

**Environmental Assessment
For the
Proposed Amendments to
the Management Indicator Species List for the Salmon and
Challis Land and Resource Management Plans**

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Chapter 1 – Purpose and Need

Introduction

The Forest Service has prepared this Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations. This EA discloses the direct, indirect and cumulative environmental impacts that would result from the proposed action and any additional action alternatives. It also provides the supporting information for a determination to prepare a Finding of No Significant Impact (FONSI).

Additional documentation can be found in the project planning record located in the Supervisors Office, Salmon-Challis National Forest, in Salmon, Idaho, or in Appendix C – Management Indicator Species Process Paper for the Salmon-Challis National Forest of this document.

Background

Management Indicator Species (MIS) are defined as “plant and animal species, communities, or special habitats selected for emphasis in planning, and which are monitored during forest plan implementation in order to assess the effects of management activities on their populations and the populations of other species with similar habitat needs which they may represent” (FSM 2620.5). The role of management indicator species (MIS) in National Forest planning is described in the 1982 implementing regulations for the National Forest Management Act (NFMA) of 1976:

“In order to estimate the effects of each [Forest Plan] alternative on fish and wildlife populations, certain vertebrate and/or invertebrate species present in the area shall be identified and selected as management indicator species and the reasons for their selection will be stated. These species shall be selected because their population changes are believed to indicate the effects of management activities. In the selection of management indicator species, the following categories shall be represented where appropriate: Endangered and threatened plant and animal species identified on State and Federal lists for the planning area; species with special needs that may be influenced significantly by planned management programs; species commonly hunted, fished or trapped; non-game species of special interest; and additional plant or animal species selected because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities or on water quality (36 CF 219.12(a)(1)).”

It is important to note this regulation gives deciding officials broad discretion to select MIS. The deciding official, using information provided by an interdisciplinary planning team, determines whether the population changes of certain species are “believed to indicate the effects of management activities.” Beliefs or opinions about the reliability of such relationships obviously are subject to change; it follows that deciding officials may periodically need to reevaluate the MIS selected for Forest planning and make appropriate adjustments. Furthermore, the regulations specify species are to be selected

from various categories “where appropriate”; there is no requirement that all categories be represented.

It is unreasonable and inappropriate to select a management indicator species to represent a single community type when that same species makes use of and is dependent upon several other community types. With the large number of individual types included in the various forested, non-forested, and riparian communities found across the Salmon-Challis National Forest, the results of this approach would be a list of indicator species of unwieldy proportions. The monitoring results would also be unlikely to directly indicate the effects of management actions.

A reasonable list of MIS to effectively and efficiently monitor can be developed by focusing on a composition of similar community types where most management activities occur. The monitoring results can then be directly tied back to management activities affecting those community types.

It is also important to note that both the concept of management indicator species and the application of the MIS concept have come under considerable criticism. Growing doubts about the usefulness of the concept and/or its application are reflected in the literature and in the new planning regulations for the National Forest Management Act, which drop the use of MIS entirely (reflecting current thinking in the scientific community). Nonetheless, the 1982 regulations will remain in effect until a transition to the new regulations is complete. Each Forest Plan must include an appropriate MIS list until new regulations are implemented and Forest Plans are amended or revised.

Proposed Action

The Forest Supervisor proposes to amend the Salmon and Challis Land and Resource Management Plans and adopt a new list of management indicator species (MIS) and clarify monitoring and evaluation procedures associated with each species. Table 1 shows the MIS list that is being proposed. The proposed new list was intended to bring the Forest Plans in line with new information and current interpretations of agency regulations and policies concerning MIS.

Table 1-1. Proposed list of Management Indicator Species for the Salmon and Challis Land and Resource Management Plans

Life Form	Common Name	Scientific Name
Bird – Forested	Pileated woodpecker	<i>Dryocopus pileatus</i>
Bird – Non-forested	Sage grouse	<i>Centrocercus urophasianus</i>
Mammal	Beaver	<i>Castor canadensis</i>
Fish	Bull Trout	<i>Salvelinus confluentus</i>

Purpose and Need

The Forest Supervisor for the Salmon-Challis National Forest has determined the need to reevaluate and refine the MIS lists for the Salmon and Challis Land and Resource Management Plans in ways that improve its reliability, efficiency, and cost-effectiveness in meeting information needs for the biological effects of active management. MIS

species shall be selected "...because their population changes are believed to indicate the effects of management activities" (36 CFR 219.19(a) (1)).

Since adoption of these plans, Biologists have learned that some of the original MIS occur too infrequently to be reliable indicators for the purposes or habitat types they were selected to represent. Some have proven impractical to monitor economically or efficiently, while others have turned out to be poor indicators due to many different factors affecting populations. Biologists have also found there are species not listed as MIS in these Forest Plans that appear to be good substitutes for some of those that now seem inadequate.

Based on these factors, the Forest Supervisor assigned an interdisciplinary team to review the current MIS lists and determine whether each species was serving the purpose it was intended to serve, whether any new MIS should be added, and whether it is both feasible and meaningful to monitor the selected or proposed MIS populations at levels necessary to meet current standards and legal interpretations.

Location

The Salmon-Challis National Forest covers approximately 4.3 million acres in east-central Idaho. The Forest is boarded by the Bitterroot Range on the east, and bordered on the west by the Frank Church-River of No Return Wilderness. These amendments concern the entire 4.3 million acres.

Decision to Be Made

Based on the environmental analysis, the Forest Supervisor will decide whether or not to amend the Salmon and Challis Land and Resource Management Plans to modify the list of MIS and their associated monitoring and evaluation plans. The scope of the decision is limited to adding or deleting management indicator species and associated purpose or habitat categories and narrative descriptions in the Forest Plans. The Forest Supervisor will also determine whether these are significant or non-significant amendments.

Public Involvement

A scoping letter was mailed September 19, 2003 to the 114 addresses on the Forest Mailing list. The proposed action was enclosed with a cover letter inviting comments by October 20, 2003. Four public letters, three internal comments, one public phone call with comments, and one public phone call requesting a copy of the Environmental Assessment were received.

Issues

The following are the three issues that drove the development of the alternatives (including the Proposed Action) described in Chapter 2. Issue one drove the Proposed Action. Issues 2 and 3 were identified from public letters and internal review.

1. Management Indicator Species shall be selected because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities or on water quality.

Evaluation Criteria

Does each species meet the following criteria for selection?

- Population data is readily available or protocols exist for collection of scientifically credible population data.
 - Habitats of species must be associated with management areas where habitat manipulation is allowed.
 - A relationship between population trends and habitat management activities exist.
2. Amphibian life cycles span both aquatic and terrestrial habitats, and can play a significant role as MIS and offer different insights than just bull trout. Amphibians are reliable indicators of aquatic and terrestrial health and survey protocols are readily available.

Evaluation Criteria

- Does the alternative contain an amphibian that meets the three selection criteria?
3. The beaver is a poor choice as it represents only riparian habitats and reflects more how the Idaho Department of Fish and Game manages the species, rather than Forest Service Activities.

Evaluation Criteria

- Is there another species that could replace the beaver that meets the three selection criteria?

Other Comments Not Receiving Further Consideration

The following comments and concerns (in bold) were reviewed but were not used to develop alternatives. The rationale for their dismissal is included.

- **Rather than being concerned about a life form, specific habitats and animal species that truly represent those habitats and are capable of reflecting changes in Forest Service management of these habitats should be the concern.**

Management Indicator Species are selected because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities or on water quality. These major biological communities are discussed in Chapter 3 for each species that is being proposed.

- **Sage Grouse do not represent all non-forested habitats. This is a poor choice.**

The greater sage-grouse represents the non-forested vegetative habitat/community type, and was never considered to represent all non-forested habitats, such as the riparian or aquatic habitat/community types. More information can be found in Chapter 3 under greater sage-grouse.

- **The pileated woodpecker is not a good choice for “forested habitats” as it represents mostly douglas-fir habitats. It is not a good representative for Lodgepole pine / sub-alpine fir, Whitebark pine or ponderosa pine habitats.**

Habitat for the pileated woodpecker primarily occurs in mixed conifer forests, including spruce-fir, Douglas-fir, lodgepole pine and ponderosa pine, that are capable of growing large-diameter trees (>20” diameter) with multi-storied stands.

- **The six major habitat groups that should be represented include 1) riparian, 2) sagebrush / grass, 3) ponderosa pine, 4) Douglas-fir, 5) Lodgepole pine/ sub-alpine fir and 6) Whitebark pine.**

Management Indicator Species are selected because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities or on water quality. These major biological communities are discussed in Chapter 3 for each species that is being proposed.

- **The white-tailed jackrabbit should be considered as a MIS.**

The white-tailed jackrabbit is known to exhibit extreme population cycles. Such cycles appear to function somewhat independently of habitat conditions. Stand replacing fires in the sagebrush communities greatly decrease habitat suitability, often for decades, because this species relies on brush for protection from the many bird and mammal predators. In Idaho, the white-tailed jackrabbit is classified as a predator and is subject to unlimited hunting, trapping and depredation during all seasons of each year. For these reasons, the white-tailed jackrabbit has not received further consideration as a MIS.

- **The pygmy nuthatch should be considered as a MIS.**

The pygmy nuthatch is an uncommon resident and has one of the most limited ranges of any species occurring in the Salmon River drainage. Although this species is considered to be a good indicator for vegetative changes occurring in late-seral single-strata pine communities, it is not present in the ponderosa pine type and where found, is present in such low numbers that survey and monitoring techniques would be extremely difficult. For these reasons, the pygmy nuthatch has not received further consideration as a MIS.

- **The snowshoe hare should be considered as a MIS.**

The snowshoe hare is known to exhibit extreme population cycles. Such cycles appear to function somewhat independently from habitat conditions and are much more pronounced in the northern portions of snowshoe hare range than in the southern portions. Large stand-replacing wildfires commonly set the stage for vast

expanses of conifer regeneration that usually provide optimum snowshoe hare habitat during some stage of growth, usually within 10 to 30 years after the burn. For these reasons, the snowshoe hare has not received further consideration as a MIS.

- **The northern goshawk should be considered as a MIS.**

The northern goshawk is a habitat generalist and is known to nest in a wide variety of forest communities and structural conditions ranging from open park-like stands of aspen to multi-storied old Douglas-fir forests. Very little is known about this species winter habitat. They are considered “partial migrants” and exhibit both elevational and latitudinal movement. For these reasons, the northern goshawk has not received further consideration as a MIS.

- **The Clark’s nutcracker should be considered as a MIS.**

The Clark’s nutcracker is a specialized frugivore that is known to play an important role in the ecology of pine species such as pinyon, limber and whitebark, all of which have large wingless seeds that are not dispersible by wind. When more seeds are cached than are later either retrieved and eaten by nutcrackers or discovered and eaten by rodents, the surplus normally germinate, thus perpetuating the tree species. Although there is a very close relationship between Clark’s nutcracker and whitebark pine regeneration, whitebark pine does not have commercial timber value and only occurs at high elevation, typically rocky sites and consequently has not been subjected to management activities. For these reasons the Clark’s nutcracker has not been considered further consideration as a MIS.

- **Habitat types should include 1) riparian/lentic/herbaceous wetlands, 2) sagebrush-steppe, 3) coniferous forest, 4) aspen, 5) mountain mahogany, and 6) rivers/streams/lakes.**

Management Indicator Species are selected because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities or on water quality. These major biological communities are discussed in Chapter 3 for each species that is being proposed.

- **The willow flycatcher should be considered as a MIS.**

Because of the willow flycatcher’s seasonal migrations, population changes may be a result of situations occurring on wintering grounds rather than responses to management activities on Forest Service administered lands within the Salmon-Challis National Forest. For these reasons the willow flycatcher has not been further considered as a MIS.

- **Willow, black cottonwood, whitebark pine, aspen, mountain mahogany, spotted knapweed and leafy spurge should all be considered as MIS.**

Plants are stationary and are subject to numerous abiotic physical disturbances (fire) and influences (climate) in addition to biotic disturbances (insects, disease, native fauna). These influences can be very disruptive to individual plants or entire plant communities and are out of the control or influence of management activities. All plant species, whether good plants or bad plants, are subject to these stresses.

All of the suggested plant species are considered ‘species of interest’ or ‘species of focus’ at the project scale. This means that depending on the particular management activity these species are recognized for special consideration. Many Forest activities at the project site level are designed to manipulate these plant communities to obtain specific objectives. Monitoring is designed to measure the success of implementing the project and the effectiveness of obtaining these objectives. Activities that have the potential to disturb these communities at the broader landscape level (livestock grazing) also have mitigation measures and monitoring protocols designed to avoid such disturbance.

Since these plant species (community types) are already focal species there is no reason to apply further designation of MIS since this recognition would not provide any additional management direction than already present.

▫ **Mule Deer should be considered as a MIS.**

Hunting season regulations, predation, supplemental feeding, and off-Forest winter range decisions are outside the administrative control of the Forest Service.

▫ **Pronghorn should be considered as a MIS.**

State wildlife agency decisions, annual harvests, predation and management of off-Forest seasonal habitats and migration routes can greatly influence antelope populations. Antelope are a hunted species and are directly affected by hunting season regulations (i.e. number and type of permits and season timing and length). In addition, the affinity of this species for irrigated hay meadows often results in “depredation hunts” with specific population reduction goals.

▫ **The vesper sparrow should be considered as a MIS.**

As a migratory land bird, population changes may be a result of situations occurring on wintering grounds or through parasitism by cowbirds rather than management activities. Habitat for this species can also be converted to unsuitable conditions through wildfires.

▫ **The American marten should be considered as a MIS.**

Trapping season regulations for the American marten are outside the administrative control of the Forest Service.

▫ **The ruffed grouse should be considered as a MIS.**

Ruffed grouse, a forest dwelling grouse, occurs in riparian areas on various portions of the Salmon-Challis NF and is considered to be closely associated with deciduous riparian areas and aspen clones. It is a hunted species but population fluctuations are normally attributed to nesting and brood rearing success, both of which are weather dependent.

- **Cryptogamic soils should be considered as a MIS for soil health.**

Cryptogamic soil crusts are recognized on the Salmon-Challis National Forest as a life form for special consideration and are monitored as an integral part of the rangeland monitoring program. Cryptogams are included when monitoring cover transects and when monitoring long term trend studies using nested frequency plots. The Forest does not have the expertise to inventory or monitor cryptogams at the genus or species level necessary to evaluate and analyze species diversity, seral stage, or disturbance regimes.

The cryptogam life form is recognized for special consideration and adequate monitoring of the life form in general is being performed. Further designation as MIS would be meaningless without the expertise to adequately monitor and evaluate at the species level.

Chapter 2 – Alternatives

Three alternatives were considered based on internal and public scoping. These three alternatives, including the No Action and the Proposed Action are explained in detail in this chapter.

Alternatives Considered In Detail

▪ Alternative 1 (No Action)

The No Action Alternative would retain the current list of management indicator species for both the Salmon Forest Plans (see Table 2-1) and the Challis Forest Plan (see Table 2-2). Existing monitoring protocols would be followed.

Monitoring of the existing list of MIS is identified on page V-9 of the Challis Forest Plan and page V-5 of the Salmon Forest Plan.

