of MT except the NE quarter. Current habitat conditions in MT are significantly inferior in quantity and quality to historic conditions. Opportunities in dry forests are present to significantly improve habitat over coming decades. Opportunities in burned and riparian cottonwood habitat however will require major shifts in policies and actions before benefits can be realized. Dry forest - The conversion and expansion of mature dry forest stands to second growth throughout the range of Lewis has created undesirable high density vegetation conditions. Currently blocks of appropriate pp habitat are rare in Mt. Major restoration of xeric forest ecosystems is currently underway, within region 1 project that 50% of dry pp and df habitat approximately 2 million acres will be restored in the next 20 years to more natural open parkland conditions dominated by large mature trees (USDA FS 1998). Once restored the FS has an opportunity to manage these areas to meet habitats of identified wildlife species including Lewis. Post fire - areas now burned by stand replacement fires constitute a small proportion of historic levels of post fire habitat. The results of effective fire suppression for species closely associated with stand replacement fire conditions are potentially devastating. Compounding the lack of post fire habitats 1 post fire timber harvest on those few areas that do burn. Riparian cottonwood - in a state of decline throughout American West due to the effects of human activities and the suppression of natural disturbance regimes. Cavity nesting habitat due to snag attrition historic and current logging of large cottonwoods and farmland conversion and competition with European starlings may further limit nesting opportunities. Future viability of cottonwood threatened by flood control irrigation, and grazing, that combine to thwart cottonwood regeneration dependent on periodic flooding and resultant disturbed substrates.	Rare. Seasonal Known or strongly suspected serious declines. Based on BBS data, populations in NA have declined 60% from 1966 to 1991. In MNT trends are strongly downward for the same time period but the number of survey routes is insufficient for statistical analysis. Local declines were reported in the Fortine area of Lincoln county, MT (Wedemeyer 1975) though local changes must be interpreted against the relatively uncommon status and sporadic distribution of the species. Southern BC and AB south to southern NM and AR west to southern CA and east to eastern CO. Approximating the distribution of pp in NA. Range contractions in the 20 th century have occurred in the western and southern extremes of historic range, western BC, NW sections of WA and OR, and portions of southern CA.
Long-billed curlew	<i>Numerius americanus</i>	Grasslands rare on the forest. mostly on private lands in the Tobacco Valley and Pleasant Valley areas. Habitat and species rare on the forest. prefers open prairies. edge of species range. Known only from Tobacco Valley area-grassland habitats on private lands.	Rare. Not known to occur or nest on NFS lands. Local population declines but not widespread. Extirpated from eastern U.S. north American populations have declined in the past 25 years as suitable nesting habitat has been converted to other uses. Formerly listed as a category 2 candidate for federally threatened and endangered status. Breeding habitat in the state appears to be fragmented and unprotected. In Montana they can be found breeding and migrating throughout the state, however they are more common east of the Rockies, particularly along the Rocky Mountain front. There are a few records from the extreme western edge of the state.
Flammulated owl	<i>Otus flammeolus</i>	Habitat fairly well distributed. Impacted by past and ongoing mgmt activities. Common seasonal, nesting known throughout the warm/dry portion of the forest. Habitat and species considered fairly common on the forest. considered to be a significant habitat loss - large diameter ponderosa pine, with open understories.	Uncommon. Pop. numbers unknown but appear to be fairly well distributed across the forest during seasonal use period. Seasonal. Comply with snag and down woody debris guidelines. Vegetation restoration to maintain two or more canopy layers and adjacent to forest/grass or forest/shrub ecotones.
Black-backed woodpecker	<i>Picoides arcticus</i>	Habitat amount and distribution varies	Naturally low, pop. numbers vary dependent on habitat but unknown. found in 7 of 8 planning units. irruptive species. dependent on fire habitats.
Boreal chickadee	<i>Poecile hudsonica</i>	Montana is in the southern extreme of the breeding range. Southern extreme of species range. Habitat abundant and well distributed on the forest. little information on breeding habitat available for MT.	Uncommon. Pop. numbers unknown. Considered at risk or high risk in MT due to limited or potentially declining numbers, extent or habitat making it vulnerable to global extinction or extirpation in the state.
Pygmy nuthatch	<i>Sitta pygmaea</i>	Rare on the forest. habitat loss on the forest considered significant - large diameter ponderosa pine snags.	Rare.
Red-naped sapsucker	<i>Sphyrapicus nuchalis</i>	Very little info for the KNF.	Uncommon
Williamson's sapsucker	<i>Sphyrapicus thryoides</i>	Very little info for the KNF.	Uncommon. poorly sampled by BBS so population trends unknown.
Brewer's sparrow	<i>Spizella brewerii</i>	Very little habitat on KNF, almost none on NF lands. the sagebrush form is a	Rare. Breed widely throughout Montana. Fairly large range in western NA, declining in many areas of

Species common name	Species scientific name	Habitat abundance and distribution	Population abundance and distribution
		sagebrush obligate which has shown significant population declines throughout much of its range including PA 64 which includes the Kootenai. Very little is known about distribution and habitats of the timberline form. Prefers sagebrush or grassland habitats. known only from Tobacco Valley or Pleasant Valley areas – on private lands. habitat rare on NFS lands.	the U.S. PIF watchlist. Considered at risk breeding due to very limited and potentially declining numbers, extent and/or habitat, making it vulnerable to global extinction or extirpation in the state. Scattered breeding records throughout the state with most suitable habitats concentrated in the southern half of the state and few sightings in the northwest portion. The timberline subspecies is found breeding high elevation shrubfields and krumholz, located on the east side of the divide in GNP.
Great gray owl	<i>Strix nebulosa</i>	Habitat uncommon but appears to be well distributed across the forest. Habitat appears to be well distributed across the forest. No evident population decline throughout its range. Pop. trend uncertain for MT. Known nests will be protected.	Naturally rare on the forest. Because of the owl's large home range, management must be coordinated among administrative units to maintain links between interacting biological units. No evident population decline in the vast majority of the range. Apparently stable, but actual population data are lacking for many areas.
Northern hawk owl	<i>Surnia ulula</i>	Habitat common and well distributed across the forest. Appears to be at the southern extreme for this species. Trend in Canada is stable. On the edge of primary range. No known breeding on forest. Southern edge of species range. Movements into MT may be in response to prey abundance. No documentation of known occurrence during breeding season. Considered accidental in MT (infrequent and outside usual range). The majority of the records for the state are for transient individuals (MNHP 2005). 1 observation on the forest. Habitat abundant and well distributed throughout the forest. known nests will be protected.	Rare winter visitor. Not known to breed on the forest.
Mammals			
Rocky mountain Elk	<i>Cervus canadensis</i>	Habitat well distributed across the forest. herds have large area requirements and have distinct summer and winter ranges. Crucial winter range	Common, several small populations across the forest. combination of introduced and possibly remnant. Occurs in herds of various sizes, generally less than 20 animals. Proximity to humans and roads.
Townsend's big-eared bat.	<i>Corynorhinus townsendii</i>	Natural caves rare on the forest. abandoned mines relatively common. No hibernacula or roosting sites known to occur on the forest.	Rare to Uncommon. Pop. numbers unknown. present year-round in MT.
North American wolverine	<i>Gulo gulo</i>	Denning habitat uncommon. <1% of the forest. Wilderness and roadless lands. limited distribution to high elevation remote areas.	Uncommon to rare although pop. numbers unknown. Solitary and wide ranging. Occur at relatively low densities. Were nearly extinct in MT during the 1900s and have been increasing in numbers and range since. Recovery originated in NW MT and spread to its current range. Classified as a furbearer in MT.
Fisher	<i>Martes pennanti</i>	Reintroduced or population augmented on the forest. occur mainly in remote areas. Extinct in MT by the 1930s. reintroduction efforts in 1959 and 1990 in Lincoln, Granite and Missoula counties resulted in establishment of population in those counties. Recent introduction were made in the Cabinet Mountains between 1988 and 1991. managed as a furbearer with a limited harvest of 7 animals.	Uncommon to rare. Pop. numbers unknown. Pop. augmented. Limited in abundance and extent and may be isolated from other populations
Fringed myotis	<i>Myotis thysanodes</i>		Population numbers unknown but considered uncommon to rare.
Mountain goat	<i>Oreamnos americanus</i>	Habitat uncommon, in wilderness and/or roadless areas.	Uncommon. Occur in 2 small populations.
Bighorn sheep	<i>Ovis canadensis</i>	Majority of Habitat occurs in roadless and wilderness areas. occur in 3 locations across the forest.	Uncommon. 3 small herds. Only 1 native herd.
Northern bog lemming	<i>Synaptomys borealis</i>	Habitat occurs in small isolated locations on the forest.	Uncommon to rare. Naturally rare, occur in several very small pop. Individual population decline or extirpation possible
Fish			
Torrent sculpin	<i>Cottus rhotheus</i>	Pools and glides in streams generally in small gravel and rock.	
Inland redband trout	<i>Oncorhynchus mukiss gairdneri</i>	Cool waters of lakes, rivers, and streams.	Hybridization, activities that elevate temperature, alter hydrology, increase sedimentation. Known from several small populations. Pop. numbers unknown. MFWP stocking into several areas on the forest.
Lake trout	<i>Salvelinus namaycush</i>	Known to occur in Noxon reservoir and mainstem Kootenai River.	Known to occur only in Noxon reservoir and mainstem Kootenai river. Does not occur on NFS lands.
Arctic grayling	<i>Thymallus arcticus</i>		
Invertebrates – Insects			
Butterflies			
Western sulphur	<i>Colias occidentalis</i>	Unknown. No info. for state of MT or locally.	Unknown. No info. for state of MT or locally. Lack of information, habitat not well understood.
White admiral	<i>Limenitis arthemis</i>	Unknown. No info. for state of MT or locally.	Unknown. No info. for state of MT or locally.
Indra swallowtail	<i>Papilio indra</i>	Unknown. No info. for state of MT or locally.	Unknown. No info. for state of MT or locally.
Dragonflies			

Species common name	Species scientific name	Habitat abundance and distribution		Population abundance and distribution	
Lance-tipped darner	<i>Aeshna constricta</i>	Unknown. No info. for state of MT or locally. MT predicted range includes the entire state.		Unknown. No info. for state of MT or locally.	
Zigzag darner	<i>Aeshna sitchensis</i>	Unknown. No info. for state of MT or locally. MT predicted range includes western 1/3 of the state.		Unknown. No info. for state of MT or locally.	
Subarctic draner	<i>Aeshna subarctica</i>	Unknown. No info. for state of MT or locally. MT predicted range includes western 1/4 of the state.		Unknown. No info. for state of MT or locally.	
Boreal whiteface	<i>Leucorrhinia borealis</i>	Unknown. No info. for state of MT or locally. MT predicted range includes western 1/3 of the state.		Unknown. Rare in most of the southern part of its range, but more common in the north and in parts of the northern Great Plains.	
Ringed emerald	<i>Somatochlora hudsonica</i>	Unknown. No info. for state of MT or locally. MT predicted range includes the NW portion of the state.		Unknown. No info. for state of MT or locally.	
Hudsonian emerald	<i>Somatochlora walshii</i>	Unknown. No info. for state of MT or locally. MT predicted range includes western 1/3 of the state.		Unknown. No info. for state of MT or locally.	
Brush tipped emerald	<i>Somatochlora intricatus</i>	Unknown. No info. for state of MT or locally. MT predicted range includes NW corner of the state.		Unknown. No info. for state of MT or locally.	
Red-veined meadowhawk	<i>Sympetrum madidum</i>	Unknown. No info. for state of MT or locally. MT predicted range includes the entire state.		Unknown. No info. for state of MT or locally.	
Mayflies					
A mayfly	<i>Caenis youngi</i>	Unknown. No info. for state of MT or locally. MT predicted range includes the western 1/3 of the state.		Unknown. No info. for state of MT or locally.	
Stoneflies					
	<i>Utacapnia columbiana</i>	No information available in MNHP or NatureServe. Known from location in Lincoln county. MT predicted range includes the very NW corner of the state.		No information available in MNHP or NatureServe.	
Invertebrates - Mollusks					
Striate Disc	<i>Discus shimekii</i>	Pop. sizes are not reported. Can be abundant in colonies but colony sites are relatively small in extent. Widely distributed in the Rocky Mtns. Of Arizona, NM, UT, CO, and Wy. With populations also extant in the black Hills. It is also found in MT in the Canadian Rockies. Documented from 5 MT. counties including Lincoln.		Documented in 5 counties; Gallatin, Hill, Lincoln, Park and Sweetgrass.	
Robust lancetooth	<i>Haplotrema vancouverense</i>	MNHP predicted distribution includes portions of Lincoln and Sanders counties.		No information available in MNHP or NatureServe.	
Pale jumping slug	<i>Hemphillia camelus</i>	MNHP predicted distribution includes western 1/3 of the state.		No information available in MNHP or NatureServe.	
Western pearlshell mussel	<i>Margaritifera falcata</i>	MNHP predicted distribution includes portions of Lincoln and Sanders counties. Cold, well oxygenated low gradient streams with gravel/sand bottom. Larva parasitic on salmonids.		Pollution, sedimentation, may be reduced to isolated populations	
Fir pinwheel	<i>Promenetus exacuus megas</i>	Little info available. In MT found at 13 sites in six counties; Lake, Lincoln, Mineral, Missoula, Ravalli and Sanders. All sites are west of the Continental Divide. MT predicted distribution includes western portion of the state.		Probably declining in most sites, although other sites remain stable. Existing sites should be protected. (NatureServe). widespread and somewhat common in northern ID and NW MT. Extirpated in some locations. Probably once very common and widespread. Lost most of its habitat and most of its historic sites.	
Reticulate tailedropper	<i>Prophysaon andersoni</i>	Known to occur on Kootenai in small isolated pop. MT predicted distribution includes a very small area of Sanders county.		No information available in MNHP or NatureServe. Isolated populations vulnerable.	
Sheathed slug	<i>Radiodiscus abietum</i>	Documented only in northern ID and NW MT. Recorded from 4 sites in MT in 4 counties; Granite, Lake, Lincoln, and Sanders. MT predicted distribution includes the western portion of the state.		No information available in MNHP or NatureServe. Local endemic. Loss of historic sites and loss of most habitat (NatureServe).	
Invertebrates - other					
A caddisfly	<i>Rhyacophila potteri</i>	Small streams or seeps with abundant mosses. Moderate gradient perennially flowing headwater seeps and streams.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database. Likely that <i>R. potteri</i> occurs in a continuous distribution along the Montana-Idaho border north to British Columbia and Alberta. May have involved from an isolated population of the <i>R. verrula</i> along the MT/ID border	No information is available in the NatureServe database or in the Montana Natural Heritage Program database.	Mismanagement of forested riparian areas including sediment and temperature increases.

Species common name	<i>Species scientific name</i>	Habitat abundance and distribution		Population abundance and distribution	
A caddisfly	<i>Rossiana montana</i>	High gradient 1 st or 2 nd order perennially flowing forested springs and streams, especially in gravel under mossy areas.	and southern BC and AB. Known to occur only in western MT, WA, and BC. Regional endemic known only to occur in western Montana, Washington, and British Columbia. Reported from streams in Missoula, Mineral and Sanders counties.	No information is available in the NatureServe database or in the Montana Natural Heritage Program database. Considered a rare species due to habitat specificity and never abundant when collected.	Mismanagement of forested riparian areas including sediment and temperature increases.
A freshwater sponge	<i>Heteromeyenia baileyi</i>	No information available in MNHP or NatureServe. Known from location in Lincoln county.		No information available in MNHP or NatureServe.	