Table 2-1. Management Indicator Species in the Salmon Land and Resource Management Plan

Common Name	Scientific Name
Rocky Mountain Elk	<i>Cervus elaphus</i>
Mule Deer	<i>Odocoileus hemionus</i>
Bighorn Sheep	<i>Ovis canadensis</i>
Mountain Goat	<i>Oreamnos americanus</i>
Pine Marten	<i>Martes americana</i>
Pileated Woodpecker	<i>Dryocopus pileatus</i>
Vesper Sparrow	<i>Poocetes gramineus</i>
Yellow Warbler	<i>Dendroica petechia</i>
Ruby-crowned Kinglet	<i>Regulus calendula</i>
Goshawk*	<i>Accipiter gentilis</i>
Great Grey Owl	<i>Strix nebulosa</i>
Yellow-bellied Sapsucker**	<i>Sphyrapicus nuchalis</i>
Pygmy Nuthatch	<i>Sitta pygmaea</i>
Brown Creeper	<i>Certhia americana</i>
Mountain Bluebird	<i>Sialia currocoides</i>
Anadromous Fish (salmon and steelhead)	<i>Oncorhynchus tshawytscha</i> , <i>O. mykiss</i> , <i>O. nerka</i>
Trout (all species combined)	<i>Oncorhynchus mykiss</i> , <i>O. clarki</i> , <i>Salvelinus confluentus</i>
Aquatic Macroinvertebrates***	

*This species is now know as the northern Goshawk

**This species is now known as the red-naped sapsucker

*** Specific genus and species to be identified at the project level

Table 2-2. Management Indicator Species in the Challis Land and Resource Management Plan

Common Name	Scientific Name
Rocky Mountain Elk	<i>Cervus elaphus</i>
Mule Deer	<i>Odocoileus hemionus</i>
Bighorn Sheep	<i>Ovis canadensis</i>
Mountain Goat	<i>Oreamnos americanus</i>
Red Squirrel	<i>Tamiasciurus hudsonicus</i>
Big Sagebrush and Sub-species	<i>Artemisia tridentata, vaseyana, wyomingensis</i>
Bitterbrush	<i>Purshia tridentata</i>
Bluebunch Wheatgrass	<i>Agropyron spicatum</i>
Idaho Fescue	<i>Festuca idahoensis</i>
Western Yarrow	<i>Achillea millefolium</i>
Canadian Thistle	<i>Cirsium arvense</i>
Rainbow Trout	<i>Oncorhynchus mykiss</i>
Cutthroat Trout	<i>Oncorhynchus clarki</i>
Bull Trout	<i>Salvelinus confluentus</i>
Steelhead	<i>Oncorhynchus mykiss</i>
Chinook	<i>Oncorhynchus tshawytscha</i>
Mayfly	<i>Rhithrogena spp.</i>
Mayfly	<i>Epeorus spp.</i>
Mayfly	<i>Ephemerella doddsi</i>
Stonefly	<i>Zapada spp.</i>
Mayfly	<i>Ephemerella inermis</i>
True Fly	<i>Chironomidae spp.</i>

- **Alternative 2 (Proposed Action)**

Table 2-3 shows the MIS list that is being proposed. The proposed new list was intended to bring the Forest Plans in line with new information and current interpretations of agency regulations and policies concerning MIS.

Table 2-3. Proposed list of Management Indicator Species for the Salmon and Challis Land and Resource Management Plans

Life Form	Common Name	Scientific Name
Bird – Forested	Pileated woodpecker	<i>Dryocopus pileatus</i>
Bird – Non-forested	Sage grouse	<i>Centrocercus urophasianus</i>
Mammal	Beaver	<i>Castor canadensis</i>
Fish	Bull Trout	<i>Salvelinus confluentus</i>

- **Alternative 3 (Amphibian Alternative)**

Alternative 3 represents a modification of the proposed action that would replace the beaver with the spotted frog. This Alternative addressed two issues brought up by the public. (1) Amphibian life cycles span both aquatic and terrestrial habitats, and can play a significant role as MIS and offer different insights than just bull trout. Amphibians are reliable indicators of aquatic and terrestrial health and survey protocols are readily available and (2) Beaver are a marginal MIS due to the general lack of suitable channel morphology on the Forest and reflects more how Idaho Department of Fish and Game manage the species rather than Forest Service activities.

Table 2-4. Proposed list of Management Indicator Species for the Salmon and Challis Land and Resource Management Plans

Life Form	Common Name	Scientific Name
Bird – Forested	Pileated woodpecker	<i>Dryocopus pileatus</i>
Bird – Non-forested	Sage grouse	<i>Centrocercus urophasianus</i>
Amphibian	Spotted Frog	<i>Rana luteiventris</i>
Fish	Bull Trout	<i>Salvelinus confluentus</i>

Chapter 3 – Affected Environment and Environmental Consequences

Chapter 3 discloses the affect environment and the potential environmental consequences associated with the three alternatives described in the previous chapter. As such, this chapter provides the scientific and analytic basis for the comparison of alternatives. The probable effects of each alternative on selected elements of the affected environment are examined and, where possible, quantified.

The proposed amendments to the Forest Plans evaluated in this environmental assessment represents a programmatic decision that produces **no direct, indirect, or cumulative environmental effects** and **entails no irreversible or irretrievable commitments of resources** on any site. These amendments will make changes to the list of MIS available for use in analyzing the effects of alternatives presented in future Forest Plan amendments and future project-level environmental assessments. The evaluation in this section discloses the criteria for rationale of keeping, dismissing, and adding MIS species for the three alternatives.

Issue 1

Management Indicator Species shall be selected because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities or on water quality.

Evaluation Criteria - Does each species meet the following criteria for selection?

- Population data is readily available or protocols exist for collection of scientifically credible population data.
- Habitats of species must be associated with management areas where habitat manipulation is allowed.
- A relationship between population trends and habitat management activities exist.

- **Alternative 1 (No Action)**

- Rocky Mountain Elk

- Although elk can be affected by Forest management activities, including access management, such effects are typically not exclusive, nor rarely even primary. Vegetation management, for example, may alter elk habitat, but because elk are habitat generalists, they can adjust to utilize altered habitat. Thus, timber harvest activities may displace elk temporarily through disturbance, but elk will likely remain in the area as long as a variety of key habitat components (forage, cover, water, movement corridors, security area) are present. Cumulatively, state wildlife agency decisions, annual harvests, predation, access management, disease, and

management of off-Forest winter range and migration routes can also greatly influence elk populations. These influences are described in more detail below.

Elk are a hunted species and are affected by hunting season regulations (sex, number of permits, and season length) and changes in access management, which can affect their vulnerability to harvest. The Idaho Department of Fish and Game (IDFG) set hunting regulations. Depending on winter conditions, elk are sometimes supplementally fed to maintain target population levels. Decisions to provide supplemental feed are made by the Idaho Department of Fish and Game and their governing Commission.

The gray wolf has recently been re-introduced into central Idaho and is now commonly found on both Forests. Wolves are an additional predator on elk that have not been an influence in the recent past, although elk historically evolved with wolf predation. The extent of current predation is unknown, but will likely increase as wolf populations grow, and should level off once wolf populations stabilize. Until that time, the extent of annual predation on elk will be difficult to predict. However, annual herd composition and trend counts conducted by the IDFG indicate low elk calf recruitment in some areas, especially where wolf packs are established.

Several important areas where elk winter are off Forest-administered lands, and the management of these lands may not be in the best interest of elk. Agricultural production and residential development may be the highest demand for these lands, but the potential for farming, urbanization, and development may occur at the expense of wintering animals and available habitat. Such habitat reduction and fragmentation can have very adverse impacts on elk populations.

Mule Deer

Although mule deer can be affected by Forest management activities, including access management, such effects are typically not exclusive, nor rarely even primary. Vegetation management, for example, may alter mule deer habitat, but because mule deer are habitat generalists, they can adjust to utilize altered habitat. Timber harvest activities may displace mule deer temporarily through disturbance, but mule deer will likely remain in the area as long as a variety of key habitat components (forage, cover, movement corridors, security area) are present. Cumulatively, state wildlife agency decisions, annual harvests, predation, access management, disease, and management of off-Forest winter range and migration routes can also greatly influence mule deer populations. These influences are described in more detail below.

Mule deer are a hunted species and are affected by hunting season regulations (sex, number of permits, and season timing and length) and changes in access management. Hunting regulations are set by Idaho Department of Fish and Game.

The gray wolf has recently been re-introduced into Central Idaho and is now commonly found on both Forests. Wolves are known to prey on mule deer. Wolves are an additional predator on mule deer that have not been an influence in the recent past, although mule deer historically evolved with wolf predation. The extent of current predation is unknown, but will likely increase as wolf populations grow, and

should level off once wolf populations stabilize. Until that time, the extent of annual predation on mule deer will be difficult to predict.

Most low elevation winter ranges for mule deer are located off of Forest Service administered lands. These winter ranges are very important to maintaining current populations of mule deer. The Forest Service has no control over the management of these lands, which may not be in the best interest of mule deer. Agricultural production and residential development may be the highest demand for these lands, but the potential for urbanization and development may occur at the expense of wintering animals.

Bighorn Sheep

Although bighorn sheep can be affected by Forest management activities, including access management and vegetative manipulation, such effects are typically not exclusive, nor rarely even primary, especially at higher elevations. Timber harvest, for example, may alter bighorn sheep habitat, but generally speaking, reducing the canopy coverage of forested habitats would stimulate forage production and encourage use by bighorns. Other vegetative management activities such as use of prescribed fire to increase the age diversity of shrub communities and stimulate production of grasses and forbs enhance available habitats for this species. Cumulatively, state wildlife agency decisions, annual harvests (both sport harvest and Native American harvest), predation, access management and disease can greatly influence bighorn sheep populations.

Mountain Goat

Mountain goat population levels do not indicate the effects of Forest management activities very well. The majority of mountain goat habitat is on cliffs or steep, rocky, high-elevation areas, and Forest management activities are limited in their effects to these habitat or species. Little if any vegetation management occurs in mountain goat habitat, except occasional prescribed burning. Some livestock grazing, primarily by domestic sheep, rock climbing and recreational trail use occurs in goat habitat, but use is largely restricted to the summer and fall. Other factors that are known to influence goat populations are hunting and predation. Goats are a hunted species and are directly affected by hunting season regulations (sex, number of permits, and season length). The gray wolf has recently been re-introduced into the central Idaho area, and wolves are known to prey on mountain goats. The extent of such predation is unknown. However, all these factors are outside the control of the Forest Service, and thus changes in goat populations may not be in response to management activities over which the Forest Service has administrative control.

Pine Marten

The American marten is closely associated with late-successional coniferous forests and is potentially a good MIS for loss or alteration of such habitats thru timber harvest, including related activities such as fuel reduction, and stand replacing fires. However, this species has been trapped for fur since aboriginal times (Ruggiero et al. 1994) and remains a popular furbearer, throughout its range. Trapping opportunities for marten are greatly enhanced via motorized access and such access is thought to be largely responsible for noticeable decreases in some populations

and apparent range contractions. This species may no longer be harvested by any means in 5 western states, California, Nevada, New Mexico, South Dakota and Utah, and Regions 2 and 5 of the USFS have placed them on their Regional Foresters' "sensitive species" list. Protocols do exist for monitoring marten however accessibility to many habitats for winter track surveys is very difficult at best.

Red Squirrel

This species indicates the presence of cone-bearing conifers, not necessarily climax coniferous forests or even "mature" conifer stands. Consequently, it does not represent habitats required for species that actually need late-successional stand structure and large diameter coniferous trees.

Pileated Woodpecker

The pileated woodpecker is listed as an MIS in Chapter II of the current Salmon National Forest Plan. However, it was not carried forward into Chapter IV of the Forest Plan where management direction, standards and guidelines are identified for all resources, an apparent oversight or typographical error. This species is a strong MIS candidate for retention on the revised Salmon-Challis National Forest MIS List and is discussed, in detail, in Alternative 2 of this Chapter.

Vesper Sparrow

As a migratory land bird, population changes may be a result of situations occurring on wintering grounds or through parasitism by cowbirds rather than management activities over which the Forest Service has administrative control (Burleigh 1972, Groves et al. 1997). Most conversion of sagebrush to agriculture or exotic species has occurred off Forest Service administered lands in the past, and no extensive conversion is expected to occur on Forest Service administered lands in the future. However, habitat for this species can also be converted to unsuitable conditions through wild fires, especially where noxious weed seed sources are already present.

Yellow Warbler

Because of the yellow warbler's seasonal migrations, population changes may be a result of situations occurring on wintering grounds rather than responses to management activities on Forest Service administered lands within the Salmon National Forest (Burleigh 1972, Groves et al. 1997).

Ruby-crowned Kinglet

Because of the ruby-crowned kinglet's seasonal migrations, population changes may be a result of situations occurring on wintering grounds rather than responses to management activities on Forest Service administered lands within the Salmon National Forest (Burleigh 1972, Groves et al. 1997).

Northern Goshawk

Although the goshawk may be sensitive to Forest management activities such as fire suppression, timber harvesting and livestock grazing, that affect prey habitats (Hann

et al. 1997), the use of winter ranges located off-Forest and the lack of knowledge concerning seasonal migrations make this species a poor candidate for MIS status. In addition, the effects of human disturbance during the non-breeding season are unknown and the Breeding Bird Survey (BBS) data are insufficient to determine population trends in the Columbia River Basin (CRB).

Great Grey Owl

Great gray owls are a contrast species that requires a complex juxtaposition of habitats for foraging, nesting and roosting. Although they may be sensitive to several forest management activities, including timber harvest, fire suppression and firewood cutting, effects of these activities are mixed and would be very difficult to quantify. This species is known to make periodic migrations to winter habitats that may be far removed from this Forest and survey techniques have proven both difficult to apply and unproductive.

Yellow-bellied (Red-naped) Sapsucker

Although this species may be affected by fire suppression and forest successional stage changes, it is uncommon on the Forest and its source habitat (aspen) is patchy and very limited in extent. Also, these woodpeckers are Neotropical migratory land birds. Therefore, population changes may be a result of situations occurring on wintering grounds rather than a response to management activities on Forest Service administered lands (Burleigh 1972, Groves et al. 1997).

Pygmy Nuthatch

This species is an uncommon resident on the Salmon National Forest and has one of the most limited ranges of any species occurring in the Salmon River drainage (Roberts 1992). Sightings of these small nuthatches have been very infrequent, over the last 50 years and usually have occurred along the main Salmon River below Shoup (Burleigh 1972 and Roberts 1992). Although this species is considered to be a good indicator for vegetative changes occurring in late-seral single-strata ponderosa pine communities, it is not present at all in much of the ponderosa pine type and, where found, is present in such low numbers that survey and monitoring techniques would be extremely difficult to employ and results obtained would be of very limited value.

Brown Creeper

The brown creeper is considered an uncommon summer resident of the Salmon National Forest but a very rare resident during winter (Roberts 1992). Wisdom et al. (2000) considers this species to be a Neotropical migrant in the Columbia River Basin and states that populations may be affected by habitat conditions on their wintering grounds. Like the pygmy nuthatch, this species is inconspicuous and not easily surveyed or monitored.

Mountain Bluebird

Although this species may be sensitive to some Forest management practices, including firewood gathering (felling of snags), timber harvest and fire suppression,

effects can be either positive or negative. In addition, since this species is a Neotropical migratory land bird, population variations could be due to changes occurring on winter habitats rather than as a response to Forest Service resource management activities.

All Plants (Big Sagebrush and Sub-species, Bitterbrush, Bluebunch Wheatgrass, Idaho Fescue, Western Yarrow, Canadian Thistle)

Although plant species and vegetation communities are relatively easy to monitor the influence of the unmanageable stressors to plant species makes it very difficult to conclusively determine the specific cause and effect management activities may have on the monitoring results and trends indicated by these species.

Anadromous Fish Species

Chinook salmon and steelhead trout meet most positive criteria for MIS species. However, their wide range causes them to be exposed to a number of outside influences making it difficult to tie adult abundance and trend to effects of Forest Service activities. Incubation and rearing success of juveniles, however, are more directly influenced by Forest Service activities, and could more accurately reflect project effects. Unfortunately watersheds outside of wilderness areas that once supported wild chinook salmon and steelhead trout have lost their historic on-forest populations. Hatchery stocked juveniles in main-stem rivers and major tributaries is the primary source of most anadromous fish production today. This stocking makes tracking of juvenile population changes due to Forest Service management difficult and masks any changes in trend.

Resident Fish Species

Cutthroat and rainbow trout species meet much of the MIS criteria. However, they were not selected as MIS species since many watersheds on the Salmon-Challis National Forest were stocked with hatchery cutthroat and rainbow trout. Stocking can mask many natural changes in population trend resulting from Forest Service activities.

Macroinvertebrates

Macroinvertebrates have been used as key indicators for detecting changes in water quality and aquatic habitat. However, tracking changes in population trends over a Forest can be problematic. There is a high degree of variability in species within or between sites (Minshall and Andrews 1973). Therefore, it can be difficult to define what comprises a population (reach, stream, sub-basin) to monitor. The species of interest may not be present over a wide enough area to track population trend. Consistent information is not available across the Salmon-Challis National Forest to track specific macroinvertebrate species. Some agencies only report data on species assemblages or specific biological indices, while others may report the number of individual species at each site. Samples require specialized expertise to identify and classify species, making monitoring costly and limiting the number of samples needed to detect change.

▪ **Alternative 2 – Proposed Action**

Pileated Woodpecker

Population data is currently available or protocols exist for collection of scientifically credible data for the pileated woodpecker. Pileated woodpeckers are detected by the annual Breeding Bird Surveys that are conducted on this forest each year, in conjunction with a large-scale national monitoring effort for birds. This bird is a loud, vociferous species that is easily detected by “point count transects”, several of which have been conducted on at least one Ranger District. The relationship of this species with mixed conifer forests communities containing large diameter live trees, standing dead and down logs, particularly in multi-storied stands, is fairly well understood, as is the effect of timber management activities on the characteristics of such stands. Pileated woodpeckers commonly occur in the ponderosa pine, Douglas-fir and mixed pine and fir stands where most forested vegetative management occurs on this forest, and are affected by changes in habitats they provide.

Habitat Distribution

Table 3-1 shows the total acres and potential vegetation types within the coniferous community/habitat type. Figure 3-1 shows the distribution of the coniferous community/habitat type across the Salmon-Challis National Forest.

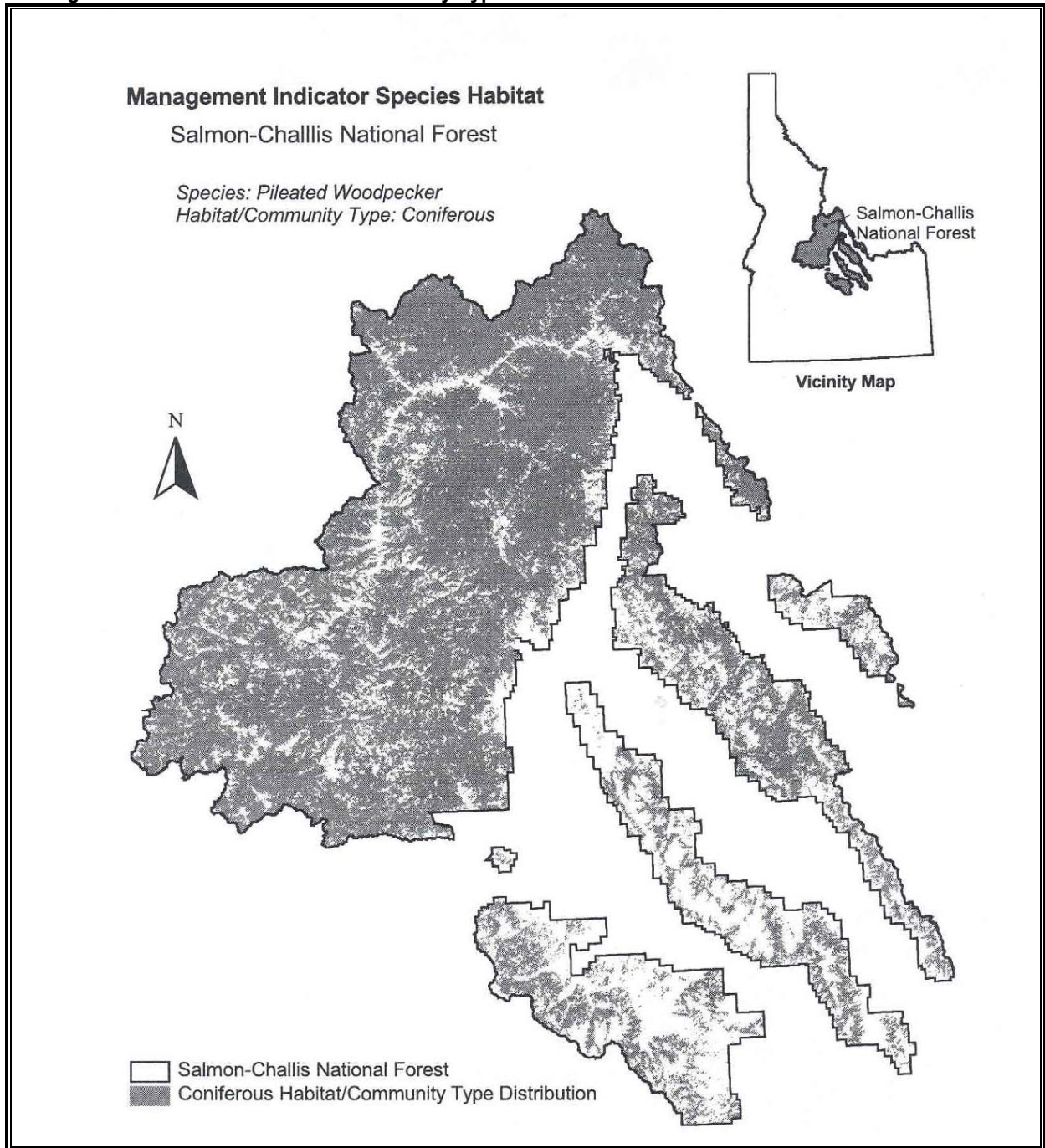
Monitoring

Data for the pileated woodpecker will be collected to show population trend information at the Forest level to help identify changes in the habitat they are dependent on. This will primarily occur in the ponderosa pine, Douglas-fir and subalpine fir habitat types and forest communities and will include but not be limited to activities that affect stand age and condition classes, snag densities and accumulations of large, down woody debris. Breeding Bird Survey routes will continue to collect some data for this species but point count transects will be established specifically for pileated woodpeckers and their habitats in accordance with the protocols found in Hamel et al. (1996).

Table 3-1. Coniferous Habitat/Community Type

GIS PVT Layer Designation	Acres
Dry Douglas Fir w/ Ponderosa Pine	246,439
Dry Douglas Fir w/o Ponderosa Pine	602,236
Limber Pine	21,293
Subalpine Fir Dry - Steep	654,840
Subalpine Fir Moist	35,408
Subalpine Fir / Douglas Fir	56,902
Subalpine Fir / LLP	10,345
Whitebark PineP / Subalpine Fir	146,923
Subalpine FirF / Whitebark Pine	83,347
Whitebark Pine	18,767
Douglas Fir / LPP	620,669
Douglas Fir / Limber Pine	43,259
Total Acres	2,540,428

Figure 3-1. Coniferous Habitat/Community Type Distribution



Greater-Sage Grouse

Population data is currently available or protocols exist for collection of scientifically credible data for the greater sage-grouse. Greater sage-grouse have been monitored, primarily via lek counts, for several decades on this forest and adjacent public and private lands. The protocol for this monitoring effort is well established and used throughout the range of this species. These efforts are conducted by the Idaho Department of Fish and Game, in conjunction with FS and BLM personnel and population data collected are housed by them but readily available to interested parties. This species occurs in the heart of western grazing lands and much research has been conducted concerning the relationship of this species to sagebrush communities and the effects of vegetative manipulation on source habitats.

Habitat Distribution

Table 3-2 shows the total acres and potential vegetation types within the sage community/habitat type. Figure 3-2 shows the distribution of the sagebrush community/habitat type across the Salmon-Challis National Forest.

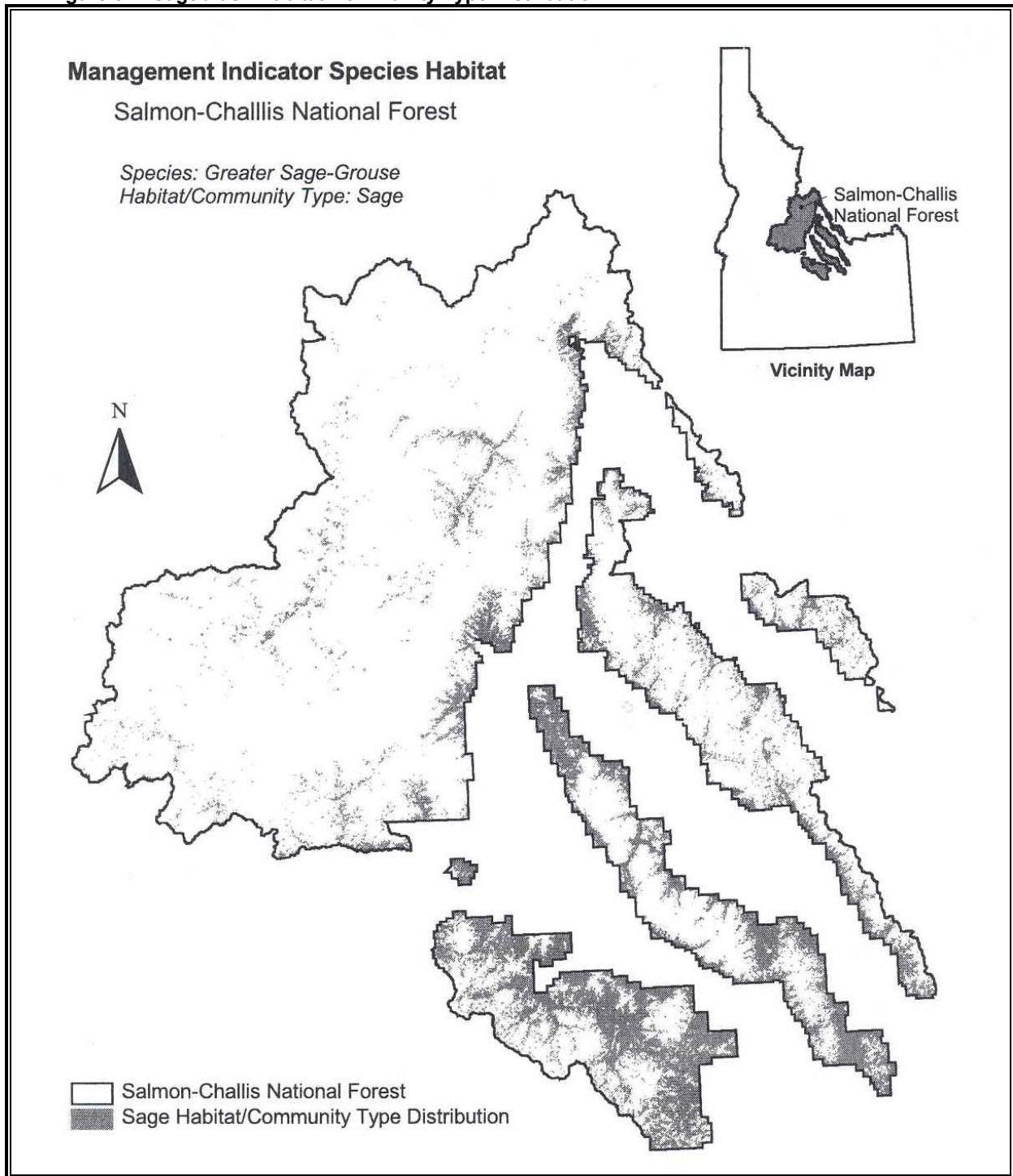
Monitoring

Data for the greater sage-grouse will be collected to show population trend information at the Forest level to help identify changes in the habitat they are dependent on. This will primarily occur in the shrub-steppe or sagebrush-grassland communities, including any interspersed riparian communities. Monitoring of greater sage-grouse will be done in conjunction with the Idaho Department of Fish and Game during their annual spring lek counts and will adhere to their established protocol. Habitat monitoring, including riparian areas, will be done in conjunction with range allotment monitoring, following existing protocols.

Table 3-2. Sagebrush Habitat/Community Type

GIS PVT Layer Designation	Acres
Black Sage	17,879
Bunchgrass / Fescue	18,312
Low Sage	14,490
Mountain Big Sage	244,518
Mountain Mahogany	49,452
Mtn. Big Sage w/ conifer	178,648
Shadscale	614
Threetip Sage	22,453
Whyoming Big Sage	87,571
Total Acres	633,937

Figure 3-2. Sagebrush Habitat/Community Type Distribution



Beaver

Protocols exist for collection of scientifically credible data for the Beaver. Beaver are considered a “keystone” species that is capable of influencing the succession and development of aquatic and riparian habitats. They have been heavily exploited for fur for over 150 years but still occur throughout this forest, most commonly in drainages with gradients of less than six percent. Consequently, they often occur in areas that are most suitable to livestock grazing. This species can be monitored through presence of active colonies and, although they “manipulate” their own habitats, are subject to riparian habitat changes due to other resource management activities including grazing, timber harvest and road construction.

Habitat Distribution

Table 3-3 shows the total acres and potential vegetation types within the riparian community/habitat type. Figure 3-3 shows the distribution of the riparian community/habitat type across the Salmon-Challis National Forest. Perennial streams also can contribute to this habitat/community type, and have also been added Figure 3-3. The General Aquatic Wildlife Survey (GAWS) estimated 2467.1 miles of perennial streams on the Salmon National Forest. The Land and Resource Management Plan for the Challis National Forest estimates resident fish habitat to be 5,680 acres. The numbers will be updated during the next Forest Plan Revision.

Monitoring

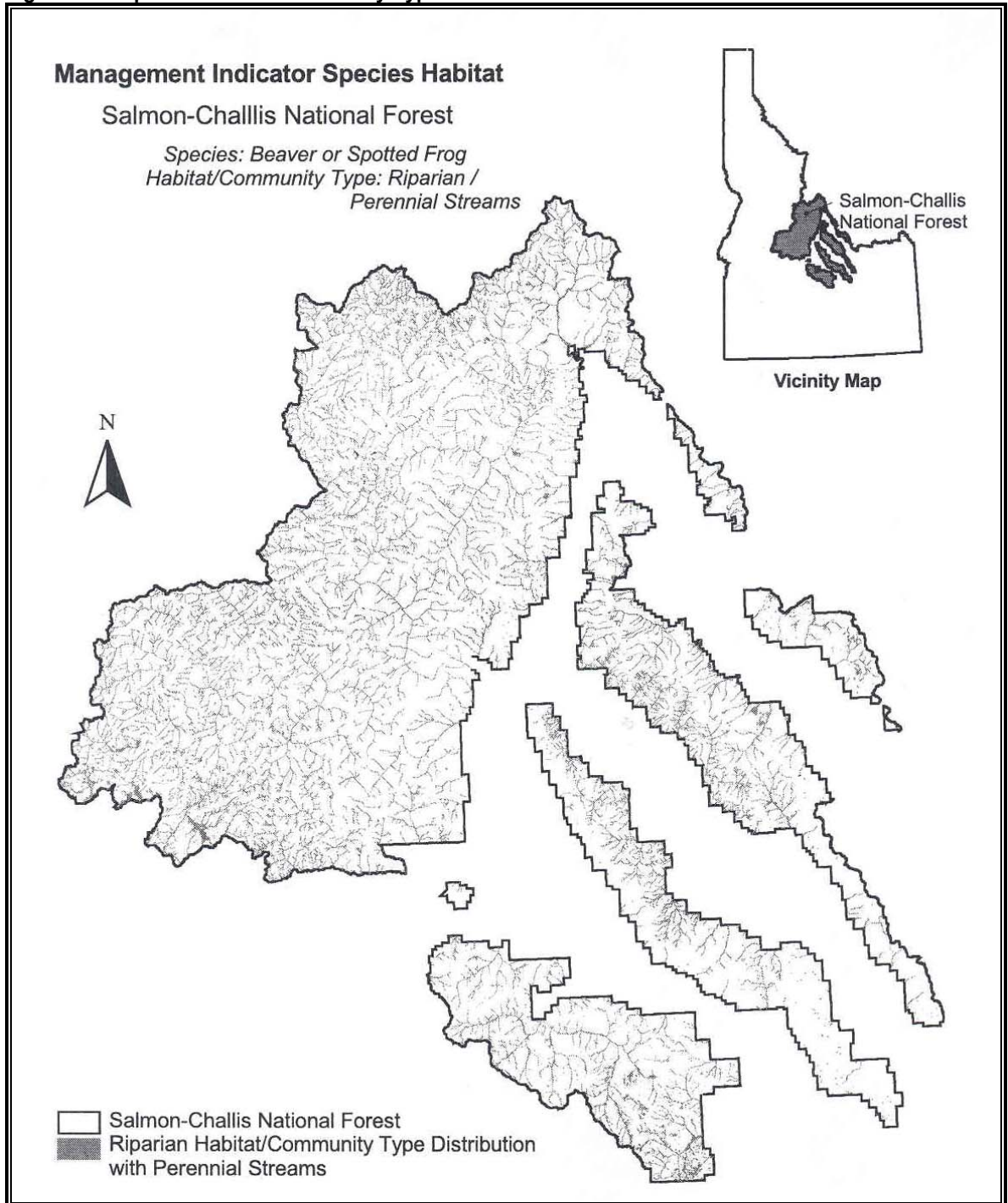
Data for the beaver will be collected to show population trend information at the Forest level to help identify changes in the habitat they are dependent on. This will primarily occur in riparian habitat/community types and perennial stream reaches with less than 6 percent stream gradient. A historical environmental baseline for beaver colonies, distribution, and decadal levels of activity will be developed, utilizing remote sensing of aerial photography from the 1940’s to present.