Table 12. Information on species habitat and population abundance and distribution - “throughout its range”

Species common name	Species scientific name	Habitat abundance and distribution	Population abundance and distribution
Vertebrates			
Amphibians			
Boreal toad,	<i>Bufo boreas</i>	Small range in northern ID, western MT, southeastern BC. Regional endemic, MT is eastern limit in distribution. 45 locations in 5 counties. Range wide declines in the western U.S. Most known sites on FS lands.	Unknown but may exceed 10,000. From 97-192 documented sites (164 in ID, 28 in MT). Known from more than 30 sites on the forest. Apparently secure. Trend unknown, likely stable in extent of occurrence, stable to declining in population size, area of occupancy and number/condition of occurrences. A unique genetic resource in ID, MT, BC.
Coeur d’Alene salamander	<i>Plethodon idahoensis</i>	Large range throughout much of the US and southern Canada. Many and/or large occurrences throughout most of its range. Historically present in intermountain valleys west of the Continental Divide but in recent years documented in only two locations near Kalispell and near Eureka. Prairie regions of eastern 2/3 of state east of divide.	Still common in many areas populations have declined in some areas due to habitat loss and degradation, overexploitation, interactions with non-native species and unknown causes. Likely in the hundreds of thousands or millions. Population trend probably declining in size, area of occupancy and condition of occurrences. 10 historic breeding sites - Known from one active site on the forest. Populations appear to have declined in MT. Where the species is no longer extant in most localities where historically it occurred. Extirpated from most of historical range in WA. Recent extirpations are reported in all of western MT and across much of the neighboring states.
Northern leopard frog	<i>Rana pipiens</i>	Widely distributed and found in appropriate habitat throughout most of the state. Mountains and intermountain valleys of the western third of the state. Known from approx. 35 breeding sites on the forest.	In previous decades considered most abundant amphibian in western third of state. No longer common. Surveys since early 1990s indicate regional population declines. Range wide declines.
Reptiles			
Northern alligator lizard	<i>Elgaria coerulea</i>	West of continental divide in northwest MT. The southern and eastern limit of distribution in the Rocky Mts. Northern portion of ID. Central CA, to southern BC. East to ID and MT.	Rarely encountered and poorly documented. Fewer than a dozen records have been reported. Population trend unknown. One of only two lizards that give birth to live young rather than laying eggs
Western skink	<i>Emeces skiltonianus</i>	Central BC to southern Baja CA. east to western MT, ID, eastern UT, north central AZ, and southern NV.	Total adult population size unknown. Locally common in many areas. Secretive. Represented by large number of occurrences. Stable, trends not documented but extent of occurrence area of occupancy, number of subpopulations, and population size are large and probably relatively stable.
Birds			
Northern goshawk	<i>Accipiter gentilis</i>	Relatively abundant and widespread. Holarctic. West and central AK to eastern Canada south to central CA across the US except southeast US. Nesting range in the eastern US is currently expanding as second growth forests mature. In the west habitat reducing and thus populations.	Relatively common in the main part of its range. Conclusive data supporting the purported decline in populations in the western US is lacking. Population trends are difficult to determine. No hard evidence of a significant decline in recent decades but probably declining in some areas as a result of habitat alteration. (NatureServe)
Grasshopper sparrow	<i>Ammodramus savannarum</i>	Large range, extending from southern Canada to northern South America. Breeding eastern WA across northern ID, most of MT, southern BC across southern Canada to Manitoba, eastern ½ of US. Winters southern US, Mexico, central America.	Significant population declines in NA and probably elsewhere due to loss, degradation and incompatible management of grassland habitat. BBS data indicate a significant decline in NA between 1966 and 1989.
Golden eagle	<i>Aquila chrysaetos</i>	Widespread distribution throughout the northern hemisphere. Breeds NA, mainly western and northern AK, east across Canada, south to northern Mexico east except southeast US.	Still relatively common in some areas. Local threats/declines – do not yet comprise a major conservation problem from a global perspective. Declined in early 1900s due to eradication campaigns. In eastern NA reappearing in some sites in historic nesting range. May be decreasing in the northeastern US, declines in part of range in Canada noted.
Black tern	<i>Chlidonias niger</i>	Widespread distribution and relatively abundant. Loss of breeding habitat; appropriate habitat in MT is patchy.	Abundance unknown. Severely to rapidly declining decline of 30% to >70%. No breeding records for the forest. Special status in several states, (state listed as endangered or threatened, special concern, watch list). Proposed for threatened listing in Canada.
Olive-sided flycatcher	<i>Coturnicops noveboracensis</i>	Large breeding range in wooded areas of Canada, AK, and the western and northeastern US. Winters mtns of SA. In MT breeds throughout mountainous areas of western portion of state.	Total population not known. Declines relatively similar across range, although they appear more severe in the central and eastern regions. Still secure in many areas, but a large significant decline (a loss of 68% from 1966-2000) has occurred in recent decades. Due probably to habitat changes in the breeding range and/or in migration and wintering areas.
Black swift	<i>Cypseloides niger</i>	In MT northwestern portion of state. Migrates south. In Idaho breeding in north fork of Coeur d’Alene river, seen in boundary, Bonner, Shoshone, Clearwater counties.	Large numbers seen in migration, breed over a large area. Breeding sites very localized. Stable, 81-300 occurrences. 10000 to >100000 individuals. 2 confirmed breeding records. Unconfirmed breeding in cabinet mtn range. Apparently secure (unknown). Limited breeding distribution and inaccessible breeding habitat.
Bobolink	<i>Dolichonyx oryzivorus</i>	Breed widely throughout MT. Near Fortine. Southern BC east across southern Canada to NS. South to OR, UT, portions of Midwest and NJ. Winter in central and southern SA.	Still widespread and fairly common, but declining due to changing agricultural practices. Population trend declining (10-30%).
Common loon	<i>Gavia immer</i>	Winters on coast. Breeds Iceland, Greenland, and across Canada and the northern US to Alaska, south to CA, MT ND across to New England. Winters along coasts. In MT breeding range restricted to lower elevation forested glacial lakes in the northwest corner of the state. Considered imperiled in MT. Historically believed to have nested throughout western half of state. Winter along west coast of WA to CA. Northward range contraction documented	Although no precise continent-wide estimate of populations available, some 500000 to 600000 adults probably inhabit the US and Canada. Most in Canada and Alaska. In Canada and Alaska appear to be stable. Large declines in breeding populations in northeastern US. Global population secure; however many local populations are small and isolated and vulnerable to extinction. Several states that supported breeding loons have lost them.

Species common name	Species scientific name	Habitat abundance and distribution	Population abundance and distribution
Harlequin duck	<i>Histrionicus histrionicus</i>	within the last 100-150 years. Pacific population - Alaska and western Canada south to eastern OR, east central CA, ID and WY. Breeding Eurasia and two disjunct regions in NA. Winters Eurasia Aleutian and Pribilof islands to central CA. in MT range is small and fragmented primarily in northwest MT and parts of Yellowstone ecotype. Known to breed on several streams on the forest estimate 30 breeding pairs. Harlequin duck working group	Although globally widespread, Atlantic population may be reaching critically low levels and pacific population has experienced substantial declines. In 1990 identified as potentially imperiled in western MT. By 1991 considered as a candidate for listing on ESA. Both breeding and wintering distribution and abundance appear to be declining in western NA. The pacific NA populations appear to be stable in some areas (ID, MT, WY) and declining in others. Atlantic populations significant decline this century and continues to decline.
White-tailed ptarmigan	<i>Lagopus leucura</i>	Central AK, north Yukon, south to cascade mountains in WA and in rocky mtns from BC and Alberta south to northern NM. In MT alpine and subalpine northwestern portion of state.	
Gray crowned rosy finch	<i>Leucosticte tephrocotis</i>	Breeds western and north central AK, central Yukon, BC and southwestern Alberta south through Cascades Sierra Nevada and Rocky Mtns. To central ID, northwestern Mt.	Populations are large and widespread. Apparently stable.
Lewis's woodpecker	<i>Melanerpes lewis</i>	Large range in western US and adjacent southern Canada but distribution can be spotty. Breeding southern BC, Alberta, MT, southwestern SD and northwestern NE to south central CA central AZ southern NM and eastern CO. winters northern OR, southern ID, central CO south central NE south to northern Mexico. In MT western and southern.	Apparently declining in abundance and may have declined 60% or more since the 1960s. No estimates of population size. Declined in BC by more than 50%. Populations tend to be scattered and irregular and are considered rare, uncommon or irregularly common throughout range. Local abundance may be cyclical or irregular.
Long-billed curlew	<i>Numerius americanus</i>	In MT breeds widely throughout the state, although more common east of the Rocky Mtns. Breeds Southern BC, Alberta, Saskatchewan, Manitoba south to eastern WA, NE CA, NV, UT, CO NM and northern TX east to KA. Winters southern US Mexico etc.	Total population estimated to be 20,000. Population declines in western US are local not widespread. Extirpated from eastern US by cultivation of grassland. Fall populations decimated by hunting.
Flammulated owl	<i>Otus flammeolus</i>	Widespread distribution in western NA. Total population numbers unavailable. Locally common in quality habitat. For the northern Rockies the few available data indicate a significant decline. Breeding southern BC western MT and northern CO south to southern CA, southern AZ southern NM western TX to Mexico. Winters central Mexico. In MT range restricted to western portion of state.	But loss and fragmentation of mature forest habitat suggests that populations are declining. In ID widely distributed throughout montane forests. No trend data available. Probably decline in population during this century, although species is poorly monitored (PIF). Population data inadequate for trend assessment. Low reproductive rate.
Black-backed woodpecker	<i>Picoides arcticus</i>	In MT northwestern portion of the state. Habitat severely reduced	
Boreal chickadee	<i>Poecile hudsonica</i>	Western and central AK to Saskatchewan and Labrador south to WA, MT, MN and northern New England. In MT northwestern portion of state.	Three confirmed breeding records including Lincoln county. Also overwintered in Lincoln county.
Pygmy nuthatch	<i>Sitta pygmaea</i>	Southern BC northern ID, western MT central WY, and southwestern SD south to northern Baja CA, southern NV central and southeastern AZ, central NM, extreme western TX. Heterogeneous stands of a mixture of well-spaced old pines and vigorous trees of intermediate age.	Known from breeding record near Fortine. In northern ID occur as common resident. BBS data – statistically significant declines in ID 1966-2004 and more recent period 1980-2004.
Brewer's sparrow	<i>Spizella brewerii</i>	Breed widely throughout MT. Fairly large range in western north America.	Declining in many areas of the US. Significant decline throughout range during last 10-20 years.
Red-naped sapsucker	<i>Sphyrapicus nuchalis</i>	Breeding rocky mountain region from south central BC southwestern Alberta and western MT, south east of cascades to east central CA, southern NV central AZ southern NM and extreme western TX. Winters southern CA, NV, AZ Nm south to Mexico.	Populations appear to be stable to increasing overall with areas of local declines. Related to loss of cottonwood and aspen nesting habitats.
Williamson's sapsucker	<i>Sphyrapicus thryoideus</i>	Breeds southern BC, ID, western MT and WY, south in mtns to northern and east central CA, central AZ southern NM and northern Baja CA. winters south to Baja. .	Stable to increasing.
Great gray owl	<i>Strix nebulosa</i>	Large circumboreal range. Breeds central AK to northern Ontario south locally in mountains to CA, ID, MT WY across to northern MN and south-central Ontario. In MT limited to mountainous region, western MT.	No decline evident in vast majority of the range, apparently stable but few data available for most areas. Usually uncommon but may be locally abundant.
Northern hawk owl	<i>Surnia ulula</i>		
Mammals -			
Rocky Mtn elk	<i>Cervus canadensis</i>	Formerly widespread in Canada and the US, now mostly restricted to the west, with small reintroduced populations elsewhere.	
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	Throughout western NA from BC south to Mexico, east to the Black Hills. Isolated populations in gypsum caves and limestone regions. In MT range unknown.	Apparently secure in western US and Mexico. Quite rare in other parts of the range. Very little known in MT about distribution and relative abundance. Abundant in western US and Mexico. Rare in east and northwest. Two eastern subspecies listed as endangered.
North American	<i>Gulo gulo</i>	Remote wilderness from Labrador east to Alaska, and south to mountainous	Populations in Canada and Alaska are probably in good condition. Status not well known in many portions of the

Species common name	Species scientific name	Habitat abundance and distribution	Population abundance and distribution
wolverine		regions of western US.	range. Total population size unknown. Outside of Alaska, ID and MT likely have the largest populations in the US (perhaps a few hundred in each state). May be fewer than 750 in the contiguous US. Presently extirpated from most of the southern part of the historical range including all of the northcentral and northeastern US and most of southeastern and south central Canada. Extirpated from most of range in contiguous US. Promising signs of semi-recovery in selected western states. Global long term trend – extirpated from large portions of their range in southern and eastern Canada and now considered to be endangered. Numbers declined steadily in US in latter half of 1800s. In MT rebounding from near extinction from 1920-1940. Declining in southern Mtns of BC, may be extirpated on Vancouver Island, declining throughout Alberta. Rare and possibly declining in southern boreal forest of Saskatchewan. Still trapped in MT. Poor breeding success, high juvenile mortality, and slow sexual maturity.
Fisher	<i>Martes pennanti</i>	Large range in northern NA. Quebec, maritime provinces and New England west across boreal Canada to SE Alaska, south in western Mtns to UT, WY, ID, and CA.	Extirpation from southern portion of range, due mainly to habitat loss. Adequate population data are unavailable but the species currently is regarded as secure. West coast dps – threatened with extirpation due to size and isolation. Warranted but precluded from ESA listing by higher priority actions. Total fisher population size unknown. Extinct in MT by the 1930s. Reintroductions on the forest on several occasions, did not do well. Current population unknown. Global long term trend -substantial decline. Recovered in some of the central and eastern portions of their historic range through reintroductions etc. Still absent from former range southeast of the Great Lakes.
Fringed myotis	<i>Myotis thysanodes</i>		
Mountain goat	<i>Oreamnos americanus</i>	Mtns of northwestern NA from southeast AK to WA, western MT and southern ID. Introduced in other states and areas. Southern portion of range.	On the forest 2 small populations, one in wilderness area.
Bighorn sheep	<i>Ovis canadensis</i>	Still widespread in western NA from Canada to Mexico, although populations are much smaller than in the past. Southwestern BC and Alberta south through rocky Mtns, Sierra Nevada, and desert Mtns to Baja CA.	CA peninsular populations listed as endangered. Sierra Nevada population listed as endangered. Several subspecies probably <i>O. Canadensis canadensis</i> . In 1991 total population estimated at 71,000 (38000 Rocky Mtn sheep). No numbers for total population at this time. In 1915 there were only 1775-3400 rocky Mountain bighorn sheep in Canada. Increases occurred but devastating die offs occurred as domestic sheep were introduced. By 1960 US populations was 15,000-18,000. Long term trend substantial decline (decline of 50-75%). short term trend - recent trend seem more or less stable. Long term trend great decline, from approximately 15,000-200,000 before 1800 to a few thousand at the turn of the century. Local extirpations and reintroductions in many parts of range. Distribution naturally fragmented due to discontinuity of habitat.
Northern bog lemming	<i>Synaptomys borealis</i>	Widespread distribution extending from AK to Labrador and south to portions of the northern US. Populations are localized. Population sizes are not known for any location. Nowhere does it appear common.	In MT southern margin of global distribution in the Rocky Mtns. 18 sites mainly on FS lands.
Fish			
Torrent sculpin	<i>Cottus rhotheus</i>		
Inland redband trout	<i>Oncorhynchus mukiss gairdneri</i>		
Lake trout	<i>Salvelinus namaycush</i>		
Arctic grayling	<i>Thymallus arcticus</i>		
Invertebrates - insects			
Butterflies			
Western sulphur	<i>Colias occidentalis</i>	limited range	local and uncommon in much of its range
White admiral	<i>Limenitis arthemis</i>	New England south to central Florida, west to MT and AZ, Alaska to BC.	Extremely widespread and abundant. Globally secure (G5)
Indra swallowtail	<i>Papilio indra</i>	Widespread in western US. Some subspecies are very localized.	Globally secure (G5)
Dragonflies			
Lance-tipped darner	<i>Aeshna constricta</i>	Widespread, most Canadian provinces and US states.	Globally secure (G5)
Zigzag darner	<i>Aeshna sitchensis</i>	AK, all Canadian provinces and northern US states.	Globally secure (G5)
Subarctic darner	<i>Aeshna subarctica</i>	AK, all Canadian provinces, and northern US states	Globally secure (G5). Widespread across northern Eurasia and North America.
Boreal whiteface	<i>Leucorrhinia borealis</i>	All Canadian provinces, south to UT and CO, WA, ND and MN.	Globally secure (G5)
Ringed emerald	<i>Somatochlora hudsonica</i>	AK, all Canadian provinces, south to CA, including WA, OR, ID, and MT.	Globally secure (G5)
Hudsonian emerald	<i>Somatochlora walshii</i>	AK, all Canadian provinces, MT, WY, CO.	Globally secure (G5)
Brush-tipped emerald	<i>Somatochlora intricatus</i>	All northern US states and adjacent Canadian provinces.	Globally secure (G5)
Red-veined meadowhawk	<i>Sympetrum madidum</i>	Western Canadian provinces and US states south to CA, east to IA and MO.	No information available in MNHP or NatureServe.
Mayflies			
Caenis youngi	<i>Caenis youngi</i>	NW territories and Yukon south to WY, IA, and MI.	No information available in MNHP or NatureServe.

Species common name	Species scientific name	Habitat abundance and distribution	Population abundance and distribution
Stoneflies			
Utacapnia columbiana	<i>Utacapnia columbiana</i>	AK, MT, Yukon, and Manitoba.	No information available in MNHP or NatureServe.
Invertebrates - Mollusks			
Striate disc	<i>Discus shimekii</i>	Distribution data known to be incomplete or has not been reviewed. NatureServe. Widely distributed in Rocky Mountains of AZ, NM, UT, CO, and WY. Populations also extant in Black Hills. Also found north of Montana in the Canadian Rockies.	No information available in MNHP or NatureServe. Globally secure (G5)
Robust lancetooth	<i>Haplotrema vancouverense</i>	Distribution data known to be incomplete or has not been reviewed. BC, AK south to CA, ID and MT.	No information available in MNHP or NatureServe. Globally secure (G5)
Pale jumping slug	<i>Hemphillia camelus</i>	WA, ID, AB, BC.	No information available in MNHP or NatureServe.
Western pearlshell mussel	<i>Margaritifera falcata</i>	AK, south to CA, east to UT, WY and MT.	Widespread and maintains hundreds of occurrences with perhaps hundreds of thousands of individuals, but is declining in terms of area occupied and number of sites and individuals. Global short term trend – declining (10-30%), likely extirpated from parts of OR and UT. Global long term trend – moderate decline (25-50%). Now extirpated along much of the Snake and Columbia rivers, and remnant populations show few signs of reproduction. Widespread declines, formerly very abundant.
Fir pinwheel	<i>Promenetus exacuus megas</i>	Known from extreme northeastern OR, extreme NE and SE WA, northern ID, and NW MT. Widespread and somewhat common in northern ID and northwest MT with several new locations for 2005. Nowhere abundant. Most old ID sites unsuccessfully checked, with species being extirpated in all but one. Distribution data known to be incomplete or not been reviewed.	Known to survive in several of original sites, extirpated in others. Current distribution and abundance unknown. Probably declining in most sites, other sites remain viable. Species was probably once very common and widespread, it has lost most of its habitat and most historic sites. But a fair number of other sites probably remain viable.
Reticulate tailedropper	<i>Prophysaon andersoni</i>	BC, AK south to CA, ID and MT.	Globally secure (G5).
Sheathed slug	<i>Radiodiscus abietum</i>	ID, MT WA.	Local endemic, loss of historic sites and loss of most habitat. Global short term trend (10-30%) once very common and widespread, has lost most of its habitats and most historic sites due to threats.
Invertebrates - other			
A Freshwater sponge	<i>Heteromeyenia baileyi</i>	MT. Known only from Lincoln county. Incomplete.	No information available in MNHP or NatureServe.

The forest has very little information on population numbers for most species. Information from other sources is used to determine numbers or trends in populations. (Montana fish, Wildlife and Parks, Montana Natural Heritage Program, etc.).

Appendix D: Amphibian Group¹⁹

Planning Zone: Kootenai/ Idaho Panhandle

Introduction

This species group is comprised of amphibians, a cold blooded species group that is dependent upon aquatic or moist habitats. Amphibians include two major groups: the salamanders, and the frogs and toads (USGS 2004).

Information on amphibian status, distribution, life history and management in Montana is described in Maxell et al. (2007). Additional information is found in the Montana Natural Heritage Program; Montana Fish, Wildlife and Parks; and NatureServe databases, as well as such databases as Partners in Amphibian and Reptile Conservation (PARC); <http://www.parcplace.org> and <http://www.globalamphibians.com>.

Observation data and use on the forests is based on formal surveys conducted throughout the forest (Werner and Reichel 1994, IPNF Herp Database). On the Kootenai National Forest additional site specific surveys were conducted in the Chain of Lakes area (Hendricks 2000) and in a location along Highway 2 (Maxell 2005). Formal surveys (based on protocol developed by the MNHP) are also conducted periodically by the forests. Most of the amphibian occurrence data comes from district biologist observation records and forest/museum historical data and other agencies (i.e. MDFWP, MNHP, INHP).

Nine species of amphibians are known to occur on the Kootenai National Forest, and a tenth species (wood frog – *Rana sylvatica*) is thought to possibly occur (Maxell et al. 2007), although its presence has not been confirmed. One non-native species, the bull frog (*Rana catesbeiana*) is known to occur in several locations, all on private land, on the south end of the forest. Three of these species are considered species of interest on the forest; the northern leopard frog (*Rana pipiens*) is rare and known to occur only in the Tobacco Valley area on the forest, the Coeur d'Alene salamander (*Plethodon idahoensis*) is known from several small and isolated areas of the forest, and the western toad (*Bufo boreas*) is the most common and widespread of these species on the forest. Many of the other species of amphibians found on the forest occur in the same or similar habitat as these three species and would benefit from management for this group.

The Idaho Panhandle National Forest supports eight native amphibians and one non-native amphibian, the bull frog (*Rana catesbeiana*). One native amphibian is a species of concern on the forest, the Idaho giant salamander (*Dicamptodon aterrimus*). Two amphibian species are considered species of interest on the forest; the Coeur d'Alene salamander (*Plethodon idahoensis*) and the western toad (*Bufo boreas*). Many of the other species of amphibians found on the forest occur in the same or similar habitat as these three species and would benefit from management for this group.

¹⁹ The majority of this diversity analysis was done while the forests were working under previous planning rules. The appendices contain terminology from the 2008 planning rule directives, which is no longer in effect; however, the concepts are still valid: The forests conducted an analysis that considered the species that occurred on the forests, determined which of those species had conservation needs, narrowed down which species could be affected by management on the forests, screened the risks to species through a coarse filter (ecosystem diversity) and developed additional plan components where necessary through a fine filter approach (species diversity).

Table 1. Status and Distribution of Species included in the Amphibian Group

Common Name	Scientific Name	Status	Forest		Species Category* (TEP / SOC / SOI)
			IPNF	KNF	
Idaho Giant Salamander	<i>Dicamptodon aterrimus</i>		X		SOC
Coeur d'Alene Salamander	<i>Plethedon idahoensis</i>		X	X	SOI
Western Toad	<i>Bufo boreas</i>		X	X	SOI
Northern Leopard Frog	<i>Rana pipiens</i>			X	SOI

Information on the Amphibian Group

Amphibians are generally considered an indicator of ecosystem health because they are sensitive to disturbance (deMaynadier and Hunter 1995, Welsh and Droege 2001). Amphibians require water or moist environments, are susceptible to exotic species, and are associated more with substrates such as down wood or talus than with vegetation types or stages (USDA, Forest Service 1996). Amphibians have complex life histories that require a complex set of habitats connected by suitable migratory corridors (Maxell et al. 2007). At higher latitudes all amphibians require suitable breeding/rearing, foraging, and overwintering habitats in order to survive (Ewert 1969 in Maxell et al. 2007). Many amphibians require warmer lentic waters with emergent vegetation for breeding/rearing habitat, riparian areas that support large insect populations for foraging habitat, and terrestrial burrows, forest litter, or deep waters that are unlikely to freeze for overwintering habitats (Stebbins and Cohen 1995 in Maxell et al. 2007).

Evidence has accumulated during the past few decades that amphibians around the globe may be declining at a higher rate than other taxonomic groups (Pechmann and Wilbur 1994 in Maxell et al. 2007). In North America, amphibian declines have been most numerous in the West and have occurred among species that occupy a variety of elevations, habitat types and disturbance regimes (Corn 1994 in Maxell et al. 2007). Some amphibian populations in Montana have recently, or are currently, undergoing declines and extirpations (MNHP 2000). Direct and indirect impacts from a variety of human activities may affect the viability of amphibian populations in Montana.

Table 2 displays the amphibian species of interest and the habitats where they typically occur (Maxell et al. 2007).

Table 2. General habitat associations for amphibians (Maxell et al. 2007)

Habitat type – aquatic habitats	Species typically present in the habitat type
Temporary ponds and wetlands	Western toad
Permanent lakes and ponds	Northern leopard frog, Western toad
Riverine and riparian habitats	Northern leopard frog, Western toad, Idaho giant salamander
Fractured rock sites with subterranean water near streams, springs, and spray zones.	Coeur d'Alene salamander
Habitat type – terrestrial habitats	Species typically present in the habitat type
Open forest, shrubland, and grassland habitats	Western toad

Individual Species Descriptions

Idaho Giant Salamander (*Dicamptodon aterrimus*)

(Idaho Panhandle National Forest only)

Idaho giant salamander population biology, ecology, habitat description and relationships identified by research are described in Nussbaum et al. (1983) and Maxell et al. (2007).

Status

Globally the Idaho giant salamander is classified as G3 (vulnerable). It is ranked as S3 in Idaho and S2 in Montana. The Idaho giant salamander is Forest Service Northern Region Sensitive Species.

Distribution

The Idaho giant salamander occurs in portions of northern and central Idaho, including parts of the Coeur d'Alene, Clearwater, and Salmon River drainages (Nussbaum et al. 1983). Elsewhere the species has been reported to occur only in extreme western Montana (not known to occur on the Kootenai N.F.) (Reichel and Flath 1995). The southern-most populations, found in the Salmon River drainage, appear to be isolated from populations to the north by approximately 40 kilometers.

Population sizes and trends

Populations of Idaho giant salamander in the Clearwater and South Fork Salmon River drainages may be declining. Carstens et al. (2005) were unable to detect the species at seven historically occupied sites.

Habitat and Life History Needs

Larvae usually inhabit clear, cold streams, but are also found in mountain lakes and ponds. Adults are found in humid forests under cover such as rocks and logs, near mountain streams or rocky shores of mountain lakes (Stebbins 1985). Populations are associated with habitat in mesic coniferous forests. Adults are terrestrial and seek cover under logs, bark, rocks, and other surface debris, most often in the riparian zones of streams and lakeshores but also in other moist upland environments.

Idaho giant salamanders migrate between aquatic breeding and terrestrial nonbreeding habitats. Eggs usually are laid in headwaters of mountain streams. Undercut stream banks and other structure at the terrestrial-aquatic interface serve as oviposition sites (Nussbaum et al. 1983). Larvae are aquatic, occurring in stream pools and lakes under rocks or plant debris. Larval densities in streams are positively correlated with cover availability (Carstens et al. 2005).

Coeur d'Alene salamander (*Plethodon idahoensis*)

(Kootenai and Idaho Panhandle National Forests)

Coeur d'Alene salamander population biology, ecology, habitat description and relationships identified by research are described in Cassirer et al. (1994), Groves et al. (1996) and Maxell et al. (2007).

Status

Globally the Coeur d'Alene salamander is classified as G4 (apparently secure) and nationally as N3 (at moderate risk) in both the U.S. and Canada. It is ranked as S2 in Montana and S3 in both Idaho and British Columbia, Canada (MNHP 2008). The Coeur d'Alene salamander is Forest Service Northern Region Sensitive Species.

Distribution

The species maintains a disjunctive distribution in northern Idaho, western Montana, and southeastern BC (Wilson et al. 1997 in IUCN 2009, NatureServe 2008). The majority of the species range is found on the Kootenai and Idaho Panhandle National Forests. This species is a remnant of a once diverse plethodontid salamander fauna in the central Rocky Mountains that was likely reduced by climatic changes over the last 10-14 million years (Nussbaum et al. 1983 in IUCN 2009). Most known U.S. sites (87%) occur on lands administered by the U.S. Forest Service, but these data are biased by the fact that most surveys have been conducted on NFS lands (Ibid).

Population sizes and trends

Overall the global population trend is unknown (<http://www.globalamphibians.org>, 2008). The total number of adults is also unknown but probably exceeds 10,000 (NatureServe 2009). Population declines or extinctions have not yet been documented in Montana or Idaho; however, some populations continue to be vulnerable to highway construction, and most occur at elevations and in forest types where timber harvest is a common activity (MNHP 2008). Population sizes are difficult to measure and no estimates are available (MNHP 2008) i.e. surveys are generally conducted at night, when salamanders are active.

Habitat and Life History Needs

Montana and Idaho populations of Coeur d'Alene salamanders are found primarily in talus areas along splash zones of creeks, or with seeps running through (Maxell et al. 2007). 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).

This species is an invertivore. When above ground, Coeur d'Alene salamanders feed primarily on insects and other invertebrates, including millipedes, mites, spiders, harvestmen, snails, and segmented worms (Wilson and Larsen 1988). They appear to be opportunistic feeders and generally restrict foraging activities to moist spray zones, seeps, or streamside rocks and vegetation, although they may venture beyond these areas during rainy periods. The diet is most similar to other salamanders that occupy semi-aquatic habitats (MNHP 2007).

Western toad (*Bufo boreas*)

(Kootenai and Idaho Panhandle National Forests)

Western toad ecology, biology, habitat use, status and conservation are described and summarized in Maxell et al. (2007) and Reichel and Flath (1995).

Status

The western toad is currently recognized as two subspecies with *Bufo boreas boreas* currently recognized as occurring in Montana and Idaho (Maxell et al. 2007). However, mitochondrial DNA analysis indicates that four main phylogenetic groups exist and each may warrant recognition as separate species (Maxell et al. 2007).

Globally western toads are classified as G4 (apparently secure) and nationally as N4 (apparently secure) in both the U.S. and Canada. Throughout the states in which it occurs its rank varies widely from S1 (at high risk) to S4 (uncommon but not rare and usually widespread). It is ranked as S2 in Montana and is not ranked in Idaho. Western toad is a Forest Service Northern Region sensitive species.

Distribution

This species occurs along the Pacific coast of North America from southern Alaska to Baja California, and ranges eastward to the Rocky Mountains of west central Alberta, Montana, Idaho, Wyoming, Utah, Colorado, and (formerly) northern New Mexico (NatureServe 2009). In Montana, the western toad is found throughout the mountains and intermountain valleys of the western third of the state on both sides of the Continental Divide. In Idaho there are records throughout the state. They are considered fairly common and well distributed throughout their range in both Montana and Idaho as well as on the forests.

Population sizes and trends

The total adult population size is unknown likely exceeds 100,000 (IUCN 2009). Within the last 25 years populations of western toads have undergone crashes in Colorado, Utah, southeast Wyoming, and New Mexico (Corn et al. 1997, Loeffler 1998 in Maxell et al. 2007). *Bufo boreas* is now listed as endangered by the State of Colorado and considered a candidate species which is warranted but precluded for federal listing by the USFWS in the southern Rocky Mountains.

Surveys in the late 1990s revealed that toads were absent from a large number of their historic localities in the northern Rocky Mountains and that although they were still widespread across the landscape they occupied an extremely small proportion of suitable habitat (less than 10% in most cases, but usually less than 5%) (Werner and Reichel 1994, 1995; Reichel 1995, 1996, 1997b; Hendricks and Reichel 1996, Werner et al. 1998 all in Maxell et al. 2007). Overall population trend is considered to be decreasing (IUCN 2009).

Population sizes or trends are unknown for Montana (Maxell et al. 2007). The boreal toad was considered the most abundant amphibian of the western third of Montana in previous decades (Maxell 2003) and is still encountered widely and frequently but not commonly, and is no longer ranked as the most abundant amphibian (MNHP 2008). Numerous surveys since the early 1990s indicate this species has experienced regional population declines in the state (MNHP 2008). The population size is unknown and direct measures of population trend on the forest are not available. However, surveys conducted between 1993 and 1995 located 63 adults. Of the 134 wetland sites surveyed during the 1993 and 1994 field seasons, 10 had evidence of successful breeding (Werner and Reichel 1994) and five additional sites were confirmed during the 1995 field season (Werner and Reichel 1996).

Habitat and Life History Needs

Habitats used by western toads in Montana and Idaho 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. Normally toads 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. Boreal toads are known to migrate between aquatic breeding and terrestrial nonbreeding habitats (MNHP 2008). 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 (MFWP 2005).