In light of the knowledge provided with the historical environmental baseline, and utilizing the most recent photography as the best available current information on a broad scale, the goal would be to begin implementation of plan components outlined in the formerly proposed interagency beaver management agreement for the Salmon–Challis National Forest public lands. (These components call for the determination of existing habitat and activity conditions, potentials and preferences for watersheds across the forest, followed by the determination of watershed-specific beaver management goals and objectives).

Table 3-3. Riparian Habitat/Community Type

GIS PVT Layer Designation	Acres
Cottonwood	8,334
Riparian Shrub	21,811
Aspen / Conifer	20,044
Riparian Grass	9,793
Riparian Sedge	521
Total Acres	60,503
Water	3,763

Figure 3-3. Riparian Habitat/Community Type Distribution



Bull Trout

Population data is currently available or protocols exist for collection of scientifically credible data for the bull trout. Bull trout have, since being listed as a “Threatened” species, been intensively monitored through a cooperative monitoring program with FS, IDFG, FWS, NOAA- Fisheries and other agencies. Protocols for electro-fishing, snorkeling and redd counts are well established and much data has been accumulated. Bull trout occur in streams within virtually all coniferous forest communities, which are subject to resource management activities, including timber and grazing. They are known to be sensitive to stream habitat and watershed alterations.

Habitat Distribution

Table 3-4 shows the total acres and potential vegetation types within the aquatic community/habitat type. Figure 3-4 shows the distribution of the aquatic community/habitat type across the Salmon-Challis National Forest.

Monitoring

Data for the bull trout will be collected to show population trend information at the Forest level to help identify changes in the habitat they are dependent on. This will occur in all areas of the Forest except the Big Lost Watershed, where bull trout do not exist. Elector fishing, snorkeling, or redd counts will be used following existing protocol at identified “index areas”. Habitat conditions will also be monitored using existing protocols.

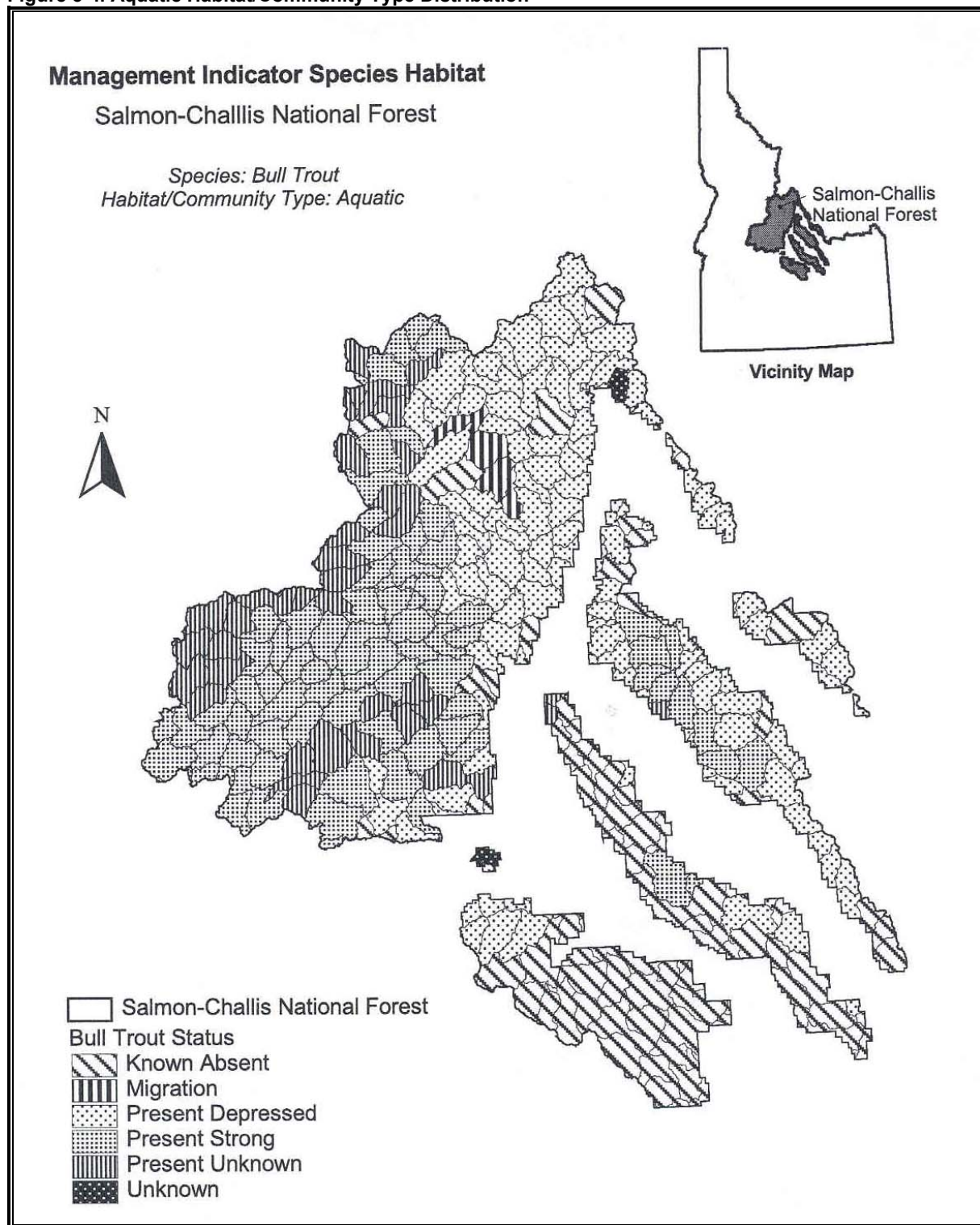
Existing Inland West Watershed Inventory - Biotic Component, fisheries data-base and GIS coverages will be utilized and updated as the focal resource for summarizing the distribution and status of Bull trout as a Fisheries Management Indicator Species, at 6th field watershed scales.

MIS baselines will be established forest-wide within the first five years, during which MIS population distribution, abundance and trend data would begin to reflect, and continue to develop greater depth and precision over time.

Table 3-4. Aquatic Habitat/Community Type

GIS PVT Layer Designation	
Water	3,763 Acres

Figure 3-4. Aquatic Habitat/Community Type Distribution



- **Alternative 3 – Amphibian Alternative**

Alternative 3 has three of the same species as Alternative 2. These include the pileated woodpecker, greater sage-grouse, and the bull trout. Information on these species can be found in the Alternative 2 – Proposed Action section of this chapter. The spotted frog is proposed to replace the beaver as the riparian management indicator species.

Spotted Frog

Population data is currently available or protocols exist for collection of scientifically credible data for the spotted frog. As a Forest Service Sensitive Species in Region 4 and on the S-C NF, the Columbia spotted frog has been the subject of considerable inventory and monitoring effort for the past decade. This species is known to occupy slow-moving cool water streams, beaver ponds and marshy edges of lakes across the forest and have been found to use adjacent upland habitats as well. Survey and monitoring protocols for amphibians, including this species, are well established and long-term monitoring sites have been selected and surveyed across the forest. In addition, species occurrence data has been collected concurrently with stream inventory efforts for fish species. The Columbia spotted frog occurs in a variety of forest and non-forest communities that are subjected to many different resource management activities ranging from grazing to timber harvest and are known to be sensitive to changes in habitat parameters such as riparian vegetation, water temperatures and quality.

Habitat Distribution

Table 3-5 shows the total acres and potential vegetation types within the riparian community/habitat type. Figure 3-5 shows the distribution of the riparian community/habitat type across the Salmon-Challis National Forest. Perennial streams also can contribute to this habitat/community type, and have also been added Figure 3-5. The General Aquatic Wildlife Survey (GAWS) estimated 2467.1 miles of perennial streams on the Salmon National Forest. The Land and Resource Management Plan for the Challis National Forest estimates resident fish habitat to be 5,680 acres. The numbers will be updated during the next Forest Plan Revision.

Monitoring

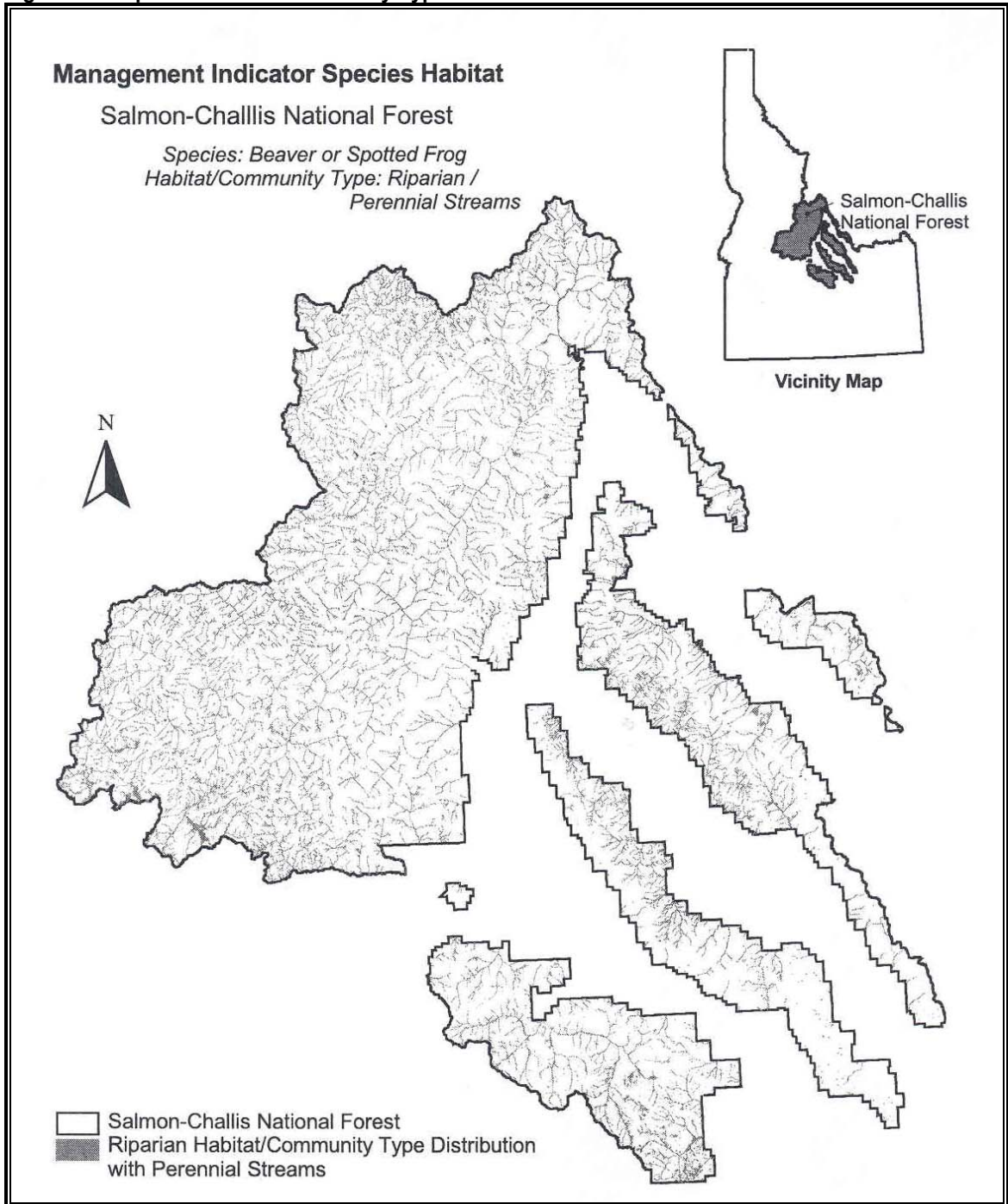
Data for the spotted frog will be collected to show population trend information at the Forest level to help identify changes in the habitat they are dependent on. This will primarily occur in riparian habitat/community types and perennial stream reaches. Accepted protocols have been developed that are applicable to most amphibian species, including the Columbia spotted frog. Between 1994 and 1996, the Salmon-Challis NF conducted surveys for this species across most of the non-wilderness lands. During this same time period, more intensive and structured studies were contracted to various private individuals. The protocol employed was timed searches but habitat data was also collected. The primary objective of these studies was to establish baseline data necessary for a long-term monitoring program on the status and trends of amphibian populations, including Columbia spotted frog populations, on the Forest. As a result, suitable sites have been selected for monitoring and some follow-up monitoring has been conducted. Prior to, during and after these

studies, opportunistic surveys have been conducted, primarily on project assessment areas, and informal observation data have been collected. Consequently, we now have accumulated considerable baseline data concerning the spotted frog on this Forest.

Table 3-5. Riparian Habitat/Community Type

GIS PVT Layer Designation	Acres
Cottonwood	8,334
Riparian Shrub	21,811
Aspen / Conifer	20,044
Riparian Grass	9,793
Riparian Sedge	521
Total Acres	60,503
Water	3,763

Figure 3-5. Riparian Habitat/Community Type Distribution



Issue 2

Amphibian life cycles span both aquatic and terrestrial habitats, and can play a significant role as MIS and offer different insights than just bull trout. Amphibians are reliable indicators of aquatic and terrestrial health and survey protocols are readily available.

Alternative	Does the alternative contain an amphibian that meets the three selection criteria?
Alternative 1 – No Action	No
Alternative 2 – Proposed Action	No
Alternative 3 – Amphibian Alternative	Yes – Spotted Frog

Issue 3

The beaver is a poor choice as it represents only riparian habitats and more reflects how Idaho Department of Fish and Game manages the species, rather than Forest Service Activities.

Alternative	Is there another species that could replace the beaver that meets the three selection criteria?
Alternative 1 – No Action	No Amphibian, or No Beaver
Alternative 2 – Proposed Action	Keeps - Beaver
Alternative 3 – Amphibian Alternative	Yes – Spotted Frog

Chapter 4 – References

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Appendix A

**Management Indicator Species List - Forest Plan Amendment
10**

**for the
Land and Resource Management Plan for the
Salmon National Forest**

Enclosed are the Salmon Forest Plan Amendment page changes associated with the Proposed Amendments to the Management Indicator Species List for the Salmon and Challis Land and Resource Management Plans project.

The pages are intended to replace existing pages or provide page inserts where pages have been added to the Land and Resource Management Plan for the Salmon National Forest.

Page numbers corresponding with the Forest Plan are at the bottom of the page and start with the Roman numeral chapter number and are followed by the page number.

Language that has been removed is indicated by strike through (~~wording~~).

Language that has been added is indicated by bold (**wording**).

CHAPTER II. ANALYSIS OF THE MANAGEMENT SITUATION SUMMARY

of these rights. Other legal interpretations have been associated with habitat and habitat influencing activities. Treaty rights also grant use of Forest resources for subsistence purposes, such as hunting and fishing within historic tribal use areas.

The Salmon National Forest has 26 streams which currently provide habitat for anadromous species. Habitat condition in these streams is generally good. Some habitats have been influenced by past land management and enhancement activities have been employed to mitigate for disturbances. Existing habitat capability has been estimated to be approximately 93 percent of potential. In most cases, these habitats are underseeded and are producing far below current habitat capability. Correction of off-forest factors influencing anadromous survival are expected to occur in the near future. Hatchery production will assist in re-establishing populations in some streams. An additional 9 streams, which historically produced anadromous fish, are being influenced by mining related pollution. All of these streams have the potential to contribute substantially to anadromous production when the pollution problems have been resolved.