Northern leopard frog (*Rana pipiens*)

(Kootenai National Forest only)

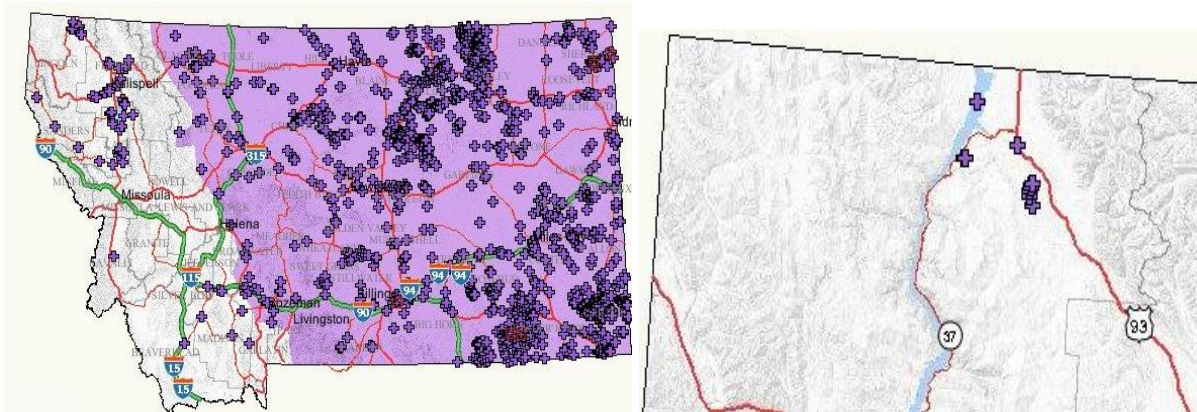
Northern leopard frog ecology, biology, habitat use, status and conservation identified by research are described in Reichel and Flath 1995, Werner and Reichel 1994, Werner and Reichel 1996, Johnson 1999, Maxell 2000, and Werner et al. 2004. They are incorporated by reference and are found in the project record.

Globally the northern leopard frog is classified as G5 (secure) and nationally as N5 (secure) for both the U.S. and Canada (NatureServe 2008). Throughout the states in which it occurs its rank varies widely from S1 (at high risk) to S5 (common, widespread and abundant). It is ranked as S1S3 in Montana and S3 in Idaho (NatureServe 2009). It is listed as a Species of Greatest Conservation Need (Tier 1) in Montana and has been on the regional foresters list of sensitive species for a number of years.

Status and distribution

This species is known from the Great Slave Lake and Hudson Bay, Canada, south to Kentucky and New Mexico. It has a spotty distribution in the west where it has been introduced in many localities (NatureServe 2009). The northern leopard frog's historical distribution is irregular but includes western Montana except in the Big Hole area, as well as the tip of the Idaho Panhandle and southeast and parts of southwest Idaho (Stebbins 1985).

In Montana the species range includes the eastern two thirds of the state (see map below), however, there are 2 disjunct populations that occur in the western portion of the state, including the forest see map on right below). On the forest northern leopard frogs are documented as occurring only in the Tobacco Valley area, in several small populations.



Population sizes and trends

Overall population size is unknown although in North America there are thousands of populations (NatureServe 2009). The total adult population is probably in the hundreds of thousands or millions (Ibid). Over the last few decades northern leopard frog populations have undergone declines and extinctions across much of the western portion of their range (Stebbins and Cohen 1995). Overall population trend is considered to be decreasing (globalamphibians.org 2008). It is still widespread and common in many areas, especially in lowland areas, but many other populations appear to have declined, especially in the Rocky Mountains of Colorado, Wyoming, and Montana where the species no longer is extant in most localities where it historically occurred (Corn and Fogleman 1984, Core et al. 1989, J. Reichel, unpublished map 1996 all in IUCN 2009). It has nearly disappeared from the Greater Yellowstone ecosystem (Peterson 1995 in IUCN 2009), is apparently extirpated from most of its historical range in Washington (Leonard et al. 1999 in IUCN 2009), has not been observed in recent years in the few historical localities in Oregon (Csuti et al. 1997 in IUCN 2009) and local extirpations have been reported for Alberta (Russell and Bauer 1993 in IUCN 2009) and British Columbia (Orchard 1992 in IUCN 2009).

In central Montana, out of 47 historic sites revisited in the mid-1990s, northern leopard frogs were only found at 9 (19%), (Reichel 1995a). Recent extirpations are reported in all of western Montana and across much of the neighboring states (Werner and Reichel 1994; Reichel and Flath 1995) (MFWP 2005). Most northern leopard frog populations in western Montana apparently became extinct sometime in the late 1970s or early 1980s when virtually no amphibian studies were being conducted in the state (Maxell 2000, page 142). Although historically known to occur in several locations on the forest, most populations of northern leopard frog appear to have been extirpated (MFWP 2005). Only two population centers are now known to exist in western Montana, one of which is on the forest in the Tobacco Valley (Werner et al. 1998 in Maxell et al. 2007).

Habitat and Life History Needs

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, warmwater 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 (MFWP 2005).

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 (MFWP 2005).

Key Stressors Affecting Amphibians

Over two hundred amphibian species around the world, including several in Montana and Idaho, are known or suspected to have undergone declines (Werner et al. 2004). Biologists have found that multiple causes are involved. Overall, the stressors and how they affect the species are complex.

Major factors known or hypothesized to have caused amphibian declines include habitat loss and alteration, pathogens and diseases, introduction of exotic (non-native) species, chemical pollutants, global climate change, and increased ultraviolet radiation. In many areas it is likely that these factors may be operating synergistically to cause declines.

Maxell et al. (2007) identified the following nine major risk factors that may affect the viability of amphibian populations:

1. Timber harvest
2. Grazing
3. Fire and fire management activities
4. Non-indigenous species and their management
5. Road and trail development and on and off road vehicle use
6. Development and management of recreational facilities and water impoundments
7. Harvest and commerce, Unsustainable use. Illegal collecting
8. Habitat fragmentation and metapopulation impacts.
9. Lack of information/research needs

Most these risk factors apply to management activities on National Forest lands. Factors outside Forest Service control include non-indigenous species and their management, the development of private lands, climate change, harvest and commerce, and lack of information/research needs.

These risk factors were taken into account by the forests when developing their plan components.

Plan Components that Contribute to Sustaining the Amphibian Group

Note: This section has been updated with components from the revised forest plans and is found in the main body of "Providing for Ecological Sustainability in the Revised Forest Plans".

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Appendix E: Cold Water Group²⁰

Planning Zone: Kootenai/ Idaho Panhandle

Introduction

The Cold Water Group includes native fish and aquatic invertebrates. The Cold Water Group does not include amphibians, which are addressed in a separate narrative.

The Directives (FSH 1909.12 Chapter 40) provide an opportunity to use surrogate species to represent an ecological condition as identified in a Forest or Grassland Plan. Native fish species are considered useful surrogates for aquatic invertebrates. Lee et al. (1997) in the Interior Columbia Basin assessment provided several reasons for focusing on salmonid species as cold water biota indicators. These include:

- More is known about them, and therefore are more likely to discern important environmental relationships.

- They are widely distributed, which allows for broad-scale comparisons.

- They act as predators, competitors, and prey for a variety of other aquatic and terrestrial animals.

 - Thus they are likely to influence the structure and function of aquatic ecosystems.

- They are potentially more sensitive to disturbance than other species groups.

After careful consideration, Region 1 aquatic specialists have decided that management considerations implemented for protection and restoration of riparian habitats, aquatic habitats, and native fish species should provide for aquatic invertebrate species as well. Therefore the aquatic specialists are including all these species in one group, the Cold Water Group. A critical assumption to including aquatic invertebrates in the cold water grouping is that species in this group generally have similar ecological requirements and are equally susceptible to natural or human disturbances. Given current knowledge, this is a reasonable assumption; however, life history information on specific aquatic invertebrate species is limited. If new information becomes available regarding unique habitat needs for specific species, additional analysis and plan components may be needed.

The ecosystem diversity approach is based on providing habitat for the vast majority of cold water aquatic-dependent species. Given the strong linkage between aquatic physical and biological systems, including species and their habitat quality and quantity (Gregory et al. 1991, Vannote et al. 1980), this is a valid approach to supporting sustainability. However, where risks or threats to species are not habitat related (e.g. where competition from non-native fish is the primary factor influencing native fish populations, Rieman et al. 2006), providing for protection and restoration of habitat is unlikely to provide for sustainable native fish populations.

Status of the Species in the Cold Water Group

The Cold Water Group contains fish and invertebrates. Additional information on distribution, habitat needs, and population data for each species are available from the Montana Natural Heritage Program;

²⁰ The majority of this diversity analysis was done while the forests were working under previous planning rules. The appendices contain terminology from the 2008 planning rule directives, which is no longer in effect; however, the concepts are still valid: The forests conducted an analysis that considered the species that occurred on the forests, determined which of those species had conservation needs, narrowed down which species could be affected by management on the forests, screened the risks to species through a coarse filter (ecosystem diversity) and developed additional plan components where necessary through a fine filter approach (species diversity).

Montana Fish, Wildlife and Parks; Idaho Natural Heritage Program; Idaho Department of Fish and Game, and the NatureServe database.

Table 1. Status and Distribution of Species included in the Cold Water Group

Common Name	Scientific Name	Status	Forest		Species Category* (TEP / SOC / SOI)
			IPNF	KNF	
Bull Trout	<i>Salvelinus confluentus</i>	T	X	X	TEP
Kootenai River White Sturgeon	<i>Acipenser transmontanus</i>	E	X	X	TEP
Westslope Cutthroat Trout	<i>Oncorhynchus clarki lewisi</i>	G4T3	X	X	SOC
A Agapetus Caddisfly	<i>Agapetus montanus</i>	G3		X	SOC
Alberta Springfly (Stonefly)	<i>Setvena bradleyi</i>	G3	X		SOC
Inland Redband Trout	<i>Oncorhynchus mykiss gairdneri</i>	S1 (MT) S2 (ID)	X	X	SOI
Autumn Springfly (Stonefly)	<i>Pictetiella expansa</i>	S2 (ID)	X		SOI
Western Pearlshell	<i>Margaritifera falcata</i>	S2(MT) S3 (ID)	X	X	SOI

Habitat and Life History Needs

Cold Water Group –General

Species in the Cold Water Group rely on a variety of aquatic and riparian habitat elements to complete their life cycles. Key aquatic and riparian ecosystem characteristics identified in the plans focus on those characteristics that together provide for aquatic ecosystem and watershed integrity. Riparian ecosystem characteristics are included because riparian areas form an ecotone or interface between the terrestrial and aquatic ecosystems (Gregory et al. 1991) that are important for many habitat characteristics.

On a very basic level the Cold Water Group requires stream environments that have clean, cold water. A closer look reveals that to provide clean, cold water aquatic and riparian features need to be intact and functioning. Key aquatic and riparian features include characteristics such as shade, woody debris, soil quality, ground cover, riparian vegetation, water temperature, substrate composition, water chemistry, and amount & timing of water flow. These characteristics function in complex, interactive relationships that can be difficult to restore if altered from their natural regimes.

In stream environments, native fish need diverse aquatic habitats such as pools, riffles, and runs to provide for their various life stage needs. For spawning and egg incubation native fish need cold water and clean gravels. Behnke (2002) provides detailed descriptions of habitat needs for specific native fish and Stagliano et al. (2007) provides information on the habitat needs for aquatic macroinvertebrates on USFS Northern Region lands.

Cold Water Group – Species

Bull Trout (*Salvelinus confluentus*) - Kootenai and Idaho Panhandle National Forests

Status of the Species

The bull trout in the coterminous United States was listed as threatened on November 1, 1999 (USDI, Fish and Wildlife Service 1999a). Earlier rulemakings had listed the Columbia River distinct population segment (DPS) of bull trout as threatened (USDI, Fish and Wildlife Service 1998b). The Columbia River DPS occurs throughout the entire Columbia River basin within the United States and its tributaries, excluding bull trout found in the Jarbidge River, Nevada. The DPS serves as an interim recovery unit in the absence of an approved recovery plan (USDI, Fish and Wildlife Service 2008).

Critical habitat has been designated for bull trout (USDI, Fish and Wildlife Service 2005); however, none is designated on NFS lands.

Distribution

Bull trout occur in the northwestern portion of North America from Nevada to the Yukon Territory (Behnke 2002). Bull trout are native to the streams and rivers within the Columbia River Basin in western Montana and Idaho. Bull trout population on the Kootenai and Idaho Panhandle National Forests are included in the Columbia River distinct population segment.

The Columbia River bull trout distinct population segment is represented by relatively widespread populations that have declined in overall range and numbers of fish. There have been numerous local extirpations reported throughout the Columbia River basin. In Idaho, for example, bull trout have been extirpated from 119 reaches in 28 streams (USDI, Fish and Wildlife Service 2002). A majority of Columbia River bull trout occur in isolated, fragmented habitats that support low numbers of fish and are inaccessible to migratory bull trout. The few remaining bull trout “strongholds” in the Columbia River basin tend to be found in large areas of contiguous habitats in the Snake River basin of central Idaho mountains, upper Clark Fork and Flathead Rivers in Montana, and several streams in the Blue Mountains in Washington and Oregon.

Habitat and Life History Needs

Bull trout have more specific habitat requirements than most other salmonids. Habitat components that influence bull trout distribution and abundance include water temperature, cover, channel form and stability, substrate for spawning and rearing, and migratory corridors. Bull trout are found in colder streams and require colder water than most other salmonids for incubation, juvenile rearing, and spawning. Spawning and rearing areas are often associated with cold-water springs, groundwater infiltration, and/or the coldest streams in a watershed.

Throughout their lives, bull trout require complex forms of cover, including large woody debris, undercut banks, boulders, and pools (USDI, Fish and Wildlife Service 2002). Bull trout exhibit three life history types in Idaho: adfluvial, fluvial, and resident, all which require cold water temperatures <60°F during portions of their life cycle to persist. Bull trout are opportunistic feeders with food habits primarily a function of size and life-history strategy. Resident and juvenile migratory bull trout prey on terrestrial and aquatic insects, macrozooplankton and small fish (Donald and Alger 1993). Adult migratory bull trout are primarily piscivorous, known to feed on various fish species (Fraley and Shepard 1989).

For spawning and early rearing, bull trout require loose, clean gravel relatively free of fine sediments. Bull trout typically spawn from August to November during periods of decreasing water temperatures. However, migratory bull trout frequently begin spawning migrations as early as April, and have been known to move upstream as far as 155 miles to spawning grounds (Fraley and Shepard 1989). Because bull trout have a relatively long incubation and development period within spawning gravel (greater than 200 days), transport of bedload in unstable channels may kill young bull trout. Bull trout use migratory corridors to move from spawning and rearing habitats to foraging and overwintering habitats and back. Different habitats provide bull trout with diverse resources, and migratory corridors allow local

populations to connect, which may increase the potential for gene flow and support or refounding of populations.

Maintaining bull trout habitat requires stream channel and flow stability (Rieman and McIntyre 1993). Juvenile and adult bull trout frequently inhabit side channels, stream margins, and pools with suitable cover (Sexauer and James 1997). These areas are sensitive to activities that directly or indirectly affect stream channel stability and alter natural flow patterns. For example, altered stream flow in the fall may disrupt bull trout during the spawning period and channel instability may decrease survival of eggs and young juveniles in the gravel during winter through spring (Pratt 1992, Pratt and Huston 1993).

In summer, key aquatic habitat elements for bull trout include: (1) spawning habitat with water quality and quantity (including flow regimes) conditions and substrates favorable to incubation and larval development; (2) rearing habitat with water quality (including temperature conditions) and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; (3) rearing habitat with foraging to support juvenile development; (4) cover habitat, including shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks; and (5) migration corridors for adults and juveniles free of obstruction and excessive predation with favorable water quantity and quality conditions.

Bull Trout Core Areas

The draft recovery plan (USDI, Fish and Wildlife Service 2002) identified a bull trout core area as the closest approximation of a biologically functioning unit for bull trout. By definition, a core area includes a combination of core habitat (*i.e.*, habitat that could supply all elements for the long-term security of bull trout) and a core population (a group of one or more local bull trout populations that exist within core habitat) constitutes the basic unit on which to gauge recovery (USDI, Fish and Wildlife Service 2002).

Core areas require both habitat and bull trout to function, and the number and characteristics of local populations inhabiting a core area provide a relative indication of the core areas likelihood to persist (USDI, Fish and Wildlife Service 2008). A core area is a system of watersheds within larger basin. Each watershed is the habitat for a local population that interacts with other local populations throughout the larger basin. Local populations within a core area have the potential to interact because of connected aquatic habitat. A local population is defined as a group of bull trout that spawn within a particular stream or portion of a stream system. A local population is considered to be the smallest group of fish that is known to represent an interacting reproductive unit. In most areas a local population is represented by a single headwater tributary or complex of headwater tributaries where spawning occurs. Gene flow may occur between local populations (*e.g.*, those within a core population), but is assumed to be infrequent compared with that among individuals within a local population.

The bull trout draft recovery plan describes 121 bull trout core areas across the species range in five states (USDI, Fish and Wildlife Service 2002). Both the Kootenai and Idaho Panhandle National Forests have lands within bull trout core areas.

Kootenai River White Sturgeon (*Acipenser transmontanus*) – Kootenai and Idaho Panhandle National Forests

Status of the Species

The Kootenai River white sturgeon was listed as an endangered species in 1994 (USDI, Fish and Wildlife Service 1994). The recovery plan for the Kootenai River population of the white sturgeon was completed in 1999 (USDI, Fish and Wildlife Service 1999b).

Critical habitat was designated for Kootenai River white sturgeon on September 6, 2001 (USDI, Fish and Wildlife Service 2001). Critical habitat included 11.2 miles of river below Bonners Ferry, Idaho. Through an interim rule an additional 6.9 miles of critical habitat were designated on February 8, 2006 (USDI, Fish and Wildlife Service 2006). Kootenai River white sturgeon critical habitat was revised on July 9, 2008 with a final rule (USDI, Fish and Wildlife Service 2008b) to include a total of 18.3 miles of the Kootenai River within Boundary County, Idaho. The final rule becomes effective August 8, 2008. The Federal Register designation of critical habitat specifically defines geographic areas and essential habitat elements.

Distribution

The white sturgeon is an ancient fish that inhabits large rivers, lakes, and marine environments from southern California to Cook Inlet of Alaska. It is a migratory species reaching lengths nearly 20 feet, weights of 1,970 pounds, and ages of 100 years or more. The Kootenai River white sturgeon exhibits both riverine and adfluvial life histories.

The Kootenai River white sturgeon is restricted to 168 miles of the Kootenai River from Cora Linn Dam, Canada, upstream to Kootenai Falls, Montana. The white sturgeon is native to the Kootenai River drainage of Montana, Idaho, and British Columbia (Brown 1971), and has been geographically isolated from the lower Columbia River stocks by Bonnington falls (Cora Linn Dam), near Nelson, British Columbia. White sturgeon migrate freely throughout the Kootenai River (Andrusak 1980), but are uncommon upstream of Bonners Ferry, Idaho (Graham 1981, Apperson and Anders 1991). There are no published reports of sturgeon using lateral tributaries in Idaho or Montana (Partridge 1983). The majority of adult fish reside in Kootenay Lake, and make extended (> 100 km) migrations to spawn in a 19 km stretch below Bonners Ferry, ID. Some adult fish remain in the river and overwinter in the deep (> 30 m) pools.

Both the Kootenai and Idaho Panhandle National Forests contain watersheds which drain into the Kootenai River. In Final Listing Rule (FR 59 (171) September 6, 1994), the U. S. Fish and Wildlife Service issued a biological opinion stating that Libby Dam (completed in 1974) is the primary factor affecting the Kootenai River white sturgeon (USDI, Fish and Wildlife Service 1994). There has been an almost complete lack of recruitment of juveniles into the population since 1974, soon after Libby Dam began operation (Partridge, Apperson and Anders 1991 as cited in USDI, Fish and Wildlife Service 1994). Forest management activities have not been identified as a factor in the decline of the Kootenai River white sturgeon (USDI, Fish and Wildlife Service 1994). It is highly unlikely that Forest management activities affect the mainstem Kootenai River or the Kootenai River white sturgeon population; therefore, this species does not have species-specific requirements beyond those of the Cold Water Group in the development of plan components.

Habitat and Life History Needs

Kootenai River white sturgeon require rocky substrates (boulder and cobble) and high water velocities (three to seven ft/sec) for spawning. These appear to be the two most critical spawning elements. White sturgeon spawn during spring peak flows when velocities are high and turbidity is elevated. The fertilized eggs sink to the bottom, and then hatch within a few weeks. The newly hatched sac-fry briefly drift with the current before retreating into the substrate for up to a month. The juveniles eventually emerge from the substrate and begin a free-roaming life. Juvenile fish use a wide range of depths and water velocities as habitat.

Older white sturgeon are relatively sedentary in the deepest locations of the Kootenai River drainage, often selecting low velocity waters greater than twenty feet deep. Kootenai River white sturgeon are typically found over sand substrates. There are very few areas within the lower Kootenai River that contain substrates greater in size than sand. Due to the dominance of these small diameter substrates it is

not known whether these fish are selecting for sand or are forced to use them. White sturgeon are opportunistic feeders, and subsist on insects, clams, snails, plant material and fish (Brown 1971). Kokanee from Kootenay Lake were once an important prey item prior to the collapse of the salmon fishery in the mid-1970s.

Westslope Cutthroat Trout (*Acipenser transmontanus*) – Kootenai and Idaho Panhandle National Forests

Status of the Species

Westslope cutthroat trout is a State Species of Special Concern in Montana (S2) and Idaho (S2). This species is a Region 1 Sensitive Species.

Distribution

Westslope cutthroat trout occur along both sides of the Continental Divide from Yellowstone National Park into British Columbia and Alberta, additionally there are several disjunct populations in Oregon, Washington and British Columbia (Behnke 2002). Westslope cutthroat trout occur on both the Kootenai and Idaho Panhandle National Forests.

Habitat and Life History Needs

Westslope cutthroat trout live in small mountain streams, main rivers, and large natural lakes. They require well-oxygenated water; clean, well-sorted gravels with minimal fine sediments for successful spawning; temperatures less than 70°F, and a complexity of instream habitat structure such as large woody debris and overhanging banks for cover.

Westslope cutthroat trout spawn in small tributary streams on clean gravel substrate, where mean water depth is 17-20 cm and mean water velocity is 0.3-0.4 m/sec, and they tend to spawn in natal streams (McIntyre and Rieman 1995). Adfluvial populations live in large lakes in the upper Columbia drainage and spawn in lake tributaries. Fluvial populations live and grow in rivers and spawn in tributaries.

Resident populations complete the entire life history in tributaries. All three life-history forms may occur in a single basin (McIntyre and Rieman 1995). Migrants may spawn in the lower reaches of the same streams used by resident fishes. Maturing adfluvial fishes move into the vicinity of tributaries in fall and winter and remain there until they begin to migrate upstream in spring. Of migratory spawners, some remain in tributaries during summer months but most return to the main river or lake soon after spawning (Behnke 1992).

Adults prefer large pools and slow velocity areas; stream reaches with numerous pools and some form of cover generally have the highest adult fish densities. Juveniles of migratory populations may spend 1-4 years in their natal streams, then move (usually in spring or early summer, and/or in fall in some systems) to a main river or lake where they remain until they spawn (Spahr et al. 1991, McIntyre and Rieman 1995). Many fry disperse downstream after emergence (McIntyre and Rieman 1995). Juveniles tend to overwinter in interstitial spaces in the substrate. Larger individuals congregate in pools in winter.

In cold higher elevation streams, growth rates are slower than warmer streams with some fish living up to 12 years but only attaining lengths of 7-8 inches. Adfluvial and stocks in warmer waters reach lengths of 12 to 15 inches. Westslope cutthroat trout spawn between March and July when water temperatures are about 50°F. Maturity also depends on location ranging from 4-6 years and sizes of 4-14 inches. Diets are primarily aquatic invertebrates, with larger fish rarely eating fish.

An Agapetus Caddisfly (*Agapetus montanus*) – Kootenai National Forest only

Status of the Species

Agapetus montanus is Globally ranked in NatureServe as a G3 (NatureServe 2009).

Distribution

Rangewide, *Agapetus montanus* occurs in Idaho, Montana, and Manitoba (Wiggins 1996, NatureServe 2006). In Montana, *A. montanus* is the only known species based on collections (Stagliano et al. 2007, NatureServe 2006), thus any genus level identification to *Agapetus* should be *A. montanus*. Since this is the case, *A. montanus* has been reported from ~30 streams in Missoula, Mineral, Gallatin, Granite, Powell, Meagher, Flathead, Deer Lodge, Lewis and Clark, Lincoln, Beaverhead and Sanders Counties. In Idaho, *A. montanus* was collected from 2 locations at a small mountain stream near 1800 m elevation (Newell and Minshall 1977). This represents the only documented Idaho distribution (Newell and Minshall 1977). There are no known occurrences of this species on the Idaho Panhandle National Forests. However, due to a lack of larval species identifications and multiple *Agapetus* species reported for Idaho, there are probably far more streams containing this caddisfly species than have been reported (Stagliano et al. 2007).

Habitat and Life History Needs

Adults of this species emerge from mid-June to mid-August (Wiggins 1996). The larvae of *A. montanus* occur on the upper surfaces and sides of cobbles and boulders in moderate gradient, fast flowing, foothills to mountain streams (Wiggins 1996). This genus inhabits streams with more intermediate characteristics between the higher elevation, cold mountain streams (more likely to find *Glossosoma* & *Anagapetus*), and the large warmer transitional rivers downstream (more likely to find *Prototila*) (Wiggins 1996).

Generally the

riparian canopy of the occupied streams is mostly (>50%) open, and less shaded than mountain streams. In clear streams and rivers during low flows, it is typical to be able to locate and identify *Agapetus* larvae on the tops of rocks. In relation to trophic status, *A. montanus* larvae scrape, graze and digest algae and diatoms from the surfaces of rocks (Merritt and Cummins 1996).

Alberta Springfly (stonefly) (*Setvena bradleyi*) – Idaho Panhandle National Forests only

Status of the Species

The Alberta Springfly is currently Globally ranked in NatureServe as a G3 (NatureServe 2009).

Distribution

Rangewide *Setvena bradleyi* occurs in British Columbia, Alberta, Idaho, and Montana (NatureServe 2006). *S. Bradleyi* is known to occur on the Idaho Panhandle National Forests (Stagliano et al 2007). There are no known occurrences of this species on the Kootenai National Forest.

Habitat and Life History Needs

This species usually associated with small streams and springs.

Inland Redband Trout (*Oncorhynchus mykiss gairdneri*) – Kootenai and Idaho Panhandle National Forests

Status of the Species

Inland redband trout is a State Species of Special Concern in Montana (S1) and Idaho (S2). This species is a Region 1 Sensitive Species.

Distribution

Inland redband trout are found in the interior Columbia River basin from east of the Cascades upstream to geologic barriers such as Shoshone Falls on the Snake River and Kootenai Falls on the Kootenai River and in the upper Fraser River (Behnke 2002). However, they are not in the Clark Fork and Coeur d'Alene drainages. This species occurs on both the Kootenai and Idaho Panhandle National Forests.

Habitat and Life History Needs

Inland redband trout are found in a range of stream habitats from desert areas in southwestern Idaho to forested mountain streams in central and northern Idaho. In all cases they prefer cool streams with temperatures less than 70° F; however, they can survive daily cyclic temperatures up to 80° F for a short period of time (Wydoski and Whitney 2003). Resident stream redband trout may attain a maximum size ranging from 6-18 inches depending on location. Spawning occurs in the spring between February and June, depending on temperature and location. Diets are primarily drifting invertebrates, both terrestrial and aquatic. Larger fish will occasionally consume other fish.

Autumn Springfly (stonefly) (*Pictetiella expansa*) – Idaho Panhandle National Forests only

Status of the Species

Pictetiella expansa is a State Species of Special Concern in Idaho (S2).

Distribution

P. expansa occurs in Colorado, Idaho, Montana, Utah, and Wyoming. In Idaho, the species is widespread in the Idaho Panhandle but sparsely known from the remainder of the state. The distribution includes localities in Boundary, Bonner, Benewah, Shoshone, Clearwater, Bonneville, and Teton counties. Baumann et al. (1977) considered this species to be uncommon, although nymphs can be locally abundant in some areas.

Habitat and Life History Needs

Nymphs generally occur in small, fast-moving streams and require high water quality. *P. expansa* is associated with steep forested small streams and moderate gradient forested rivers (Stagliano et al. 2007). Individuals have been encountered at elevations between 555 m and 1,255 m in north Idaho (Idaho Department of Environmental Quality Beneficial Use Reconnaissance Program Database). Adults emerge from July through October (Baumann et al. 1977) and there is often asynchronous emergence of males and females.

Western Pearlshell (*Margaritifera falcata*) – Kootenai and Idaho Panhandle National Forests

Status of the Species

Western pearlshell is a State Species of Special Concern in Montana (S2) and Idaho (S3).

Distribution

In Idaho, the historical range of *M. falcata* includes sites in the Snake, Coeur d'Alene, Lost, and Salmon River drainages (Frest 1999). Populations are thought to persist in north Idaho in the Coeur d'Alene, St. Joe, and St. Maries Rivers. In central Idaho, populations with good viability occur in the Clearwater, Selway, Lochsa, Pahsimeroi, Lost, Salmon and Little Salmon rivers and in Hells Canyon. In south Idaho, populations are thought to be extant in the upper tributaries of the Snake River, including the Blackfoot River (Frest 1999).

Montana's populations of *M. falcata*, in contrast to Idaho's, may be significantly contracting and becoming less viable with stream decreased flows, warming, and degradation. Previously reported mussel beds in the larger rivers (Blackfoot, Big Hole, Bitterroot, Clark Fork, etc.) are extirpated from the drainage or are at such low densities that long-term viability is unlikely. This mussel species appears to have crossed the continental divide in Montana from west to east with its salmonid host, the westslope cutthroat trout, *Oncorhynchus clarki lewisi* (Gustafson 2001). This is the only native trout in the Missouri River headwaters. Reports of the eastern *M. margaritifera* in Montana are apparently due to the mistaken assumption that a mussel could not cross the continental divide.

Habitat and Life History Needs

Western pearlshell occurs in sand, gravel and even among cobble and boulders in low to moderate gradient streams up to larger rivers. This species prefers stable gravel and pebble substrates in low-gradient trout streams and intermountain rivers (Stagliano et al. 2007). Western pearlshell is found in runs and riffles in stable main-current channel areas (Stagliano et al. 2007). This mussel is intolerant of silt and warm water temperatures (Stagliano et al. 2007).

In large Idaho river systems (Salmon and Clearwater River Canyons), *M. falcata*, 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. 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. Locally where canyon reaches are aggrading with sand and gravel, and often *M. falcata* is being replaced by *Gonidea angulata*.

Nearly all mussels (Unionidae) require a host or hosts during the parasitic larval portion of their life cycle. Hosts are usually fish species and hosts for *M. falcata* in Idaho and Montana were typically and historically *Oncorhynchus* spp. (chinook salmon, westslope cutthroat trout, steelhead, etc.), but *Salmo* and *Salvelinus* (introduced species) and even *Rhinichthys* and *Catostomus* (dace and suckers) are reported to be suitable.

Key Stressors Affecting the Cold Water Group

Stressors to the Cold Water Group include reduced habitat quality and fragmentation, the blockage of migratory corridors, poor water quality, nonnative species, climate change, dewatering, dams, stream sedimentation, channel modifications, chemical pollution, and angler harvest and poaching. In some cases natural disturbances can exacerbate the level of stress on species in the cold water group. For example, forest fires that burn in areas with dense networks of roads can cause a high potential of sedimentation.

Stressors can affect aquatic and riparian ecosystems through a variety of mechanisms. Stressors can be cumulative adding up over time resulting in increasing effects to the ecosystem and species. Stressors can also be synergistic where one stressor results in an organism being susceptible to another stressor. For example if a fish is stressed by high water temperatures it can then become susceptible to disease.

The level of Forest Service control over stressors to the Cold Water Group is variable. The Forest Service has control over some stressors that are related to land management activities and not much control over others such as regulation of stream flows. Some stressors such as stream flow regulation and aquatic invasive species are best addressed through partnerships with agencies that have control over these stressors. In addition, it can be difficult to separate the impacts of natural stressors (drought, flooding) from human caused stressors.

The Aquatic Multi-Scale Assessment and Planning Framework (in the Plan Set of Documents) provides detailed information about stressors (threats) to native fish. Table 2 provides a summary.

Table 2. Degree of Forest Service Control on Stressors.

Stressor	Relative Degree of Forest Service Control²¹
Sediment (road system)	High
Non-native fish species	Low
Stream habitat connectivity	High
Mining	Moderate
Downstream dams (anadromous fish)	None
Grazing	High
Mixed Ownership	Low
Dewatering	Low

Roads contribute more sediment to streams than any other land management activity (Gibbons and Salo 1973, Meehan 1991), and most land management activities, such as mining, timber harvest, grazing, recreation and water diversions are dependent on roads. The majority of sediment from timber harvest activities is related to roads and road construction (Chamberlin et al. 1991, Furniss et al. 1991) and associated increased erosion rates (Beschta 1978, Meehan 1991, Reid 1993). Serious degradation of fish habitat can result from poorly planned, designed, located, constructed, or maintained roads (Furniss et al. 1991, MacDonald et al. 1991). It is important to consider that the effects of roads may vary with physical and biological conditions and the physical location of the road (Luce et al. 2001).

Dams, diversions, and culverts that create barriers to aquatic species movement are among the most common agents that fragment aquatic habitat (Fausch et al. 2006). The Forest Service has little control over the management of most dams and diversions. However, the Forest Service can be effective in reducing the impact of roads, including culverts, on aquatic habitat connectivity.