All of the anadromous habitats have the potential to contribute to treaty obligations and, therefore, forest management will be sensitive to habitat condition and capability. The Salmon National Forest is committed to maintaining high water quality and high production potentials in the anadromous drainages. The Forest is also committed to the resolution of the mine pollution problem in the Panther Creek drainage and will be working with the involved parties to bring about the needed land reclamation and pollution abatement.

The following representative habitats were selected as being indicative of specific biotic communities on the Forest:

- Aquatic
- Riparian -willow Sagebrush
- Quaking Aspen
- Mature and old growth Douglas-fir
- Old growth ponderosa pine
- Mature and old growth subalpine fir
- Mature lodgepole pine

On the Salmon National Forest, the most homogenous timbered habitats are Douglas-fir and lodgepole pine. In these areas, horizontal diversity can be improved markedly by either timber harvesting or fire. Large expanses of dense sagebrush also provide opportunities to increase horizontal diversity. In ponderosa pine and subalpine fir, there is already considerable vertical diversity and opportunities to improve diversity are limited.

~~In order to assess the influence of Forest management on habitat and species diversity and individual species well being, management indicator species have been selected. These indicator species represent organisms for which population levels and habitat~~

~~objectives can be established and which represent a number of species in estimating effects and influences from management alternatives.~~

HABITAT REQUIREMENTS/RELATIONSHIPS

~~Aquatic Habitat Management Indicator - At a minimum all existing acres of inventoried aquatic habitat would be required to meet all management levels including minimum viable population direction. It is anticipated that changes in species numbers might occur between the management levels but that reductions in distribution would not.~~

Aquatic Habitat - At a minimum all existing acres of inventoried aquatic habitat would be required to meet all management levels. It is anticipated that changes in species numbers might occur between the management levels but that reductions in distribution would not.

Anadromous Species Habitats

Qualitative components related to spawning habitat, specifically sediment levels in the spawning gravels, provide an assessment on the desired future condition of anadromous species habitat on the Forest.

Standards relative to spawning gravel conditions associated with various anadromous population levels:

<u>Population Level</u>	<u>Amount of Fine Sediment*</u>	<u>Sediment Yield From Drainage</u>
Anadromous		
Viable and/or Existing	$\geq \leq 25\%$ sediment 6.3 mm in spawning gravels 28.1% embeddedness	$\leq 54\%$ yield over natural
State goals and/or potential	$\geq \leq 20\%$ sediment 6.3 mm in spawning gravels 25.5% embeddedness	$\leq 25\%$ yield over natural

*Reiser and Bjornn. 1979

The anadromous fish habitat situation on the Salmon National Forest follows:

Anadromous Species Habitat

	<u>Acres of Habitat</u>	<u>Remarks</u>
Viable and/or existing populations	310	Include salmon-steelhead habitat. Some acres have been influenced by man caused in addition to natural events. Habitat improvement is needed to achieve potential.
State goals and/or potential populations	426	Include salmon-steelhead habitat; includes habitat improvement needed to bring 310 acres to maximum Potential; also includes 116 acres of potential unused habitat brought back into production.

Habitat quality and quantity variables will be the primary units for tracking the desired future condition for these fish. Off Forest influences on anadromous fish populations make it impractical to emphasize actual population levels using Forest habitats. Potential populations or use levels can be derived from habitat capability relationships.

Resident Species Habitats

A majority of perennial streams on the Forest support populations of resident trout and other fish species. In general, resident fish habitats are characterized by moderate to high channel gradients, boulder rubble substrates, plunge pools and narrow channels. The most productive resident trout streams have sections characterized by lower gradients, better pool habitat and abundant streamside vegetation. These streams and stream sections are also the most likely to be adversely impacted by land management activities. In addition to stream habitats, numerous lakes on the Forest are managed for trout fishing. Most of these waters are located at high elevations in basins formed by glacial activity. The majority of lakes are within the Wilderness.

Standards relative to spawning gravel conditions associated with various resident trout population levels:

<u>Population Level</u>	<u>Amount of Fine Sediment</u>	<u>Sediment Yield From Drainage</u>
Resident Minimum Level Viable and/or Existing	approximately 37.1% sediment; 37.2% embeddedness	155% yield over natural

State goals	approximately 28.7% sediment; 30.5% embeddedness	85% yield over natural
Maximum potential	approximately 18.5% sediment; 23.23% embeddedness	0% yield over natural

Certain species of aquatic macroinvertebrates reflect changes in water quality and habitat condition (sedimentation). The primary use of this indicator group will be site specific and related to certain specific projects or management activity.

~~**Terrestrial Habitat Management Indicator Species** - The habitat capability was inventoried for the four big game MIS and stratified at three levels: (1) optimum - Areas that represent the most ideal habitat and will support a significantly higher density of animals than the surrounding habitat; (2) acceptable areas that represent average habitat and will support animal densities proportionate to the total habitat; and (3) marginal areas that represent poorest habitat and will support a significantly lower density of animals than the surrounding habitat.~~

Terrestrial Habitat Capability Inventory - The habitat capability was inventoried for four big game species and stratified at three levels: (1) optimum - areas that represent the most ideal habitat and will support a significantly higher density of animals than the surrounding habitat; (2) acceptable - areas that represent average habitat and will support animal densities proportionate to the total habitat; and (3) marginal - areas that represent poorest habitat and will support a significantly lower density of animals than the surrounding habitat.

Results of the inventory are shown in Table II-5, along with the number of animals assigned to each capability class.

TABLE 11-5
Big Game Summer Range Population Levels (1982)

	Habitat Capability Class			<u>Total</u>
	<u>Optimum</u>	<u>Acceptable</u>	<u>Marginal</u>	
Elk				
M acres of habitat	355 (20%)	995 (56%)	427 (56%)	1,777
Animal numbers	2,710 (61%)	1,555 (35%)	170 (4%)	4,435
Mule Deer				
M acres of habitat	515 (29%)	889 (50%)	373 (21%)	1,777
Animal numbers	9,744 (53%)	8,220 (44%)	595 (3%)	18,559
Mountain Goat				
M acres of habitat	10 (3%)	248 (81%)	49 (16%)	307
Animal numbers	32 (10%)	272 (87%)	8 (3%)	312
Bighorn Sheep				
M acres of habitat (occupied)	270 (30%)	108 (12%)	109 (12%)	487
Animal numbers	842 (82%)	169 (16%)	17 (2%)	1,028
M acres of habitat (unoccupied)	249 (28%)	135 (15%)	32 (3%)	416

Table II-5 indicated a disproportionately high percentage of animal use is occurring on the optimum lands when compared to the amount of land available.

With the exception of mule deer, management activities permitted in optimum areas will cause serious declines in animal use. Opportunities to improve these habitats are very limited.

Mule deer optimum range, where it does not overlap optimum range of the other three species, will provide opportunity for habitat improvement. This can be accomplished mainly by providing forage where it is a limiting factor.

Mule deer optimum range overlaps elk acceptable range in many areas. These include heavily timbered Douglas-fir and Lodgepole pine habitats which can be improved with timber harvesting. These lands will be needed to provide forage to maintain big game populations at the potential level. There are very few opportunities to increase the carrying capacity of marginal ranges.

The available summer range on the Salmon National Forest and surrounding lands is capable of providing habitat for all of the big game species up to the potential level with only minimal habitat improvement, some livestock adjustments and road closures. Winter range will be the major limiting factor to overcome in reaching this level. Big game winter range is summarized in Table II-6.

TABLE II-6

Big Game Winter Range (M Acres)*

	<u>Elk</u>	<u>Mule Deer</u>	<u>Bighorn Sheep</u>	<u>Mountain Goats</u>	<u>Total</u>
Key Winter Range	97	112	43	35	121
Normal Winter Range	<u>194</u>	<u>213</u>	<u>70</u>	<u>62</u>	<u>246</u>
Total Winter Range	291	325	113	97	367
BLM					262
State					32
Private					181

*Figures do not total horizontally because overlap between species.

~~Description and maps of the MIS range are found in the appendix to the AMS for the EIS on the Forest Plan.~~

Description and maps of the big game range are found in the appendix to the AMS for the EIS on the Forest Plan.

~~Table II-7 lists populations in number of animals and habitat requirements, in acres, for minimum viable, existing, Forest Service objectives and potential levels of management for all Management Indicator Species. Explanation and definitions for the levels follow the table.~~

Table II-7 lists populations in number of animals and habitat requirements, in acres, for minimum population, existing, Forest Service (State) objectives and potential levels of management for each selected species. Explanation and definitions for the levels follow the table.

TABLE II-7

**MIS Population Levels and Habitat Required at Four Management Levels
Population Levels and Habitat Required at Four Management Levels for Selected Species**

<u>Management Indicator Selected Species</u>	<u>Minimum Viable Population</u>	<u>Existing</u>	<u>Forest (State) Service Objective</u>	<u>Potential</u>
Elk	1,500 (1,030,000A)	5,500 (1,767,000A)	7,365 (1,767,000A)	10,300 (1,767,000A)
Mule Deer	5,000 (1,000,000A)	21,700 (1,7647,000A)	18,559 (1,767,000A)	41,400 (1,767,000A)
Bighorn Sheep	325 (250,000A)	1,000 (487,000A)	2,000 (903,000A)	4,000 (903,000A)
Mountain Goat	300 (307,000A)	300 (307,000A)	600 (307,000A)	700 (307,000A)
Pine Marten	200 (100,000A)	600 (192,000A)	**	1,090 (360,000A)
Pileated Woodpecker	46 (37,000)	172 (140,000A)	**	456 (370,000A)
Vesper Sparrow	1,600 (40,000A)	3,800 (190,000A)	**	4,000 (200,000A)
Yellow Warbler	2,000 (8,700A)	10,000 (43,000A)	**	10,800 (47,000A)
Ruby-crowned Kinglet	26,000 (37,000A)	150,000 (215,000A)	**	260,000 (370,000A)
Goshawk	50 (138,000)	72 (190,000A)	**	150 (420,000A)
Great Grey Owl	30 (50,000A)	60 (100,000A)	**	244 (400,000A)
Yellow-bellied Sapsucker	480 (2,400A)	480 (2,400A)	**	600 (3,000A)
Pygmy Nuthatch	3,800 (18,000A)	9,000 (9,000A)	**	38,000 (38,000A)
Brown Creeper	1,800 (18,000A)	9,000 (90,000A)	**	35,000 (360,000A)
Mountain Bluebird	2,000 (40,000A)	10,000 (200,000A)	**	15,000 (300,000A)

** Population goals not established for these species.

TABLE II-7 (cont.)

<u>Threatened & Endangered Species Selected Species</u>	<u>Minimum Viable Population</u>	<u>Existing</u>	<u>Forest (State) Service Objective</u>	<u>Potential</u>
Bald Eagle (T&E)	4 (16,000A)	0 (16,000A)	4 (16,000A)	6 (25,000A)
Peregrine Falcon (T&E)	6 (150,000A)	0 (150,000A)	6 (150,000A)	10 (250,000A)
Grey Wolf (T&E)	10 (100,000A)	5 (100,000A)	10 (100,000A)	20 (200,00A)
*Grizzly Bear (T&E)	(40,000A)	(40,000A)	(215,000A)	(430,000A)

*Grizzly Bear Recovery Plan does not involve recovery efforts on the Salmon National Forest, therefore, target numbers are not included.

Definition of minimum Viable, Existing, State Objective and Potential Levels of Management Indicator Species

Definition of Existing, Forest (State), Objective and Potential Levels of Selected Species

Minimum Legal Viable Population Level—Minimum Population Level

Big Game -These levels are considered to be minimum numbers that the population could be reduced to yet still not permanently alter the distribution pattern or gene pool. With the exception of mountain goats, this level ranges from approximately 1/4 to 1/3 of the existing level. Mountain goat populations are at approximately this level now.

T&E Species -~~These are theoretical minimum levels needed to bolster existing populations to a level where they could be self sustaining on the Forest. The existing situation for all species is below MVP levels.~~

These are theoretical minimum levels needed to bolster existing populations to a level where they could be self sustaining on the Forest. The existing situation for all species is below the minimum population levels.

Other Species -Population levels were judged to be met by maintenance of minimum levels of major critical habitat, i.e. old growth timber, quaking aspen, sagebrush and riparian zones, as well as minimum snag levels.

Existing Population Level

Big Game -Existing population levels are sustained by available forage from National Forest and BLM winter range, and from National Forest summer range (both Salmon National Forest and adjacent National Forests). This includes existing levels of wildlife and livestock competition, and existing levels of open roads.

T&E Species -~~The existing levels are estimates of numbers felt to be occupying the Forest. This is considered to be below MVP for all species.~~

The existing levels are estimates of numbers felt to be occupying the Forest. This is considered to be below minimum population for all species.

Other Species -Existing levels are estimates of animals actually present on the Salmon National Forest, based on local data where available, or the most reliable research from similar areas.

Objective Level

Big Game -Objective population levels are from IDF&G's Species Management Plans for Elk and Mule Deer (1986-90) and for Bighorn Sheep and Mountain Goats (in press). This level is sustained by available forage from National Forest and BLM winter range, and from National Forest summer range (both Salmon National Forest and adjacent National Forests). Some additional forage will be provided as a result of improved grazing practices. Additional road closures will also be needed.

~~T&E Species -Except for grizzly bear, the objective level is synonymous with MVP. Population increases will largely result from introductions, and is also the level that the Forest could contribute as their share of the total recovery effort.~~

Except for grizzly bear, the objective level is synonymous with the minimum population. Population increases will largely result from introductions, and is also the level that the Forest could contribute as their share of the total recovery effort.

Other Species -Objective levels are not expressed as a population number, and are assumed to be met by objective level acres of each vegetative type and successional stages on National Forest lands.

Potential Level

Big Game -This level is the theoretical maximum carrying capacity of winter and summer range complexes on the Salmon National Forest, adjacent BLM lands and adjacent Montana Forests. It excludes livestock grazing on all lands where livestock/wildlife conflicts currently exist. It assumes a high level of habitat improvement, especially on winter range, and large acreages maintained with road closures.

T&E Species -These are theoretical maximum population levels that the Forest is capable of supporting based on available habitat and food supply. No habitat improvement is needed. Population increases will largely result from introductions.

Other Species -Potential population levels are expressed as a population number, and are assumed to be met by optimum of plant successional stages within each vegetation type, including old growth timber.

HABITAT ENHANCEMENT

~~Considerable opportunity exists for bringing existing habitat conditions to levels approaching optimum. This improvement can be accomplished through better coordination of land management activities and direct habitat improvement projects as listed in Table 11-8.~~

Considerable opportunity exists for bringing existing habitat conditions to levels approaching optimum. This improvement can be accomplished through better coordination of land management activities and direct habitat improvement projects for selected species as listed in Table 11-8.

~~No habitat improvement work is needed to maintain populations at either MVP or existing levels, except for the Yellow-bellied Sapsucker which will require the treatments identified for the potential level. No improvement work is needed or feasible for T&E species at any management level. Reintroductions of each species will be required to fill all of the habitat voids. Use of land and water conservation funds to secure specific parcels of land could be beneficial to both fish and wildlife.~~

No habitat improvement work is needed to maintain populations at existing levels, except for the Yellow-bellied Sapsucker which will require the treatments identified for the potential level. No improvement work is needed or feasible for T&E species at any management level. Reintroductions of each species will be required to fill all of the habitat voids. Use of land and water conservation funds to secure specific parcels of land could be beneficial to both fish and wildlife.

WILDLIFE AND FISH SUPPLY AND DEMAND

Anadromous Fish -Negative influences on anadromous species resulting from construction of dams in the Columbia and Snake Rivers, and overharvest has created a situation where demand for recreation and commercial use far exceeds present supply. Restrictive seasons and bag limits have been instituted to provide a degree of resource protection while providing for recreational use.

Recreation fishing for chinook salmon has been tightly controlled because of the very reduced number of returning adults.