Mining activities can affect aquatic ecosystems in a number of ways; through the addition of large quantities of sediments, the addition of solutions contaminated with metal or acids, the acceleration of erosion, increased bank and streambed instability, changes in channel formation and stability, and removal of riparian vegetation (Lee et al. 1997).

Livestock grazing can degrade aquatic habitats by removing riparian vegetation, destabilizing streambanks, widening stream channels, promoting incised channels and lowering water tables, reducing pool frequency, increasing soil erosion, and altering water quality (Platts 1991, Clarey and Webster 1989). These effects increase summer water temperatures, promote formation of anchor ice in winter, and increase sediment into spawning and rearing habitats.

²¹Control over threats is also influenced by the relative proportion of Forest Service ownership in any given watershed or stream network.

Plan Components that Contribute to Sustaining the Cold Water Group

Note: This section has been updated with components from the revised forest plans and is found in the main body of "Providing for Ecological Sustainability in the Revised Forest Plans".

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Appendix F: Plant Species Groups²²

43.26 – Evaluation of Plan Components for Species Diversity

Aquatic Plant Species Group

Zone: Kootenai / Idaho Panhandle National Forests

Status of the Species Group

This species group encompasses the aquatic plant habitat guild, and contains one federally listed threatened plant species and 10 species of interest (SOI). This group was identified on the basis of the similar habitats that are occupied by these plant species (ponds, lakes, and vernal pools), and the similarities among them regarding the stressors and ecological processes that influence their habitats. Distribution, habitat information, and population data for each species are available from the Idaho Conservation Data Center, Washington Natural Heritage Program, Montana Natural Heritage Program, and NatureServe databases.

Species of interest in this habitat guild generally have small population numbers and may be at risk due to one or more stressors as described below.

Species	Common Name	Forest		Species Category* (TEP / SOC / SOI)
		IPNF	KNF	
<i>Howellia aquatilis</i>	water howellia	X	X	TEP (T)
<i>Bidens beckii</i>	Water marigold		X	SOI
<i>Brasenia schreberi</i>	Watershield		X	SOI
<i>Carex chordorrhiza</i>	String-root sedge	X	X	SOI
<i>Carex rostrata</i>	Beaked sedge		X	SOI
<i>Cicuta bulbifera</i>	Bulb-bearing water hemlock	X		SOI
<i>Ludwigia polycarpa</i>	Many-fruit false loosestrife	X		SOI
<i>Psilocarphus brevissimus</i>	Dwarf wooly heads		X	SOI
<i>Schoenoplectus subterminalis</i>	Water clubrush	X	X	SOI
<i>Utricularia intermedia</i>	Flat-leaved bladderwort		X	SOI
<i>Vallisneria americana</i>	Wild celery	X		SOI

*TEP = USFWS Threatened, Endangered or Proposed, SOC = Species of Concern, SOI = Species of Interest

²² The majority of this diversity analysis was done while the forests were working under previous planning rules. The appendices contain terminology from the 2008 planning rule directives, which is no longer in effect; however, the concepts are still valid: The forests conducted an analysis that considered the species that occurred on the forests, determined which of those species had conservation needs, narrowed down which species could be affected by management on the forests, screened the risks to species through a coarse filter (ecosystem diversity) and developed additional plan components where necessary through a fine filter approach (species diversity).

Habitat and Life History Needs

The species in this group occur generally in littoral zones (< 2 meters depth) of vernal pools and small ponds and lakes, usually at lower elevations, within the warm/dry and warm/moist biophysical settings. The species are submergent (vegetative plant parts primarily underwater), planmergent (conspicuous portion of vegetative parts on the water surface; Pierce and Jensen 2002), or emergent (vegetative parts extend above the water surface).

The listed threatened species *Howellia aquatilis* (water howellia) occurs in shallow, vernal pools, the bottom surfaces of which usually consist of firm, consolidated clay and organic sediments. These pools are generally filled by snowmelt run-off and spring rains, but then dry out to varying degrees by the end of the growing season, depending on annual patterns of temperature and precipitation. This drying of the substrate is key to the reproduction of the species; aerobic conditions are required for seed germination, and *H. aquatilis* reproduces only by seed (USDA 1994). It is not currently known to occur on federal lands within either the KNF or IPNF, but potential habitat exists on both national forests and populations are known to the west and east in Montana and Idaho.

Psilocarphus brevissimus (dwarf wooly heads) also occurs in drying mud of ponds and other vernal wet soil. Other species of this guild are found at varying depths in the quiet shallow water of ponds, lakes, marshes, and/or slow-moving rivers; some, such as *Bidens beckii* (water marigold) may occur in deeper littoral to limnetic zones (> 2 meters) of these water bodies. The long-term sustainability of all of these species depends on maintenance of the hydrologic processes that influence these habitats.

Key Stressors Affecting the Species Group

Several key stressors generally apply to all members of this species group. These include boating activities, lake shore development, aquatic non-native invasive species (especially *Phalaris arundinacea*), use of aquatic herbicides, agricultural practices, grazing and aquatic vegetation succession. Alteration of hydrologic regimes - either directly from drainage, ditching, and dam construction (or beaver dam removal), or indirectly from upland activities or events such as timber harvest, road construction and wildfire - are also potential stressors.

Stressors beyond Forest Service control include short- and long-term climate change (which may increase the risk of desiccation due to increased and prolonged summer temperatures and/or drought conditions), and activities as described above that occur on non-federal lands. These changes or activities could result in altered hydrologic regimes and/or species composition that may affect the persistence of aquatic group plant species.

Howellia aquatilis in particular is vulnerable to climatic variation. Exceedingly wet years will detrimentally affect population size the next year since seeds do not germinate unless they are exposed through late-season drying. Conversely, very dry years may also adversely impact populations if enough water is not present during the growing season to support a good population and subsequent production of seed.

Plan Components that Contribute to Sustaining the Species Group

Note: This section has been updated with components from the revised forest plans and is found in the main body of "Providing for Ecological Sustainability in the Revised Forest Plans".

References

Pierce, J.R., and M.E. Jensen. 2002. A classification of aquatic plant communities within the northern Rocky Mountains. *Western North American Naturalist* 62: 257-265.

USDA Forest Service. 1994. Conservation Strategy for *Howellia aquatilis*. Flathead National Forest.
USDA Forest Service Northern Region. Missoula, Montana. April, 1994; updated November 17, 1994.

Cold Forest Plant Species Group

Zone: Kootenai / Idaho Panhandle

Status of the Species Group

This species group includes the cold forest and the forested subalpine rare plant guilds. Subalpine species occurring in balds or meadows are addressed in the subalpine grassland species group.

Five species of interest (SOI) are assigned to one or both of these guilds. This species group was identified on the basis of the similar habitats that are occupied by these plant species, and the similarities among them regarding the stressors and ecological processes that influence their habitats. Distribution, habitat information, and population data for each species are available from the Idaho Conservation Data Center, Washington Natural Heritage Program, Montana Natural Heritage Program, and NatureServe databases.

Species	Common Name	Forest		Species Category* (TEP / SOC / SOI)
		IPNF	KNF	
<i>Cetraria subalpina</i> (<i>Tuckermannopsis subalpina</i>)	Icelandmoss		X	SOI
<i>Diphasiastrum sitchense</i>	Sitka clubmoss	X		SOI
<i>Lycopodium dendroideum</i>	Groundpine	X	X	SOI
<i>Pinus albicaulis</i>	Whitebark pine	X	X	SOI
<i>Streptopus streptopoides</i> var. <i>brevipes</i>	Krushea	X		SOI

*TEP = USFWS Threatened, Endangered or Proposed, SOC = Species of Concern, SOI = Species of Interest

Habitat and Life History Needs

The cold forest species group occurs in the more productive and mesic phases of *Abies lasiocarpa* / *Menziesia ferruginea* (subalpine fir/menziesia) and *Abies lasiocarpa* / *Xerophyllum tenax* (subalpine fir/beargrass) community types, mostly above 4,800 feet; however, the species can occur below 4,800 feet in cold, north-facing drainages. This includes cold riparian areas that can extend well below 4,000 feet and are dominated by cold and wet *Abies lasiocarpa* / *Calamagrostis canadensis* (subalpine fir/bluejoint reedgrass) and *Abies lasiocarpa* / *Streptopus amplexifolius* (subalpine fir/twisted stalk) habitat types. The forested subalpine guild includes the following higher elevation plant communities:

- *Abies lasiocarpa* / *Rhododendron albiflorum* (subalpine fir/white rhododendron)
- *Abies lasiocarpa* / *Vaccinium scoparium* (subalpine fir/grouse whortleberry)
- *Abies lasiocarpa* / *Luzula hitchcockii* (subalpine fir/smooth woodrush)
- *Larix lyallii* / *Pinus albicaulis* (alpine larch/whitebark pine)

It also includes the harshest (cold and dry) phases of the *Abies lasiocarpa* / *Menziesia ferruginea* (subalpine fir / menziesia) and *Abies lasiocarpa* / *Xerophyllum tenax* (subalpine fir / beargrass) plant communities. This species group occurs predominantly in the subalpine biophysical setting, although it may overlap with the warm/moist biophysical setting in cases where it extends to lower elevations in cold drainages.

Cetraria subalpina (Icelandmoss lichen) occurs primarily on the bases of *Menziesia ferruginea* and *Rhododendron albiflorum* shrubs at higher elevations. It has been found in closed to relatively open canopy conditions and in areas that experienced stand-replacing fire in the past.

Pinus albicaulis (whitebark pine) also occurs at higher elevations. This keystone tree species is rapidly declining throughout most of its range due to adverse impacts from an introduced pathogen (white pine blister rust), fire suppression, and expanding mountain pine beetle infestations. As a result, it was recently petitioned for federal listing as an endangered species. Whitebark pine has co-evolved with the Clark's nutcracker, and since the cones do not open, seed hoarding and caching by the nutcracker constitute the only seed dispersal mechanism available to this species. In addition, it is relatively shade-intolerant and does not reproduce successfully under closed canopy conditions. Rather, regeneration is dependent on the availability of canopy openings created by fire and other disturbances, and these openings are commonly used by Clark's nutcrackers for seed caching (Tomback *et al.* 2001). Historic non-lethal fires were a primary cause of the openings that allowed for germination of *P. albicaulis* seed (Smith and Fischer 1997). In the absence of fire, whitebark pine is replaced by subalpine fir in many cases. For these reasons, active restoration via mechanical thinning and use of prescribed fire is a priority for management of this species. In addition, the Northern Region has recently issued a letter promoting the use of unplanned ignitions, in moderate fire years, to return fire to these treeline habitats on a landscape scale.

Diphasiastrum sitchense (Sitka clubmoss) occurs in subalpine forests at higher elevations, often adjacent to wetland habitats. It has been found in relatively open-canopy conditions. *Streptopus streptopoides* var. *brevipes* occurs in the subalpine guild in mature forests that often grade to moist and wet *Thuja plicata* and *Tsuga heterophylla* habitat types, and appears to prefer closed canopy conditions. *Lycopodium dendroideum* (groundpine) occurs in the cold forest guild in cold air drainages, and is associated with subalpine fir forests at lower elevations. It has not been found in the planning zone at the higher elevations usually associated with this species group.

Habitat types in this species group historically experienced stand-replacing fire at widely varying intervals from 50 to 200 years (Smith and Fischer 1997). Non-lethal fires historically occurred more frequently, with fire-free intervals as short as 30 years (Smith and Fischer 1997).

Key Stressors Affecting the Species Group

Key stressors affecting this species group include timber harvest, prescribed fire, road and trail construction, and other activities that could directly impact populations through vegetation and/or ground disturbance.

As discussed above, white pine blister rust and mountain pine beetle infestations, combined with vegetation succession resulting from fire exclusion, have impacted *Pinus albicaulis* (whitebark pine) to the point where there is concern for its future as a component of higher-elevation forests.

One stressor beyond Forest Service control includes short- and long-term climate change, which may increase the risk of desiccation due to increased and prolonged summer temperatures or drought conditions. Such changes may directly affect whitebark pine and other species adapted to higher elevations.

Plan Components that Contribute to Sustaining the Species Group

Note: This section has been updated with components from the revised forest plans and is found in the main body of "Providing for Ecological Sustainability in the Revised Forest Plans".

References

Smith, J.K., and W.C. Fischer. 1997. Fire ecology of the forest habitat types of northern Idaho. General Technical Report INT-GTR-363. USDA Forest Service, Rocky Mountain Research Station (formerly Intermountain Research Station). Ogden, Utah.

Tomback, D.F., S.F. Arno, and R.E. Keane (eds.). 2001. Whitebark Pine Communities: Ecology and Restoration. Island Press, Washington, DC.

Deciduous Riparian Plant Species Group

Zone: Kootenai / Idaho Panhandle

Status of the Species Group

This species group includes the deciduous riparian plant guild, which contains 13 plant species, including two species of concern (SOC) and 11 species of interest (SOI). This group was identified on the basis of the similar habitats that are occupied by these plant species (riparian and floodplain areas along streams), and is being analyzed as a group owing to the similarities among them regarding the stressors and ecological processes that influence their habitats. Distribution, habitat information, and population data for each species are available from the Idaho Conservation Data Center, Washington Natural Heritage Program, Montana Natural Heritage Program, and NatureServe databases.

Species	Common Name	Forest		Species Category* (TEP / SOC / SOI)
		IPNF	KNF	
<i>Cardamine constancei</i>	Constance's bittercress	X		SOC
<i>Collema curtisporum</i>	Short-spored jelly lichen	X	X	SOC
<i>Betula pumila</i> var. <i>glandulifera</i>	Dwarf birch	X		SOI
<i>Carex sychnocephala</i>	Many-headed sedge		X	SOI
<i>Carex vaginata</i>	Sheathed sedge		X	SOI
<i>Cypripedium parviflorum</i>	Yellow lady's slipper	X	X	SOI
<i>Cypripedium passerinum</i>	Sparrow's egg lady's slipper		X	SOI
<i>Lobaria hallii</i>	Hall's lungwort	X		SOI
<i>Lycopodium dendroideum</i>	Ground pine	X		SOI
<i>Platyhypnidium riparioides</i>	Platyhypnidium moss		X	SOI
<i>Salix candida</i>	Hoary willow	X		SOI
<i>Sphagnum wulfianum</i>	Wulf's sphagnum		X	SOI
<i>Trientalis latifolia</i>	Western starflower	X		SOI

*TEP = USFWS Threatened, Endangered or Proposed, SOC = Species of Concern, SOI = Species of Interest

Habitat and Life History Needs

This guild is associated with streams and their related floodplains that have regular flooding and deposition of sediments. Habitats include streams that have *Populus trichocarpa* (black cottonwood), riparian shrub (willow, dogwood, birch, alder, huckleberry, etc.), and shrub/herbaceous communities along them. Gentle gradient riffle/pool streams typically are sinuous and have exposed stream bars along some part of their reach.

Steeper step/pool streams, typically associated with conifers in the overstory, do not have well-developed floodplains, and because of their steep slopes, sediments are rarely deposited adjacent to them. As a result, these streams lack the germination surfaces and also the full sunlight that some species require for either germination or vegetative establishment. The plant species in this group are thus most often found in lower-gradient settings and at lower elevations, within the warm/dry and warm/moist biophysical settings. These species also generally require moist (or saturated) soil conditions throughout the growing season. In some cases, shade or partial shade (such as along ecotonal margins) is an important habitat component.

Collema curtisporum (short-spored jelly lichen) and *Lobaria hallii* (Hall's lungwort) are epiphytic lichen species that occur on twigs and bark of deciduous trees such as *Populus trichocarpa* (black cottonwood) and *Alnus rubra* (red alder).

Key Stressors Affecting the Species Group

The following stressors may have direct or indirect effects on plant species in deciduous riparian habitats:

- Management actions that alter hydrologic regimes.
- Alterations to riparian plant community succession through vegetation manipulation.
- Changes to natural disturbance regimes such as flooding.
- Management activities that affect water quality, such as road construction, reconstruction and maintenance activities that result in runoff; livestock use; fertilizer application; and sedimentation from timber harvest activities.
- Invasive plant species.
- OHV use around wet margins of riparian areas.
- Recreation use in and adjacent to riparian areas.

One stressor beyond Forest Service control includes long- and short-term climate change, which may increase the risk of desiccation due to increased and prolonged summer temperatures and/or drought conditions, and may alter the hydrologic regimes and floodplain dynamics that are important in the habitat of these species.

Plan Components that Contribute to Sustaining the Species Group

Note: This section has been updated with components from the revised forest plans and is found in the main body of “Providing for Ecological Sustainability in the Revised Forest Plans”.

Dry Forest Plant Species Group

Zone: Kootenai / Idaho Panhandle

Status of the Species Group

The dry forest plant species group consists of one federally listed threatened plant species, four species of concern (SOC) and 19 species of interest (SOI). This species group was identified on the basis of the similar habitats that are occupied by these plant species, and the similarities among them regarding the stressors and ecological processes that influence their habitats. The federally listed species (*Silene spaldingii*) is not currently known to occur on either the Kootenai or the Idaho Panhandle National Forests, but suitable habitat is present in both cases, there are known occurrences near National Forest System lands, and the species is suspected to occur on both of these units. Distribution, habitat information, and population data for each species are available from the Idaho Conservation Data Center, Washington Natural Heritage Program, Montana Natural Heritage Program, and NatureServe databases.

Most of the species listed below are considered rare and at risk from management activities. One species is relatively common, but is of public and Native American interest (*Lewisia rediviva*).

Species	Common Name	Forest		Species Category* (TEP / SOC / SOI)
		IPNF	KNF	
<i>Silene spaldingii</i>	Spalding's campion	X	X	TEP (T)
<i>Calochortus nitidus</i>	Broad-fruit mariposa lily	X		SOC
<i>Grimmia brittoniae</i>	Britton's dry rock moss	X	X	SOC
<i>Grindelia howellii</i>	Howell's gumweed	X		SOC
<i>Tauschia tenuissima</i>	Leiberg's tauschia	X		SOC
<i>Allium fibrillum</i>	Cuddy Mountain onion		X	SOI
<i>Aloina brevirostris</i>	Short-beaked Aloe-moss		X	SOI
<i>Botrychium "michiganense"</i>	Michigan moonwort	X		SOI
<i>Botrychium simplex</i>	Least moonwort	X		SOI
<i>Calochortus macrocarpus</i>	Sagebrush mariposa lily		X	SOI
<i>Cirsium brevistylum</i>	Clustered thistle		X	SOI
<i>Clarkia rhomboidea</i>	Common clarkia		X	SOI
<i>Claytonia arenicola</i>	Sand springbeauty		X	SOI
<i>Corydalis sempervirens</i>	Pink corydalis		X	SOI
<i>Cypripedium fasciculatum</i>	Clustered lady's slipper	X	X	SOI
<i>Heterocodon rariflorum</i>	Western pearl flower		X	SOI
<i>Lathyrus bijugatus</i>	Tule pea		X	SOI
<i>Lesquerella douglasii</i>	Douglas' bladderpod		X	SOI
<i>Lewisia rediviva</i>	Bitterroot		X	SOI
<i>Lomatium geyeri</i>	Geyer's biscuit root		X	SOI
<i>Mahonia nervosa</i>	Cascade barberry		X	SOI
<i>Mimulus alsinoides</i>	Chickweed monkeyflower	X		SOI
<i>Mimulus clivicola</i>	Bank monkeyflower	X		SOI
<i>Orobanche pinorum</i>	Pine broomrape	X		SOI

*TEP = USFWS Threatened, Endangered or Proposed, SOC = Species of Concern, SOI = Species of Interest

Habitat and Life History Needs

This species group encompasses the dry forest plant habitat guild, which includes dry, open sites in *Pinus ponderosa* (ponderosa pine), *Pseudotsuga menziesii* / *Physocarpus malvaceus* (Douglas-fir / ninebark), *P. menziesii* / *Calamagrostis rubescens* - *Arctostaphylos uva-ursi* (Douglas-fir / pinegrass - kinnikinnick) and *P. menziesii* / *Festuca idahoensis* (Douglas-fir / Idaho fescue) or / *Elytrigia spicata* (bluebunch wheatgrass) communities, generally below 4,500 feet. This species group occurs in the warm/dry biophysical setting.

Non-lethal fires in these habitats historically occurred at intervals as short as 25 years or less; these frequent low-severity fires helped to maintain grasslands, maintain open forest structures, and enhance regeneration of ponderosa pine (Smith and Fischer 1997). Mixed-severity and stand-replacing fires occurred where fire return intervals were longer (Smith and Fischer 1997).

Cypripedium fasciculatum (clustered lady's slipper) typically occurs in this species group in *Pseudotsuga menziesii* / *Physocarpus malvaceus* to *Abies grandis* / *Physocarpus malvaceus* habitat types. This species occurs where some level of shade is present (full shade to partial shade or dappled sunlight), and canopy cover is often provided by a shrub layer where the tree canopy is relatively open (Lichthardt 2003). Like all orchids, *C. fasciculatum* depends on soil mycorrhizae to enhance nutrient uptake (Lichthardt 2003). Many *C. fasciculatum* occurrences are associated with root-disease "pockets" where the fungi *Armillaria* spp. or *Phaeolus* spp. have killed Douglas-fir and created canopy gaps. *Armillaria* is a known orchid symbiont (Lichthardt 2003).

Key Stressors Affecting the Species Group

Key stressors that affect this species group include timber harvest, prescribed fire, severe wildfire, fire suppression efforts, grazing and OHV use, all of which may directly or indirectly impact populations through ground disturbance, canopy removal, destruction of soil mycorrhizae, or increased risk of noxious weed invasion. Dry forest and open forest-grassland habitats are relatively rare vegetation types on these two national forests, and the effects of these various stressors may be exacerbated in some areas as a result.

Stand structure and landscape pattern in regions where *Cypripedium fasciculatum* occurs in Idaho and Montana have historically been determined by fire. Following 50 or more years of fire exclusion, stands in these habitat types are now more densely stocked and have greater canopy closure, increasing the probability of severe stand-replacement fires that could reduce the availability of suitable habitat, as a result of both canopy removal and adverse soil and ground-layer effects (Lichthardt 2003).

Long-term fire exclusion and grazing exclusion may have detrimental effects on *Silene spaldingii* (Spalding's campion), the one federally listed threatened plant species in this group. This species occurs in deeper-soiled grasslands surrounded by dry forest types. According to Lesica (1997), litter produced by the dominant vegetation in its occupied habitat may inhibit growth and reproduction of *S. spaldingii*. Results of his study support the hypothesis that *S. spaldingii* reaches its greatest abundance in sites with reduced interference from the dominant grasses. Thus, moderate levels of disturbances such as grazing or fire may be important to the long-term persistence of this species (Lesica 1997). A subsequent study (Lesica 1999) suggested that fire has a positive effect on the population dynamics of *S. spaldingii* by removing litter and creating safe sites for seedling recruitment, and that prescribed fire is an important tool for managing populations of this species.

One stressor beyond Forest Service control includes short- and long-term climate change, which may increase the risk of desiccation due to increased and prolonged summer temperatures and/or drought conditions.

Plan Components that Contribute to Sustaining the Species Group

Note: This section has been updated with components from the revised forest plans and is found in the main body of “Providing for Ecological Sustainability in the Revised Forest Plans”.

References

Lesica, P. 1997. Demography of the endangered plant *Silene spaldingii* (Caryophyllaceae) in northwest Montana. *Madrono* 44(4): 347-358.

Lesica, P. 1999. Effects of fire on the demography of the endangered, geophytic herb *Silene spaldingii* (Caryophyllaceae). *American Journal of Botany* 86: 996-1002.

Lichthardt, J. 2003. Conservation strategy for clustered lady's-slipper orchid (*Cypripedium fasciculatum*) in US Forest Service Region 1. Idaho Department of Fish and Game, Conservation Data Center. Boise, Idaho.

Smith, J.K., and W.C. Fischer. 1997. Fire ecology of the forest habitat types of northern Idaho. General Technical Report INT-GTR-363. USDA Forest Service Rocky Mountain Research Station (formerly Intermountain Research Station). Ogden, Utah.

Moist Forest Plant Species Group

Zone: Kootenai / Idaho Panhandle

Status of the Species Group

This species group includes the wet and moist forest rare plant guilds. Fifteen species of concern (SOC) and 59 species of interest (SOI) are assigned to one or both of these guilds. This species group was identified on the basis of the similar habitats that are occupied by these plant species, and the similarities among them regarding the stressors and ecological processes that influence their habitats. Distribution, habitat information, and population data for each species are available from the Idaho Conservation Data Center, Washington Natural Heritage Program, Montana Natural Heritage Program, and NatureServe databases.

Several moist and wet forest guild rare plant species are disjunct from their main geographic ranges (either in the Cascade Mountains in the case of coastal disjuncts or Canada in the case of boreal disjuncts).

Species	Common Name	Forest		Species Category* (TEP / SOC / SOI)
		IPNF	KNF	
<i>Botrychium ascendens</i>	Upswept moonwort	X	X	SOC
<i>Botrychium crenulatum</i>	Dainty moonwort	X		SOC
<i>Botrychium lineare</i>	Slender moonwort	X	X	SOC
<i>Botrychium montanum</i>	Western goblin	X	X	SOC
<i>Botrychium pallidum</i>	Pale moonwort		X	SOC
<i>Botrychium paradoxum</i>	Peculiar moonwort	X	X	SOC
<i>Botrychium pedunculatum</i>	Stalked moonwort	X	X	SOC
<i>Cardamine constancei</i>	Constance's bittercress	X		SOC
<i>Corydalis caseana ssp hastata</i>	Case's fitweed	X		SOC
<i>Grimmia brittoniae</i>	Britton's dry rock moss	X	X	SOC
<i>Pilophorus clavatus</i>	Tapered matchstick	X		SOC
<i>Platismatia stenophylla</i>	Ragged lichen		X	SOC
<i>Pseudocyphellaria anomala</i>	Netted speckelbelly	X		SOC
<i>Tauschia tenuissima</i>	Leiberg's tauschia	X		SOC
<i>Waldsteinia idahoensis</i>	Idaho barren strawberry	X		SOC
<i>Alnus rubra</i>	Red alder		X	SOI
<i>Aloina brevirostris</i>	Aloina moss		X	SOI
<i>Amerorchis rotundifolia</i>	Round-leaved orchis		X	SOI
<i>Andreaea blytii</i>	Blytt's andreaea moss		X	SOI
<i>Asplenium trichomanes</i>	Maidenhair spleenwort	X		SOI
<i>Blechnum spicant</i>	Deerfern	X		SOI
<i>Botrychium lanceolatum</i>	Triangle moonwort	X		SOI
<i>Botrychium lunaria</i>	Moonwort	X		SOI
<i>Botrychium "michiganense"</i>	Michigan moonwort	X		SOI
<i>Botrychium minganense</i>	Mingan moonwort	X		SOI
<i>Botrychium pinnatum</i>	Northwestern moonwort	X		SOI
<i>Botrychium simplex</i>	Least moonwort	X		SOI
<i>Brachythecium reflexum</i>	Brachythecium moss		X	SOI
<i>Buxbaumia viridis</i>	Green bug-on-a-stick moss	X		SOI
<i>Carex amplifolia</i>	Big-leaf sedge		X	SOI

Species	Common Name	Forest		Species Category* (TEP / SOC / SOI)
		IPNF	KNF	
<i>Carex buxbaumii</i>	Buxbaum's sedge	X		SOI
<i>Carex hendersonii</i>	Henderson's sedge	X		SOI
<i>Carex synchnocephala</i>	Many-headed sedge		X	SOI
<i>Cephalanthera austiniiae</i>	Phantom orchid	X		SOI
<i>Cirsium brevistylum</i>	Clustered thistle		X	SOI
<i>Cladonia bellidifolora</i>	Toy soldiers	X		SOI
<i>Cladonia transcendens</i>	Transcending reindeer lichen	X		SOI
<i>Claytonia arenicola</i>	Sand springbeauty		X	SOI
<i>Corydalis sempervirens</i>	Pink corydalis		X	SOI
<i>Cypripedium fasciculatum</i>	Clustered lady's slipper	X	X	SOI
<i>Dodecatheon dentatum</i>	White-flowered shooting star	X		SOI
<i>Gaultheria hispidula</i>	Creeping snowberry	X		SOI
<i>Leucolepis acanthoneuron</i>	Leucolepis umbrella moss		X	SOI
<i>Lobaria hallii</i>	Hall's lung wort		X	SOI
<i>Lycopodium dendroideum</i>	Ground pine	X	X	SOI
<i>Lycopodium lagopus</i>	One-cone clubmoss		X	SOI
<i>Mimulus alsinoides</i>	Chickweed monkeyflower	X		SOI
<i>Mimulus ampliatus</i>	Stalk-leaved monkeyflower		X	SOI
<i>Mimulus breviflorus</i>	Shortflower monkeyflower		X	SOI
<i>Oligotrichum aligerum</i>	Oligotrichum moss		X	SOI
<i>Oxalis trilliifolia</i>	Trillium-leaved wood sorrel	X		SOI
<i>Phegopteris connectilis</i>	Northern beechfern	X	X	SOI
<i>Pilophorus acicularis</i>	Devil's matchstick lichen	X		SOI
<i>Platanthera orbiculata</i>	Round-leaved orchid	X		SOI
<i>Platismatia herrei</i>	Tattered rag lichen	X		SOI
<i>Platyhypnidium riparioides</i>	Platyhypnidium moss		X	SOI
<i>Polystichum braunii</i>	Braun's hollyfern	X		SOI
<i>Polystichum scopulinum</i>	Mountain hollyfern		X	SOI
<i>Racomitrium pygmaeum</i>	Pygmy racomitrium moss		X	SOI
<i>Rhizomnium nudum</i>	Naked mniium	X		SOI
<i>Ribes cognatum</i>	Shinyleaf gooseberry		X	SOI
<i>Ribes laxiflorum</i>	Trailing black currant		X	SOI
<i>Ribes sanguineum</i>	Red-flowered currant	X		SOI
<i>Rubus spectabilis</i>	Salmonberry	X		SOI
<i>Sphaerophorus globosus</i>	Christmas tree lichen	X		SOI
<i>Sphagnum wulfianum</i>	Wulf's sphagnum		X	SOI
<i>Spiraea pyramidata</i>	Pyramid spirea		X	SOI
<i>Streptopus streptopoides</i>	Krushea	X		SOI
<i>Tellima grandiflora</i>	Pigflower tellima		X	SOI
<i>Trientalis latifolia</i>	Western starflower	X		SOI
<i>Ulota megalospora</i>	Large spore ulota moss	X		SOI
<i>Vaccinium myrtilloides</i>	Velvetleaf huckleberry		X	SOI
<i>Viola renifolia</i>	White violet		X	SOI
<i>Viola selkirkii</i>	Selkirk's violet	X	X	SOI

*TEP = USFWS Threatened, Endangered or Proposed, SOC = Species of Concern, SOI = Species of Interest

Habitat and Life History Needs

Wet forest guild species are found in wet, generally riparian, often mid- to late-successional western redcedar and western hemlock forests, generally below 4,000 feet. Certain habitat types within these systems, including *Thuja plicata*/*Oplopanax horridum* (cedar/devil's club), *Thuja plicata*/*Athyrium filix-femina* (cedar/ladyfern), *Thuja plicata*/*Adiantum aleuticum* (cedar/maidenhair fern), *Tsuga heterophylla*/*Gymnocarpium dryopteris* (western hemlock/oakfern) and *Thuja plicata*/*Gymnocarpium dryopteris* (cedar/oakfern), have a high potential to support rare plants. Rare ancient cedar groves that support species in this habitat guild often support a high diversity of rare plant species, and the groves themselves are a unique and important landscape component in the planning zone.

Moist forest guild species are found in more mesic *Thuja plicata* (western redcedar) and *Tsuga heterophylla* (western hemlock) forests, generally in mid- to late-successional stages below 4,800 feet. Most rare plants of this guild occur in *Thuja plicata*/*Clintonia uniflora* (western redcedar/queencup beadlily), *Tsuga heterophylla*/*Clintonia uniflora* (western hemlock/queencup beadlily), *Thuja plicata*/*Asara caudatum* (western redcedar/wild ginger) and *Tsuga heterophylla*/*Asara caudatum* (western hemlock/wild ginger) habitat types. A few species can also be found in moist *Abies grandis*/*Asarum caudatum* (grand fir / ginger) and *Abies grandis* / *Clintonia uniflora* (grand fir / queencup beadlily) habitat types. Certain members of the wet forest guild can also be found in these more mesic upland forests.

The moist forest species group occurs in the warm/moist biophysical setting. Most rare plants of this species group prefer closed-canopy conditions and undisturbed mineral soils. Many also appear to depend on soil mycorrhizae (via symbiotic relationships between their root systems and soil fungi). Some vascular plants, lichens and bryophytes in this species group occupy decaying logs, wet rock, or dry rock substrates in the above plant communities. Several lichens are epiphytic (growing on tree trunks, branches, or twigs), while others grow on mossy rock or downed wood.