For the most part, recreational use of the salmon resource has been unavailable. Future demands for recreational use of a salmon fishery will continue to exceed supply, even though supplies will be increased through development of a salmon hatchery in the upper Salmon River drainage.

Recreational use demands for steelhead trout continues to exceed supply, even though hatchery management efforts have generated a greater supply. Continuation of these hatchery efforts is expected to double the presently available supply. It is highly unlikely that supply will meet or exceed demand through the planning horizon.

Resident Trout - In general, supply exceeds demand for trout fishing on much of the Forest. There are areas, however, where more restrictive harvest regulations have been enforced to protect specific populations. There also are streams and/or stream sections where demand exceeds the stream capability and supplemented stocking with catchable fish has to be instituted.

The general objective for trout is to increase the allowable harvest and meet demand at improved catch rates. Objectives for anadromous species are to rebuild run levels to 1960 level.

MANAGEMENT INDICATOR SPECIES (MIS) AND REASONS FOR SELECTION

Management Indicator Species are considered to be key species, which represent life forms and have habitat requirements similar to other groups of plants or animals. They are species for which populations and habitat objectives can be established, and will be tracked as indicators of habitat capability.

Federal regulations provide MIS selection direction in 36 CFR 219.19(a)(1).

“In order to estimate the effects of each alternative on fish and wildlife populations, certain vertebrate and/or invertebrate species present in the area shall be identified and selected, as MIS and the reasons for their selection will be stated. These species shall be selected because their population changes are believed to indicate the effects of management activities. In the selection of management indicator species, the following categories shall be represented where appropriate: Endangered and threatened plant and animal species identified on State and Federal lists for the planning area; species with special habitat needs that may be influenced significantly by planned management programs; species commonly hunted, fished, or trapped; non-game species of special interest; and additional plant or animal species selected because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities or on water quality.”

Evaluation Criteria

- **Population data is readily available or protocols exist for collection of scientifically credible population data.**
- **Habitats of species must be associated with management areas where habitat manipulation is allowed.**
- **A relationship between population trends and habitat management activities exist.**

SELECTED MANAGEMENT INDICATOR SPECIES, REPRESENTED HABITATS, AND HABITAT NEEDS

Pileated Woodpecker

Habitats represented by the pileated woodpecker include all lower montane and montane coniferous forest community types.

Pileated woodpeckers commonly occur in the ponderosa pine, Douglas-fir, lodgepole pine, and mixed pine and fir stands where most timber management occurs on this forest, and are affected by changes in habitats they provide. The relationship of this species with mixed conifer forests communities containing large

diameter live trees, standing dead and down logs, particularly in multi-storied stands, is fairly well understood, as is the effect of timber management activities on the characteristics of such stands. Although nesting is preferred in dense stands of larger trees, the woodpecker often forages in open stands where down logs, stumps and snags support their major food supply, carpenter ants.

Some population data is currently available and established protocols exist for collection of scientifically credible data for the pileated woodpecker.

Greater Sage-Grouse

The habitats represented by the greater sage-grouse include all the non-forested upland sagebrush/grass community types.

The greater sage-grouse is an obligate sagebrush steppe species. This grouse is totally dependant upon the many sagebrush/grass community types occupying the lower and mid elevations of the Forest. Nesting and brood rearing occur within tall sagebrush areas with good compositions of tall bunchgrasses. Leks are generally in the more open, short statured sagebrush/grass communities.

Greater sage-grouse populations have declined dramatically over much of their historical range, including on this Forest. The greater sage-grouse's habitat is greatly influenced by management actions both on the Forest and on nearby BLM and private lands, in addition to wildfire and noxious weed spread.

Population monitoring protocols are well established. Idaho State Fish and Game, in cooperation with other land management agencies, monitor greater sage-grouse population trends annually, usually in the spring when lek counts are conducted. Additional information is gathered during the hunting season through wing counts from harvested birds.

Columbia Spotted Frog

The habitats represented by the spotted frog include the many riparian habitat/community types influenced by water.

This species is known to occupy slow-moving cool water streams, beaver ponds and marshy edges of lakes across the forest and has been found to use adjacent upland habitats as well. Soon after breeding they often travel considerable distances from the breeding pools to utilize a wide range of foraging areas including mixed conifer and subalpine forests, grasslands, and sagebrush shrub/steppe wherever puddles, seeps or other water sources are available. The Columbia spotted frog occurs in a variety of forest and non-forest communities that are subjected to many different resource management activities ranging from grazing to timber harvest and are known to be sensitive to changes in habitat parameters such as riparian vegetation, water temperatures and quality, along with environmental factors including temperature fluctuations and environmental pollutants (air and water).

Although surveying and monitoring amphibian populations can be time consuming, accepted protocols have been developed that are applicable to most amphibian species, including the Columbia spotted frog. Both baseline monitoring and more intensive structured monitoring have been performed on the Forest, the latter by timed search protocol.

Bull Trout

The habitats represented by bull trout include all aquatic habitats.

With the exception of the Big Lost River watershed, bull trout are a common and comparable fisheries MIS within and between watersheds of the Challis National Forest.

Bull trout are sensitive to stream habitat and watershed conditions. Bull trout typically have more narrowly defined habitat tolerances than other salmonids, with a closer affinity to stream bottom substrate quality and conditions. In-channel woody cover, clean substrate, cold clean water, deep pools, vegetated undercut banks, channel stability, winter high flows and the quality of summer low flows appear to consistently influence bull trout abundance and distribution throughout their range.

Because bull trout habitat requirements overlap many requirements of other fish species (west-slope cutthroat, steelhead, chinook salmon, sockeye salmon, rainbow, redband rainbow, and whitefish) and they are sensitive to watershed changes, the distribution and status of bull trout populations would be most broadly indicative of habitat changes potentially affecting all fish species.

Bull trout have, since being listed as a “Threatened” species, been intensively monitored thru a cooperative monitoring program with FS, IDFG, FWS, NOAA- Fisheries and other agencies. Protocols for electro-fishing, snorkeling and redd counts are well established.

CHAPTER IV. FOREST MANAGEMENT DIRECTION

IV. FOREST MANAGEMENT DIRECTION

A. FOREST MANAGEMENT GOALS

The following goals are broad statements of direction that describe how Salmon National Forest lands will be administered to assure long term protection and utilization of resources for the people of the United States. These goal statements are the principal basis for the objectives developed in Part C of this chapter.

Vegetative Diversity

~~Maintain adequate structural diversity of vegetation on Forest lands to ensure habitat for minimum viable or target populations of all wildlife species and to provide representations of the various ecological stages of endemic plant communities.~~

Maintain adequate structural diversity of vegetation on Forest lands to ensure habitat for minimal populations of all wildlife species and to provide representations of the various ecological stages of endemic plant communities.

Recreation and Visual Quality

Improve the quality of recreation experience and increase the PAOT (Person At One Time) capacity of developed recreation sites in heavy use areas.

Increase emphasis on managing dispersed recreation use in areas providing Semi-primitive and Roded Natural recreation opportunities and maintain the generally high quality of these settings.

Improve the condition of priority trails in designated wilderness, management areas featuring semi-primitive recreation opportunities and nationally designated trails and maintain other high use system trails in a usable condition.

Provide for pleasing visual landscapes in areas viewed from major travel routes crossing the Salmon National Forest.

Wilderness

Provide for a quality wilderness experience in the Salmon National Forest portion of the Frank Church--River of No Return Wilderness consistent with Frank Church--River of No Return Wilderness Management Plan objectives.

Wildlife and Fisheries

~~Provide wildlife habitat of sufficient quantity and quality to sustain target populations of economically important management indicator species.~~

Provide habitat of sufficient quantity and quality to sustain populations of management indicator species.

~~Provide wildlife habitat of sufficient quantity and quality to at least maintain minimum viable populations for all other management indicator species.~~

Provide wildlife habitat of sufficient quantity and quality to sustain minimum populations of selected species (Table II-7).

Improve elk habitat on the Forest to achieve a moderate increase over current population levels.

IV-1a

-Ponderosa pine, Douglas fir and spruce fir –
12-inch diameter

50 linear feet/acre

-Aspen and
lodgepole

pine - 10-inch diameter

33 linear feet/acre

- 2. Retain integrity of the natural forest, nonforest ecotones for at least 75% of the linear distance during any time period.
- 3. Manage aspen for perpetuation wherever it occurs.

a. If determinate aspen stands are managed for regeneration, treat entire clones.

Wildlife and
Fish Resource
Management
(C01)

~~1. Where present, the following species are management indicator species
(habitat requirements for each are listed):~~

1. Where present, the following species are management indicator species (represented habitats for each are listed):

- ~~Elk – High elevation. Sub alpine fir and Douglas fir habitats. Many openings in canopy.~~
- ~~Mule Deer – Mid election. Douglas fir habitats. Many openings in canopy.~~
- ~~Bighorn Sheep – Open to partially timbered. Rock outcrops.~~
- ~~Mountain Goat – Open to partially timbered. Cliffs.~~
- ~~Pine Marten – Old growth sub alpine fir and lodgepole pine.~~
- ~~Vesper Sparrow – Sagebrush.~~
- ~~Yellow Warbler – Riparian zones (willows)~~
- ~~Ruby Crowned Kinglet – Mature/immature Douglas fir.~~
- ~~Goshawk – Mature/old growth Douglas fir.~~
- ~~Great Grey Owl – Mature sub alpine fir and Douglas fir.~~
- ~~Yellow Bellied Sapsucker – Cavity nester. Quaking aspen.~~
- ~~Pygmy Nuthatch – Cavity nester. Old growth ponderosa pine.~~

~~Brown Creeper—Cavity nester. Mature sub-alpine
fir and lodgepole pine.~~

~~Mountain Bluebird—Cavity nester. Ecotones.~~

~~Anadromous Fish (Salmon and Steelhead)—Stream
habitats with adequate sediment free spawning
gravels, and channels free of migration blocks,
ample instream flow and streamside cover.~~

~~Trout (all species combined)—Cool, clean sediment
free stream and lake habitats, ample instream flow
and streamside cover.~~

~~Aquatic, Aquatic Macroinvertebrates—Cool, clean
stream and lake environments.~~

Pileated Woodpecker – Coniferous Forest

Sage Grouse – Sagebrush

Spotted Frog – Riparian

Bull Trout - Aquatic

2. Provide National Forest portion of the habitat needed to meet Regional Wildlife and Fish Management objectives.

- a. Habitat for each vertebrate wildlife species on the Forest will be managed to insure viable or target populations.
- b. A minimum of 10 percent of applicable forested ecosystems dispersed across the forest, will be managed and maintained (by timber class) as old growth.
- c. Contribute to the local and State economics by providing favorable habitat for socially and economically important fish and wildlife species.
- d. Place emphasis on improving key ecosystems including by not limited to: riparian, aspen, aquatic, snag, and old growth.
- e. Manage and provide habitat for recovery of endangered and threatened species as specified in the Species Management Plan for the Salmon National Forest.

- Cooperate with users and other agencies to provide a system of managed snowmobile trails.
- Manage 338.269 acres in management areas featuring semi-primitive recreation opportunities.
- Complete trail maintenance on priority trails in designated wilderness, national historic trails, national scenic trails, national recreation trails, and in management areas featuring semi- primitive recreation opportunities to assigned maintenance standards.
- Manage visual quality in assigned sensitivity Level 1 and 2 travel routes to achieve the following classification standards:

<u>Category</u>	<u>Acres</u>
Preservation	426,004
Retention	191,906
Partial Retention	480,941
Modification	451,719
Maximum Modification	226,424

Wilderness

- Manage the river corridors and Bighorn Crags portions of the Frank Church--River of No Return Wilderness to standard and the remainder of the wilderness at less than standard.
- Manage 426.114 acres of the Salmon National Forest as designated wilderness.

Wildlife and Fish

- Maintain habitat capability for big game populations at approximately the following levels:

7,300	elk
18,600	deer
2,000	bighorn sheep
600	mountain goats

- Maintain at least 10 percent of the forested lands outside wilderness as old growth for dependent species.
- ~~-Complete direct habitat improvement projects needed to maintain target populations of management indicator species.~~
- Complete direct habitat improvement projects needed to maintain populations of selected species.**
- Complete direct habitat improvement projects needed to maintain populations of management indicator species.**
- Implementation of projects involving classified threatened and endangered species habitat will include consultation with the Fish and Wildlife Service.
- Maintain fry survival of at least 60 percent for resident trout and at least 68 percent for anadromous species.

Visual quality will be emphasized in areas viewed from Sensitivity Level 1 and 2 travel routes. The visual quality objectives are:

<u>Category</u>	<u>Acres</u>	<u>Change From Present</u>
Preservation	426,000	No change
Retention	191,906	-983
Partial Retention	480,941	-9,595
Modification	451,719	-138,375
Maximum Modification	226,424	+148,953

By the end of the planning period, approximately 24 percent of the Forest will appear preserved in a natural condition, 62 percent will appear essentially natural, and 14 percent will appear to be modified by man's activities. The quality of the setting in dispersed areas will remain generally high.

Management of ORV use will continue to reflect the needs of the wildlife, soil, and water resources. ORV use will be permitted wherever feasible unless specifically prohibited for resource protection. ORV plans will be subject to annual revision.

Wilderness

None of the existing inventoried roadless areas will be designated as wilderness.

Within the Frank Church--River of No Return Wilderness, the river corridors and Bighorn Crags will receive high intensity management. The remainder of the wilderness will be managed at a moderate to low level of intensity. The quality and integrity of designated wilderness will generally remain high.

Wildlife and Fish

Habitat will be maintained for big game populations of approximately 7,300 elk, 18,600 deer, 2,000 bighorn sheep, and 600 mountain goats. Ten percent of the forested lands outside of designated wilderness areas will be maintained as old growth for species dependent on that habitat. Mitigation measures necessary to ensure the full spectrum of habitat needs for big game species as provided will include travel restrictions and coordinated timber sale design and operation.

Habitats represented by management indicator species will improve in spatial distribution as well as structural and species' diversity. Wildlife habitat capability will be maintained or will slowly improve. Habitat for anadromous and resident fish will be maintained or will slowly improve. The numbers of anadromous fish have the potential to increase over the planning period.

Winter range habitat improvement projects such as prescribed burning and browse regeneration will be conducted. Unroaded key elk summer ranges and big game winter ranges will continue to support the majority of the population of hunted species.

Aquatic habitats will be managed at a level sufficient to meet State water quality goals and maintain habitat capability to meet species production goals for both resident and anadromous species. Species production goals are linked with maintaining fry survival at 60 percent for resident trout and 68 percent for anadromous species. Several barriers to fish passage will be corrected and sediment levels allowed to decline on several streams in order to attain

CHAPTER V. IMPLEMENTATION, MONITORING, AND EVALUATION

TABLE V-1
MONITORING REQUIREMENTS

ACTIVITY, PRACTICE OR EFFECT	MONITORING TECHNIQUES OR DATA SOURCES	PRECISION/RELIABILITY	MEASUREMENT FREQUENCY	REPORTING PERIOD	CONDITIONS WHICH WOULD INDICATE FURTHER EVALUATION
<u>Wildlife</u>					
Wildlife Management Indicator Species—Populations and/or habitat trends	Aerial WR surveys and population estimates, check station data, etc., from IF&G, Stage II inventories, WHP model data; Range inventory data, breeding bird surveys, etc.	M-H/M-H	Annually for big game species—Two to five years intervals for all others. Annually for status of old growth retention stands.	Same	±25% deviation in populations or significant differences in population estimates versus habitat trends.
MIS Population Trends	Pileated Woodpecker – visual observations, breeding bird surveys and point count transects.	M/M	Annual (BBS) 2 Times/5-Years (Point counts)	5-Years	Decline in distribution or population
	Greater Sage-Grouse – Idaho Department of Fish and Game lek counts	M/M	Annual	Annual	Decline in distribution or population
	Spotted Frog – Timed searches – counting egg masses, tadpole/larvae, juveniles and adults. Dip nets are used to collect individuals for identification and measurement.	M/M	5-Years	5-Years	Decline in distribution or population
	Bull Trout – redd-counts, electorshocking, and snorkeling	M/M	Annual	5-Years	Decline in distribution or population

ACTIVITY, PRACTICE OR EFFECT	MONITORING TECHNIQUES OR DATA SOURCES	PRECISION/RELIABILITY	MEASUREMENT FREQUENCY	REPORTING PERIOD	CONDITIONS WHICH WOULD INDICATE FURTHER EVALUATION
<u>Wildlife Cont.</u>					
MIS Habitat Conditions	Pileated Woodpecker - Arcview/GIS analysis of satellite vegetation classification imagery.	M/M	2 Times/5-Years	5-Years	Any documented change in current status
	Greater Sage-grouse – Plant Species composition and structural diversity following established rangeland monitoring protocols, (including nested frequency, shrub belt density transects, etc).	M/M	1 Time/5-Years	5-Years	Any documented change in current status
	Spotted Frog - Water Temperature, pH, conductivity	H/H	5-Years	5-Years	Any documented change in current status
	Bull Trout - Water Temperature, Vegetation Cover and Large Woody Debris, Sediment, and Pool Quality.	H/H	1 Time/10-Years	10-Years	Any documented change in current status
Threatened or Endangered Species – Population and/or habitat trends	Maintain observation records and investigate all sightings (except winter Bald Eagle survey; Wolf howling surveys and Peregrine nesting surveys. Continue Gray Wolf Habitat Coordination Project.	M-H/M	Annually for sightings and NWF’s Bald Eagle survey. Two to five year intervals for all others.	Same	Any change from Current Status
Habitat Improvement Accomplishment and Results	Annual Wildlife Report and attainment reports.	M/H	Annually	Same	
Standard and Guideline Conformance	Post-Project ID Team Field Review	M-H/M-H	Annually for two major projects each year.	Same	Significant deviation from prescription parameters.

V-5a

Appendix B

Management Indicator Species List - Forest Plan Amendment # 18

for the Land and Resource Management Plan for the Challis National Forest

Enclosed are the Challis Forest Plan Amendment page changes associated with the Proposed Amendments to the Management Indicator Species List for the Salmon and Challis Land and Resource Management Plans project.

The pages are intended to replace existing pages or provide page inserts where pages have been added to the Land and Resource Management Plan for the Challis National Forest.

Page numbers corresponding with the Forest Plan are at the bottom of the page and start with the Roman numeral chapter number and are followed by the page number.

Language that has been removed is indicated by strike through (~~wording~~).

Language that has been added is indicated by bold (**wording**).

CHAPTER II. ANALYSIS OF THE MANAGEMENT SITUATION

a. Forest Species

The variety of plant communities and geomorphic formations provides habitat for approximately 63 mammals, 247 birds, 19 amphibians and reptiles, and 18 fishes. Twenty-seven mammals, 45 birds, and 8 fish varieties are considered economically important to the State of Idaho.

There are three Threatened and Endangered Species that use the Forest. Peregrine falcon and Bald eagle occasionally occupy habitat on the Forest. Rocky Mountain gray wolf may inhabit areas on the Forest year round. The gray wolf is a Threatened and Endangered Species, for which "recovery" habitat will be designated in the near future.

The Forest has 15 Forest Service Sensitive plant species, three of which are under formal status review.

b. Management Indicator Species (MIS) and Reasons for Selection

Management Indicator Species are considered to be key species, which represent life forms and have habitat requirements similar to other groups of plants or animals. ~~They are species for which populations and habitat objectives can be established, and will be tracked as indicators of habitat capability.~~

~~The selection of Management Indicator Species involves a 3-step process: (1) Formulation of Selection Criteria; (2) List of species qualifying as Management Indicator Species, and (3) Final selection of Management Indicator Species through use of Selection Criteria.~~

~~The following selection criteria were used for the identification of management indicator species or groups of fish, wildlife and plants:~~

- ~~-There are issues or concerns about the wildlife species and/or its habitat.~~
 - ~~-The species has special habitat needs that may be influenced significantly by management practices resulting from land use allocation.~~
 - ~~-The species is economically important and occurs throughout the Forest.~~
 - ~~-The species represents other life forms or groups of animals and their habitat requirements, especially those dependent upon early and late ecological succession.~~
 - ~~-A species, which can be used to predict the continued viability of other species in the planning area.~~
 - ~~-The populations and habitat of the species can be technically and feasibly monitored.~~
- Federal regulations provide MIS selection direction in 36 CFR 219.19(a)(1).**

“In order to estimate the effects of each alternative on fish and wildlife populations, certain vertebrate and/or invertebrate species present in the area shall be identified and selected, as MIS and the reasons for their selection will be stated. These species shall be selected because their population changes are believed to indicate the effects of management activities. In the selection of management indicator species, the following categories shall be represented where appropriate: Endangered and threatened plant and animal species identified on State and Federal lists for the planning area; species with special habitat needs that may be influenced significantly by planned management programs; species commonly hunted, fished, or trapped; non-game species of special interest; and additional plant or animal species selected because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities or on water quality.”

Evaluation Criteria

- **Population data is readily available or protocols exist for collection of scientifically credible population data.**
- **Habitats of species must be associated with management areas where habitat manipulation is allowed.**
- **A relationship between population trends and habitat management activities exist.**

Terrestrial Animals

- 1) ~~Elk~~—Represents species associated with the following plant/animal communities: Wet meadows, wet sagebrush/grass, savanna forest, spruce/fir forest and coniferous riparian.
- 2) ~~Mule Deer~~—Represents species associated with the following plant/animal communities: Dry and wet sagebrush/grass, savanna forest, deciduous riparian, subalpine/rock scree.
- 3) ~~Red Squirrel~~—Represents all species dependent upon climax coniferous or mature conifer stands.
- 4) ~~Mountain goat and bighorn sheep~~—Represents species associated with alpine and subalpine/rock scree.

Plants

- 1) ~~Artemisia tridentata (Big sagebrush) subspecies tridentata, vasevana, and wyomingensis. Increases in sagebrush overstory over natural levels of approximately 20% indicate a decreasing ecological range condition.~~
- 2) ~~Purshia tridentata (Bitterbrush) Important wildlife winter forage.~~
- 3) ~~Agropyron spicatum (Bluebunch wheatgrass) and Festuca idahoensis (Idaho Fescue) Indicative of climax rangeland conditions.~~
- 4) ~~Achillea millefolium (Western Yarrow) and Cirsium arvense (Canadian Thistle) Indicative of disturbance in riparian areas.~~

Aquatic Animals

- 1) ~~Rainbow trout, cutthroat trout, and bull trout.~~
- 2) ~~Macroinvertebrates~~
 - a) ~~Rhithrogena, Epeorus and Ephemerella doddsi~~—These mayfly genera are indicative of high water quality.
 - b) ~~Zapada~~—This stonefly is a "shredder" and is indicative of the amount of leafy matter entering a stream. Generally, as riparian areas are degraded, its number are reduced.
 - c) ~~Ephemerella inermis~~—This mayfly is moderately tolerant to sedimentation. If its numbers are increasing while clean water species are decreasing, it may indicate increasing sediment.
 - d) ~~Chironomidae~~—This family of true flies is very tolerant of high sediment levels. If their numbers are increasing in relation to others decreasing, it may indicate a degradation of habitat.
- 3) ~~Steelhead trout and chinook salmon.~~

b(1). Selected Management Indicator Species, Represented Habitats, and Habitat Needs

Pileated Woodpecker

Habitats represented by the pileated woodpecker include all lower montane and montane coniferous forest community types.

Pileated woodpeckers commonly occur in the ponderosa pine, Douglas-fir, lodgepole pine, and mixed pine and fir stands where most timber management occurs on this forest, and are affected by changes in habitats they provide. The relationship of this species with mixed conifer forests communities containing large diameter live trees, standing dead and down logs, particularly in multi-storied stands, is fairly well understood, as is the effect of timber management activities on the characteristics of such stands.

Although

nesting is preferred in dense stands of larger trees, the woodpecker often forages in open stands where down logs, stumps and snags support their major food supply, carpenter ants.

Some population data is currently available and established protocols exist for collection of scientifically credible data for the pileated woodpecker.

Greater Sage-Grouse

The habitats represented by the greater sage-grouse include all the non-forested upland sagebrush/grass community types.

The greater sage-grouse is an obligate sagebrush steppe species. This grouse is totally dependant upon the many sagebrush/grass community types occupying the lower and mid elevations of the Forest. Nesting and brood rearing occur within tall sagebrush areas with good compositions of tall bunchgrasses. Leks are generally in the more open, short statured sagebrush/grass communities.

Greater sage-grouse populations have declined dramatically over much of their historical range, including this Forest. The greater sage-grouse's habitat is greatly influenced by management actions both on the Forest and on nearby BLM and private lands, in addition to wildfire and noxious weed spread.

Population monitoring protocols are well established. Idaho State Fish and Game, in cooperation with other land management agencies, monitor greater sage-grouse population trends annually, usually in the spring when lek counts are conducted. Additional information is gathered during the hunting season through wing counts from harvested birds.

Columbia Spotted Frog

The habitats represented by the spotted frog include the many riparian habitat/community types influenced by water.

This species is known to occupy slow-moving cool water streams, beaver ponds and marshy edges of lakes across the forest and has been found to use adjacent upland habitats as well. Soon after breeding they often travel considerable distances from the breeding pools to utilize a wide range of foraging areas including mixed conifer and subalpine forests, grasslands, and sagebrush shrub/steppe wherever puddles, seeps or other water sources are available. The Columbia spotted frog occurs in a variety of forest and non-forest communities that are subjected to many different resource management activities ranging from grazing to timber harvest and are known to be sensitive to changes in habitat parameters such as riparian vegetation, water temperatures and quality, along with environmental factors including temperature fluctuations and environmental pollutants (air and water).

Although surveying and monitoring amphibian populations can be time consuming, accepted protocols have been developed that are applicable to most amphibian species, including the Columbia spotted frog. Both baseline monitoring and more intensive structured monitoring have been performed on the Forest, the latter by timed search protocol.

Bull Trout

The habitats represented by bull trout include all aquatic habitats.

With the exception of the Big Lost River watershed, bull trout are a common and comparable fisheries MIS within and between watersheds of the Challis National Forest.

Bull trout are sensitive to stream habitat and watershed conditions. Bull trout typically have more narrowly defined habitat tolerances than other salmonids, with a closer affinity to stream bottom substrate quality and conditions. In-channel woody cover, clean substrate, cold clean water, deep pools, vegetated undercut banks, channel stability, winter high flows and the quality of summer low flows appear to consistently influence bull trout abundance and distribution throughout their range.

Because bull trout habitat requirements overlap many requirements of other fish species (west-slope cutthroat, steelhead, chinook salmon, sockeye salmon, rainbow, redband rainbow, and whitefish) and they are sensitive to watershed changes, the distribution and status of bull trout populations would be most broadly indicative of habitat changes potentially affecting all fish species.

Bull trout have, since being listed as a “Threatened” species, been intensively monitored thru a cooperative monitoring program with FS, IDFG, FWS, NOAA- Fisheries and other agencies. Protocols for electro-fishing, snorkeling and redd counts are well established

c. Habitat Capability

~~Habitat capability is a function of the amount and arrangement of (a) food, (b) cover, (c) water, and (d) space. The one that is the most limiting, becomes the governing factor regulating MIS populations.~~

Habitat capability is a function of the amount and arrangement of (a) food, (b) cover, (c) water, and (d) space. The one parameter that is the most limiting, becomes the governing factor regulating populations.

The Challis National Forest has developed a technique of displaying the relationship of animals and their habitat. The methodology is primarily based on the assumption that habitats within two similar geographical areas have similar physical characteristics, and these physical characteristics are definable. This definable ecosystem is called a "Plant/Animal Community Association". The PACA approach is a system that manages and organizes biological data, extrapolated from the various ecosystems, into a framework which allows for the consideration of (1) all vertebrate species and Threatened and Endangered plants in the planning process, (2) species with management concerns, and (3) identification of habitats requiring special attention.

~~The Plant/Animal Community Associations are listed in the Glossary. Listed below are the Plant/Animal Community Associations (W-1 through W-12) that have been assigned to each terrestrial Management Indicator Species. The combination associations represent habitats in which the animal spends 90 percent of its life.~~

The Plant/Animal Community Associations are listed in the FEIS Glossary. Listed below are the Plant/Animal Community Associations (W-1 through W-12) that have been assigned to selected terrestrial species. The combination associations represent habitats in which the animal spends 90 percent of its life.

- 1) Current Habitat: Current habitat is that habitat which is currently available, but may or not be occupied.
 - a) Mule Deer -wet sagebrush/grass (W-2), dry sagebrush/grass (W-3), savanna forest (W-4), subalpine/rock scree (W-7), and deciduous riparian (W-9).
 - b) Elk -wet meadow (W-1), wet sagebrush (W-2), savanna forest (W-4), spruce fir/forest (W-5), and coniferous riparian (W-10).
 - c) Bighorn sheep -subalpine/rock scree (W-7) and alpine/rock scree (W-8).
 - d) Mountain goat -alpine/rock scree (W-8).
 - e) Red squirrel -climax coniferous forest (W-12).
- 2) Potential Habitat: Potential habitat is the total habitat which is currently available, plus habitat which is not suitable but could be made suitable through vegetation manipulation.
 - a) Mule deer -same as current habitat (W-2, W-3, W-4, W-7, W-9) plus climax coniferous forest (W-12).
 - b) Elk -same as current habitat (W-1, W-2, W-4, W-5, and W-10, plus climax coniferous forest (W-12).
 - c) Bighorn sheep -same as current habitat (W-7 and W-8).
 - d) Mountain goat -same as current habitat (W-8).
 - e) Red squirrel -same as current habitat (W-12), plus savanna forest (W-4).

- 3) Key Habitats: Certain physical components of wildlife habitat that receive heavy use (e.g., reproduction and breeding areas, travel routes, moist sites, licks and winter ranges). If one of these key components is adversely affected, it may result in a reduction of the species.

Forest-wide Summary of MIS Capability Levels¹
Forest wide Summary of Habitat Capability¹

	Management Selected Indicator Terrestrial Species	Minimum Viable	Current (1981)	(Potential) Maximum	Trends
Population (Numbers)	Mule Deer	4,810	19,074	76,550	Upward
	Elk	2,054	5,058	9,727	Upward
	Bighorn Sheep	505	568	5,649	Upward
	Mountain Goat	597	454	2/	Upward
	Red Squirrel	(Populations	not tracked)	1,944	
Habitat (M Acres)	Mule Deer	468	1,138	1,380	Static
	Elk	308	685	999	Upward
	Bighorn Sheep	57	452	852	Static
	Mountain Goat	27	174	174	Static
	Red Squirrel	28	284	345	Static
Population (M lbs)	Resident Fish	38.29	205.7	235.4	
	Anadromous Fish	22.14	22.6	592.1	
Habitat (Acres)	Resident Fish 3/	5,680	5,680	5,680	
	Anadromous Fish 4/	2,214	1,986	2,214	

1/ For specific capability levels of Management Areas, see CNF-AMS.

2/ Mountain goat populations are considered to be below MVP Forest side.

3/ Populations of resident fish MIS at the minimum viable population level would occupy the same area as they would at other levels, but at greatly reduced numbers.

4/ Populations of anadromous Management Indicator Species at the minimum level would occupy more habitat than is currently occupied because current populations are felt to be below minimum level, and therefore using less habitat than they would at minimum viable population level.

Habitat characteristic needs for resident and anadromous salmonids vary with time of year and stages of their life cycle. Salmonids in general, have similar requirements for spawning, incubation and rearing while anadromous species have needs tied to long migration to and from the ocean.

d. Habitat

Habitat acres and distribution of wildlife habitat (Plant/Animal

Community Associations) are displayed in Table 6 of the Challis

CHAPTER IV. FOREST MANAGEMENT DIRECTION

Both the Boulder/White Clouds and pioneer Mountains Roadless Areas include lands administered by the Challis and Sawtooth National Forest. The final determination for the Boulder/White Clouds Roadless Area is included in the Sawtooth National Forest EIS and Record of Decision. The final determination for the pioneer Mountains Roadless Area is included in the Challis National Forest EIS. The Forest will recommend that no new wild, scenic, or recreation rivers be designated on the Forest.