Key Stressors Affecting the Species Group

Key stressors affecting this species group include timber harvest (especially regeneration of late seral and old growth cedar and hemlock forests), prescribed fire, road and trail construction, and other activities that could impact populations either directly through loss of individuals or indirectly through canopy removal or ground disturbance that disrupts soil mycorrhizae. Air pollution and removal of large old trees may negatively affect lichens in this species group.

Stressors beyond Forest Service control include short- and long-term climate change (which may increase the risk of desiccation due to increased and prolonged summer temperatures and/or drought conditions), and activities as described above that occur or originate on other ownership lands.

Plan Components that Contribute to Sustaining the Species Group

Note: This section has been updated with components from the revised forest plans and is found in the main body of "Providing for Ecological Sustainability in the Revised Forest Plans".

Peatland Plant Species Group

Zone: Kootenai / Idaho Panhandle

Status of the Species Group

This species group encompasses the peatland habitat guild, which is composed of 42 plant species of interest (SOI). These species are being analyzed as a group because they are all nearly or completely restricted to peatland habitats, in numerous cases they co-occur at known peatland sites, and the stressors and ecological processes that influence their habitats apply to all of them. Distribution, habitat information, and population data for each species are available from the Idaho Conservation Data Center, Washington Natural Heritage Program, Montana Natural Heritage Program, and NatureServe databases.

Species	Common Name	Forest		Species Category* (TEP / SOC / SOI)
		IPNF	KNF	
<i>Andromeda polifolia</i>	Bog rosemary	X		SOI
<i>Aster junciformis</i> (<i>Symphytotrichum boreale</i>)	Rush aster	X		SOI
<i>Betula pumila</i>	Dwarf birch	X	X	SOI
<i>Carex buxbaumii</i>	Buxbaum's sedge	X		SOI
<i>Carex chordorrhiza</i>	String-root sedge	X	X	SOI
<i>Carex comosa</i>	Bristly sedge	X		SOI
<i>Carex flava</i>	Yellow sedge	X		SOI
<i>Carex leptalea</i>	Bristle-stalked sedge	X		SOI
<i>Carex livida</i>	Pale sedge	X	X	SOI
<i>Carex prairea</i>	Prairie sedge		X	SOI
<i>Carex magellanica</i> ssp. <i>irrigua</i>	Poor sedge	X		SOI
<i>Cetraria sepincola</i>	Bog birch lichen	X		SOI
<i>Cicuta bulbifera</i>	Bulb-bearing water hemlock	X		SOI
<i>Cypripedium parviflorum</i>	Yellow lady's slipper	X	X	SOI
<i>Drosera intermedia</i>	Spoon-leaved sundew	X		SOI
<i>Dryopteris cristata</i>	Crested shield fern	X	X	SOI
<i>Epipactis gigantea</i>	Giant helleborine	X	X	SOI
<i>Epilobium palustre</i>	Swamp willow weed	X		SOI
<i>Eriophorum gracile</i>	Slender cotton grass		X	SOI
<i>Eriophorum viridicarinatum</i>	Green-keeled cotton grass	X	X	SOI
<i>Gaultheria hispidula</i>	Creeping snowberry	X		SOI
<i>Hypericum majus</i>	Large Canadian St. Johnswort	X		SOI
<i>Iris versicolor</i>	Blue flag iris	X		SOI
<i>Ludwigia polycarpa</i>	Many-fruit false loosestrife	X		SOI
<i>Lycopodiella inundata</i>	Northern bog clubmoss	X	X	SOI
<i>Maianthemum dilatatum</i>	Beadruby	X		SOI
<i>Meesia longiseta</i>	Meesia moss		X	SOI
<i>Meesia triquetra</i>	Meesia moss		X	SOI
<i>Muhlenbergia glomerata</i>	Marsh muhly	X		SOI
<i>Ophioglossum pusillum</i>	Northern adder's tongue	X	X	SOI

Species	Common Name	Forest		Species Category* (TEP / SOC / SOI)
		IPNF	KNF	
<i>Petasites sagittatus</i>	Arrowleaf coltsfoot	X		SOI
<i>Rhynchospora alba</i>	White beakrush	X		SOI
<i>Salix candida</i>	Hoary willow	X		SOI
<i>Salix pedicellaris</i>	Bog willow	X		SOI
<i>Scheuchzeria palustris</i>	Pod grass	X	X	SOI
<i>Scirpus cespitosus</i>	Tufted bulrush		X	SOI
<i>Scorpidium scorpioides</i>	Scorpidium moss		X	SOI
<i>Sphagnum mendocinum</i>	Mendocine peatmoss	X		SOI
<i>Triantha occidentalis</i> ssp. <i>brevistyla</i>	Short-styled sticky Tofieldia	X		SOI
<i>Trichophorum alpinum</i>	Hudson's Bay bulrush	X		SOI
<i>Trientalis europaea</i>	Northern starflower	X		SOI
<i>Vaccinium oxycoccos</i>	Bog cranberry	X		SOI

*TEP = USFWS Threatened, Endangered or Proposed, SOC = Species of Concern, SOI = Species of Interest

Many peatland plant species of interest are common, and generally secure, when their entire geographic ranges are considered (Chadde et al. 1998). However, species of this guild are narrowly restricted to one or more peatland types, peatlands are rare in the planning area, and all of the species are tracked as rare elements by the state Natural Heritage Programs.

Habitat and Life History Needs

Well-developed peatlands are primarily found at low to middle elevations in northern Idaho and northwestern Montana, within the warm/moist biophysical setting, but some peatlands occur at higher elevations as well, within the subalpine biophysical setting (Lichthardt 2004). Peatlands are wetlands that are characterized by organic (peat) soils that develop when the rate of biomass accumulation exceeds that of decomposition (Vitt et al. 1995). There are two general types of peatlands, which are differentiated by the water sources for each; **bogs** receive water only via precipitation, whereas **fens** receive water via both precipitation and groundwater (Chadde et al. 1998). All of the peatlands within KIPZ are fens, although there are instances where microsites with bog characteristics occur within the fens; such cases are referred to as mixed mires (Chadde et al. 1998). These fen habitats can be further divided into five distinct sub-guilds that are characterized by different plant communities and species, different substrates, different pH and different abiotic processes. Although the sub-guilds are distinct, individual peatland complexes often contain a mosaic of sub-guilds that grade into one another. The sub-guilds are defined as follows:

Poor fens occur in glacial scours, kettle holes, isolated oxbows, old lake beds, and at or near the heads of drainages where inflow is limited. Thick layers of *Sphagnum* peat have accumulated since the end of continental glaciation, about 6,000 - 7,000 years ago. Poor fens are minerotrophic, receiving nutrients from water percolating through mineral soil or bedrock, and are quite acidic (pH values 4-6). These communities are characterized by a solid mat of *Sphagnum* moss with scattered stems of vascular plants, including rare plants such as *Carex comosa*, *C. chordorrhiza*, *Scheuchzeria palustris*, and *Vaccinium oxycoccos*. Poor fens support the oldest plant communities and have changed little since the end of glaciation 6,000-7,000 years ago (Lichthardt 2004).

Ombrotrophic bog ('true bog') communities occur in the planning area only as microsites within other fen communities. Unlike poor fens, the thick mats of peat accumulate upward forming hummocks, often at the base of shrubs or downed logs, and are above the influence of the water table. Incoming water and nutrients (from precipitation) are held above the water table, primarily by the low hydraulic conductivity of the *Sphagnum* peat. Vascular species are few or absent and are restricted to those tolerant of acidic conditions (poor fen species). The pH values are very acidic, ranging from pH 3- pH 4. Compared to rich

fens (pH 6 - 7.5) the pH difference is equal to the difference between vinegar and salt water (Crum 1992; Lichthardt 2004).

Intermediate and rich fens are *Sphagnum*-poor peatlands with vascular plants contributing the majority of cover and composition. Fen substrates are organic, usually with little to no decomposition of organic material. Intermediate fens have equal dominance by bryophytes (*Sphagnum* species and true mosses) and vascular plant species, especially sedges, while rich fens have few (if any) *Sphagnum* species present. Organic soils of rich fens are formed by accumulation of sedge, grass and brown moss peat. Rich fens are commonly found in areas of calcareous bedrock (e.g., limestone).

Like poor fens, intermediate and rich fen communities can occur on floating or fixed organic mats. Floating mats contain some of the most ecologically stable communities occurring in north Idaho peatlands because they adjust to fluctuating water levels annually, maintaining constant contact with water and never becoming inundated like fixed (shore) mats. The pH values for intermediate and rich fens can vary from pH 6 - 7.5.

Paludified forests typically occur on the margins of closed peatland basins and often form a mosaic with poor fen, rich fen, or shrub-carr communities. These communities occur with the expansion of peatlands and result from a rise in the water table from peat accumulation. Paludification is thought to precede the formation of poor fen and true bog (ombrotrophic) habitats (Crum 1992). Paludified forests are characterized by an overstory of conifers, with a soil that is *Sphagnum* peat. The understory is dominated by *Sphagnum* moss species and some vascular plants, including some rare species found in poor fens and ombrotrophic bogs.

Shrub-carr habitats include moist shrubland riparian communities, and represent fens that are dominated by shrub species. Habitats dominated by willows and other shrubs occur in nearly impenetrable patches along low gradient channels, as stringers or on narrow flood plains along high gradient streams, as mosaic patches within riparian forests, and on margins of meadows and fen communities. Most commonly, one or more shrubs dominate vast areas of moist to wet, seasonally flooded fens or riparian zones. Shrub-carrs often contain willow-dominated shrublands associated with low gradient meandering channels or fens (Lichthardt 2004).

Key Stressors Affecting the Habitat Guild

The two most critical factors affecting the abundance and distribution of rare peatland species appear to be hydrologic conditions and the nutrient concentration of incoming water (Chadde et al. 1998). Natural factors such as wildfire, drought and beaver activity bring periodic changes in these factors and consequent shifts in location and abundance of peatland species. The abrupt, large-scale and often irreversible nature of changes in hydrology and nutrient concentration that result directly or indirectly from human activities may be beyond the tolerance level of many rare peatland plant populations.

Direct impacts that may threaten the integrity of peatland ecosystems and associated plant populations include ditching and drainage, peat mining, trampling by livestock, water flow regulation, and invasion by exotic plant species. Indirect impacts that may imperil peatland habitats and peatland rare plants include upland activities that may alter hydrologic or nutrient regimes, such as timber harvest, road construction, agricultural practices and livestock grazing. Peatlands are also susceptible to invasion by certain noxious weeds.

One stressor beyond Forest Service control includes long- and short-term climate change, which may increase the risk of desiccation due to increased and prolonged summer temperatures and/or drought conditions. Prolonged drought may exacerbate the effects of livestock grazing. Conifer encroachment as a result of prolonged drought and/or fire exclusion may also impact peatland species.

Plan Components that Contribute to Sustaining the Species Group

Note: This section has been updated with components from the revised forest plans and is found in the main body of “Providing for Ecological Sustainability in the Revised Forest Plans”.

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Subalpine Grassland Plant Species Group

Zone: Kootenai / Idaho Panhandle

Status of the Species Group

This species group occurs in the non-forested portions of the subalpine zone. Rare subalpine plant species occurring in balds and meadows or on rocky ridges include two species of concern (SOC) and seven species of interest (SOI). This species group was identified on the basis of the similar habitats that are occupied by these plant species and the similarities among them regarding the stressors and ecological processes that influence their habitats. Distribution, habitat information, and population data for each species are available from the Idaho Conservation Data Center, Washington Natural Heritage Program, Montana Natural Heritage Program, and NatureServe databases.

Species	Common Name	Forest		Species Category* (TEP / SOC / SOI)
		IPNF	KNF	
<i>Buellia badia</i>	Disc lichen		X	SOC
<i>Nodobryoria subdivirgens</i>	Old man's beard	X	X	SOC
<i>Astragalus bourgovii</i>	Bourgeau's milkvetch	X		SOI
<i>Carex californica</i>	California sedge	X		SOI
<i>Hygrohypnum cochlearifolium</i>	Hygrohypnum moss		X	SOI
<i>Ivesia tweedyi</i>	Tweedy's ivesia	X		SOI
<i>Meesia uliginosa</i>	Meesia moss		X	SOI
<i>Polystichum kruckebergii</i>	Kruckeberg's hollyfern		X	SOI
<i>Romanzoffia sitchensis</i>	Sitka mistmaiden	X		SOI

Habitat and Life History Needs

Plant communities that support this species group occur mostly on ridges, in subalpine parklands, or on exposed rock outcrops near or above timberline²³. They include *Abies lasiocarpa* (subalpine fir) krummholz, *Salix commutata* (undergreen willow), and subalpine grass and sedge communities. *Festuca viridula* (green fescue) is a particularly important species in the grassland areas (Daubenmire 1981). In general, the treeless areas have a relatively unique flora compared with surrounding plant communities, and some of the plant species of interest are not found elsewhere in Idaho (Moseley 1993).

The habitats supporting this species group occur in the subalpine biophysical setting. Growing seasons in these harsh environments are short; vegetation is low-growing to withstand high winds and cold temperatures, and most of the plant material occurs underground (Barbour *et al.* 1987). Perennial forbs, grasses, sedges, dwarf shrubs, mosses and lichens make up the dominant vegetation. The subalpine parks have developed as a result of snow transfer from the windward to the leeward slopes during the winter, and subsequent deep soil drying on the windward slopes during the essentially rainless summers in the northern Rocky Mountains. In addition, the soil mantle is typically thin and stony (Daubenmire 1981).

Many of these high elevation habitats occur in inventoried roadless areas, designated or recommended wilderness or other remote, primitive locations.

²³ Only a small amount of habitat in the Kootenai / Idaho Panhandle planning zone is truly alpine (i.e. above timberline). Most subalpine grasslands/shrublands are surrounded by subalpine fir forests.

Key Stressors Affecting the Species Group

Several management activities and risks may have direct or indirect effects on rare plants in this species group. These include disturbance associated with recreation use, trail construction (including blasting of rock), maintenance of fire lookouts and other administrative sites, and harvesting of special forest products. Invasion of exotic plant species may affect some rocky sites, but generally the harshness of these habitats inhibits complete dominance by such species.

One stressor beyond Forest Service control includes climate change, which may result in changes to snow amounts and distribution that affect these habitats. The possibility of desiccation due to increased and prolonged summer temperatures or drought conditions is also a potential stressor resulting from climate change, although the subalpine parks currently occupy areas that are subject to a higher degree of summer soil drying compared to surrounding sites (Daubenmire 1981).

Plan Components that Contribute to Sustaining the Species Group

The following plan components for ecosystem diversity and species diversity address the most significant habitat characteristics and stressors affecting sustainability of this species group:

Ecosystem diversity:

FW-DC-AR-07 – Transportation system: minimal impacts on threatened, endangered, and sensitive species

FW-DC-VEG-10 – Invasive species

FW-DC-SOIL-01 – Soil properties maintain productivity

FW-DC-SOIL-02 – Soil impacts are minimized

FW-DC-SOIL-03 – Volcanic ash-influenced soils retain unique properties

FW-DC-SFP-01 – Special forest and botanical products

MA1a – Wilderness desired conditions

MA1b – Recommended wilderness desired conditions

MA1c – Wilderness study area desired conditions

MA5 – Backcountry desired conditions

FW-OBJ-VEG-02 – Noxious weeds / invasive plant species

Species diversity:

FW-GDL-VEG-07 – Guideline for conservation of federally listed and regionally sensitive plant species

FW-DC-VEG-09 – Desired conditions for federally listed and regionally sensitive plants

This combination of components for ecosystem diversity and species diversity helps provide appropriate ecological conditions for rare plant species occurring in subalpine grassland habitats. They address the key stressors affecting the species on national forest lands through mitigation of management activities (such as trail construction and maintenance of administrative sites) that could have the greatest influence on the habitats (see especially **FW-GDL-VEG-07**). The plan component for the transportation system (**FW-DC-AR-07**) supports minimal impacts on species of concern and species of interest. The plan component for harvest of special forest products (**FW-DC-SFP-01**) supports sustainable harvest of such species; while the rare species in this group are not likely to be harvested, this component will be useful in managing the habitats in a sustainable manner. The soil desired conditions (**FW-DC-SOIL 01** through **03**) address ground disturbance, soil impacts, and mycorrhizal relationships. The desired conditions for wilderness (**MA1a**), recommended wilderness (**MA1b**), wilderness study areas (**MA1c**), and backcountry areas (**MA5**) support protection of this species group from many disturbance activities. The invasive species desired condition (**FW-DC-VEG-10**) and objective (**FW-OBJ-VEG-02**) address non-native invasive species that may threaten the ecological integrity of subalpine grassland habitats.

References

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