2. Wildlife and Fish

Habitat will be provided to ensure viability and recovery of Threatened and Endangered and Forest Service Sensitive plants and animals.

Habitat will be provided to meet Idaho Department of Fish and Game population objectives for fish and wildlife species.

~~Management Indicator Species will all increase in number. Wildlife habitat capability will be maintained or will slowly improve. Habitat capability for anadromous and resident fish will be maintained or will slowly improve. The numbers of anadromous fish have the potential to greatly increase over the planning period.~~

Habitats represented by management indicator species will improve in spatial distribution as well as structural and species' diversity. Wildlife habitat capability will be maintained or will slowly improve. Habitat for anadromous and resident fish will be maintained or will slowly improve. The numbers of anadromous fish have the potential to increase over the planning period.

Wildlife associated recreation (WFUD's) will increase over the planning period and will become increasingly important to the local economy.

Wildlife conflicts will be resolved.

Habitat improvement programs for fish and wildlife will increase.

Coordination efforts with timber, range, and minerals will be increased.

3. Range Management

Range administration and management of allotments will continue at the present level, but with greater emphasis on efficiency. All allotments will have improved Allotment Management Plans, and permittees will cooperate and participate in the range improvement program.

Noxious farm weed control in cooperation with the counties and other agencies will be increased over the current situation. The Experimental Range Stewardship Program will be continued.

Permitted use will be maintained at the present level. This will help maintain the local family ranching operations and local communities.

Riparian area condition and trend will slowly improve within allotments.

Sensitive plant species will be maintained. The noxious weed program will be strengthened, with emphasis on controlling high priority weeds.

Areas currently closed to grazing for watershed, wildlife and recreational purposes will remain closed. Predator control will be allowed on grazing allotments where need is demonstrated. Integrated pest management techniques will be used to protect, maintain, and improve range resources.

MANAGEMENT AREA #2 -MANAGEMENT PRESCRIPTION

Management will emphasize dispersed recreation opportunities, minerals activities and maintenance of water quality.

Recreation Provide dispersed recreation opportunities with emphasis on access to the Wilderness.

Wildlife and Fish ~~Manage wildlife habitat to maintain current habitat capability of MIS. Emphasize management of gray wolf where appropriate. Maintain or improve anadromous fish habitat.~~

Manage wildlife habitat to maintain current habitat capability of terrestrial and aquatic species. Emphasize management of gray wolf where appropriate. Maintain or improve anadromous fish habitat.

Range Primary use will be for recreational stock.

Timber Manage the most productive and accessible areas for timber production.

Soil & Water Maintain or improve water quality and soil productivity.

Minerals Exploration, location, leasing and development of energy and non-energy mineral resources will be coordinated with other resources. Recognize the high locatable mineral occurrence and probable future development.

Lands Ensure access to National Forest lands.

Facilities Construct, maintain and manage facilities to meet the needs of resource management activities.

MANAGEMENT AREA #3 -MANAGEMENT PRESCRIPTION

Management will emphasize dispersed recreation opportunities and enhancement of anadromous fish habitat.

- Recreation Provide for a wide variety of outdoor recreation; emphasize dispersed recreation generally; maintain existing developed sites at reduced service level.
- Wildlife and Fish ~~Manage wildlife habitat to maintain current habitat capability of MIS elk and mule deer. Emphasize management of threatened and endangered species where appropriate. Manage to enhance or improve habitat conditions of anadromous fish.~~
- Manage wildlife habitat to maintain current habitat capability of elk and mule deer. Emphasize management of threatened and endangered species where appropriate. Manage to enhance or improve habitat conditions of anadromous fish.**
- Range Provide a level of management on allotments that will maintain suitable range in fair or better condition, and improve the condition of suitable range that is in less than fair or better condition. Improve livestock distribution.
- Timber Manage suitable lands for timber production. Emphasize management of the most productive and accessible stands.
- Soil & Water Maintain or improve water quality and soil productivity.
- Minerals Exploration, location, leasing and development of energy and non-energy mineral resources will be coordinated with other resources.
- Facilities Construct, maintain and manage facilities to meet the needs of resource management activities.

MANAGEMENT AREA #4 -MANAGEMENT PRESCRIPTION

Management will emphasize dispersed recreation opportunities and enhancement of anadromous fish habitat.

Recreation Emphasize dispersed recreation.

Wildlife and Fish ~~Manage wildlife habitat to maintain current habitat capability of MIS elk and mule deer. Emphasize management of threatened and endangered species where appropriate. Manage for enhancement or improvement of habitat conditions for anadromous fish.~~

Manage wildlife habitat to maintain current habitat capability of elk and mule deer. Emphasize management of threatened and endangered species where appropriate. Manage for enhancement or improvement of habitat conditions for anadromous fish.

Range Provide a level of management on allotments that will maintain suitable range in fair or better condition and improve the condition of suitable range that is in less than fair or better condition. Improve livestock distribution.

Timber Manage suitable lands for timber production. Emphasize management of the most productive and accessible stands.

Soil & Water Maintain or improve water quality and soil productivity.

Minerals Exploration, location, leasing and development of energy and non-energy mineral resources will be coordinated with other resources.

Facilities Construct, maintain and manage facilities to meet the needs of resource management activities.

MANAGEMENT AREA #5 – MANAGEMENT PRESCRIPTION

Management will emphasize dispersed recreation opportunities, enhancement of anadromous fish habitat and maintenance of water quality.

<u>Recreation</u>	Emphasize dispersed recreation.
<u>Wildlife and Fish</u>	Manage wildlife habitat to maintain current habitat capability of MIS elk and mule deer. Future wolf recovery needs will be considered and provided for as needed on proposed project evaluations. Manage for enhancement or improvement of habitat conditions of anadromous fish. Manage wildlife habitat to maintain current habitat capability of elk and mule deer. Manage for enhancement or improvement of habitat conditions of anadromous fish.
<u>Range</u>	Provide a level of management on allotments that will maintain suitable range in fair or better condition and improve the condition of suitable range that is in less than fair or better condition. Improve livestock distribution.
<u>Timber</u>	Manage suitable lands for timber production. Emphasize management of the most productive and accessible stands.
<u>Soil & Water</u>	Maintain or improve water quality and soil productivity.
<u>Minerals</u>	Exploration, location, leasing and development of energy and non-energy mineral resources will be coordinated with other resources. Recognize the high locatable mineral occurrence and probable future development.
<u>Facilities</u>	Construct, maintain and manage facilities to meet the needs of resource management activities.

MANAGEMENT AREA #6 -MANAGEMENT PRESCRIPTION

Management will emphasize dispersed recreation opportunities, minerals activities, timber production, and enhancement of anadromous fish habitat.

<u>Recreation</u>	Emphasize a wide spectrum of outdoor recreation activities. Protect and preserve cultural and historic sites or features.
<u>Wildlife and Fish</u>	Manage to maintain or improve habitat condition and diversity for MIS elk, mule deer, bighorn sheep and mountain goats. Future wolf recovery needs will be considered and provided for, as needed, in proposed, project evaluations. Improve aquatic habitat conditions for anadromous and resident fisheries. Manage to maintain or improve habitat condition and diversity for elk, mule deer, bighorn sheep and mountain goats. Improve aquatic habitat conditions for anadromous and resident fisheries.
<u>Range</u>	Provide for a level of management on allotments that will maintain suitable range in fair or better condition and improve the condition of suitable range that is in less than fair or better condition. Improve livestock distribution.
<u>Timber</u>	Manage suitable lands for timber production. Emphasize management of the most productive and accessible stands.
<u>Soil & Water</u>	Maintain or improve water quality and soil productivity.
<u>Minerals</u>	Exploration, location, leasing and development of energy and non-energy mineral resources will be coordinated with other resources. Recognize the high locatable mineral occurrence and probable future development.
<u>Lands</u>	Resolve boundary conflicts with adjacent private land. Ensure access to National Forest lands.

MANAGEMENT AREA #7 -MANAGEMENT PRESCRIPTION

Management will emphasize range, and enhancement of fish and wildlife habitat. Management in the proposed Boulder/White Cloud Wilderness area (26,000 acres in this management area) will emphasize protection of wilderness attributes.

<u>Recreation</u>	Emphasize dispersed recreation. Protect wilderness attributes of proposed wilderness area.
<u>Wildlife and Fish</u>	Maintain or improve habitat condition and diversity for MIS elk, mule deer, bighorn sheep and mountain goats. Improve aquatic habitat conditions for anadromous fisheries. Maintain or improve habitat condition and diversity for elk, mule deer, bighorn sheep and mountain goats. Improve aquatic habitat conditions for anadromous fisheries.
<u>Range</u>	Provide for a level of management on allotments that will maintain suitable range in fair or better condition and improve the condition of suitable range that is in less than fair or better condition. Improve livestock distribution.
<u>Timber</u>	Manage suitable lands for timber production. Emphasize management of the most productive and accessible stands.
<u>Soil & Water</u>	Maintain or improve water quality and soil productivity.
<u>Lands</u>	Resolve boundary conflicts with private land. Ensure needed access to National Forest lands.
<u>Minerals</u>	Exploration, location, leasing and development of energy and non-energy mineral resources will be coordinated with other resources.
<u>Facilities</u>	Construct, maintain and manage facilities to meet the need! of resource management activities.

MANAGEMENT AREA #8 - MANAGEMENT PRESCRIPTION

Management will emphasize enhancement of wildlife habitat, and provide for minerals activities and dispersed recreation opportunities.

<u>Recreation</u>	Emphasize dispersed recreation.
<u>Wildlife and Fish</u>	Maintain or improve habitat condition and diversity for MIS elk, mule deer, bighorn sheep and mountain goats. Improve aquatic habitat conditions for anadromous fisheries. Maintain or improve habitat condition and diversity for elk, mule deer, bighorn sheep and mountain goats. Improve aquatic habitat conditions for anadromous fisheries.
<u>Range</u>	Provide for a level of management on allotments that will maintain suitable range in fair or better condition and improve the condition of suitable range that is in less than fair or better condition. Improve livestock distribution.
<u>Timber</u>	Manage suitable lands for timber production. Emphasize management of the most productive and accessible stands.
<u>Soil & Water</u>	Maintain or improve water quality and soil productivity.
<u>Minerals</u>	Exploration, location, leasing and development of energy and non-energy mineral resources will be coordinated with other resources. Recognize the high locatable mineral occurrence and probable future development.

MANAGEMENT AREA #9 -MANAGEMENT PRESCRIPTION

Management will emphasize enhancement of fish and wildlife habitat, range administration, maintenance of water quality, timber production and dispersed recreation.

<u>Recreation</u>	Provide dispersed recreation opportunities.
<u>Wildlife and Fish</u>	Maintain or improve habitat condition and diversity for MIS elk, mule deer, bighorn sheep, and mountain goats. Improve aquatic habitat conditions for anadromous and resident fisheries. Maintain or improve habitat condition and diversity for elk, mule deer, bighorn sheep, and mountain goats. Improve aquatic habitat conditions for anadromous and resident fisheries.
<u>Range</u>	Provide for a level of management on allotments that will maintain suitable range in fair or better condition and improve the condition of suitable range that is in less than fair or better condition. Improve livestock distribution.
<u>Timber</u>	Manage suitable lands for timber production. Emphasize management of the most productive and accessible stands.
<u>Soil & Water</u>	Maintain or improve water quality and soil productivity.
<u>Minerals</u>	Exploration, location, leasing and development of energy and non-energy mineral resources will be coordinated with other resources. Recognize the high locatable mineral occurrence and probable future development.

MANAGEMENT AREA #10 -MANAGEMENT PRESCRIPTION

Management will emphasize dispersed recreation opportunities, range administration and maintenance of water quality.

<u>Recreation</u>	Provide for a wide spectrum of outdoor recreation activities emphasize dispersed recreation, protect and preserve cultural and historic sites or features.
<u>Wildlife and Fish</u>	Maintain or improve habitat condition and diversity for MIS elk, mule deer, bighorn sheep and mountain goats. Maintain aquatic habitat conditions for resident fisheries. Maintain or improve habitat condition and diversity for elk, mule deer, bighorn sheep and mountain goats. Maintain aquatic habitat conditions for resident fisheries.
<u>Range</u>	Provide for a level of management on allotments that will maintain suitable range in fair or better condition and improve the condition of suitable range that is in less than fair or better condition. Improve livestock distribution.
<u>Timber</u>	Manage suitable lands for timber production. Emphasize management of the most productive and accessible stands.
<u>Soil & Water</u>	Maintain or improve water quality and soil productivity.
<u>Minerals</u>	Explorations locations leasing and development of energy and non-energy mineral resources will be coordinated with other resources. Recognize the high locatable mineral occurrence and probable future development.
<u>Lands</u>	Ensure public access to National Forest lands.

Land and Resource Management Plan for the Challis National Forest

Wildlife and Fish

- C01 ~~Maintain quality and use of MIS big game and grouse summer forage areas, emphasizing complexes comprising moist habitats. Protect moose and elk calving and grouse brood-rearing areas.~~
- Maintain quality and use of habitat for elk, mule deer, bighorn sheep, mountain goats, and grouse summer forage areas, emphasizing complexes comprising moist habitats. Protect moos and elk calving and grouse brood-rearing areas.**
- C01 Provide for big game security cover needs.
- C01 Allow for an increase in moose populations.
- C01 Update and refine wildlife inventories as needed.
- C01 Inventory fish habitat with emphasis on identifying problem areas and potentials. Priority of inventory tied to proposed activities in the area. Completed by 1995.
- C01 Improve stream habitat quality, where needed, through coordination with other resource projects.
- C01 Cooperate with Idaho Department of Fish and Game on fish stocking in lakes and streams as needed.
- C02 Improve the quality of habitat for big-game and upland game birds.
- C03
- Initiate improvements as shown in the Forest Wildlife Action Plan.
- Priority for nonstructure improvements will be given to aspen rejuvenation and sagebrush burning in key summer range or elk calving/breeding areas.
- Emphasize the use of prescribed fire and water developments.

CHAPTER V. IMPLEMENTATION OF THE FOREST PLAN

Land and Resource Management Plan for the Challis National Forest

MIH Reference Code	Activity, Practice or Effect to be Measured	Monitoring Technique	Expected Precision/Reliability	Measurement Frequency	Reporting Period	Variation Which Causes Further Evaluation and/or Change in Mgmt. Direction
Fish and Wildlife						
C01	MIS population trends	Annual F&G herd counts & harvest reports for big game and electroshocking, redd counts, and creel census for fish (Data provided by Idaho Fish & Game Dept).	M/M	Annual	5-Years	10-15% change in population level due to change in habitat on National Forest System lands.
		Pileated Woodpecker – visual observations, breeding bird surveys and point count transects.	M/M	Annual (BBS) 2 Times/5-Years (Point counts)	5-Years	Decline in distribution or population
		Greater Sage-Grouse – Idaho Department of Fish and Game lek counts.	M/M	Annual	Annual	Decline in distribution or population
		Spotted Frog – Timed searches – counting egg masses, tadpole/larvae, juveniles and adults. Dip nets are used to collect individuals for identification and measurement.	M/M	5-Years	5-Years	Decline in distribution or population
		Bull Trout – redd-counts, electroshocking, and snorkeling	M/M	Annual	5-Years	Decline in distribution or population
C01	MIS habitat conditions					
	Big game — a. Elk — Mule Deer — Bighorn sheep — Mountain goat	Measure trends in quality & quantity of habitat on key seasonal ranges (i.e., cover/forage ratios, forage production & vigor; miles of open roads, security areas).	L/L	5-years	10-Years	Decline in habitat conditions on 10% of Management Area

MIH Reference Code	Activity, Practice or Effect to be Measured	Monitoring Technique	Expected Precision/Reliability	Measurement Frequency	Reporting Period	Variation Which Causes Further Evaluation and/or Change in Mgmt. Direction
Fish and Wildlife Cont.						
b.	Plant Animal Community Association	Update and calculated acres changed.		Annual	8 Years	20% change in habitat
c.	Red squirrel	Monitor total old growth through a timber base data following Standards and Guidelines.	L/L	Annual	5 Years	Less than 10% in old growth retained in each Management area
d.	Gray wolf	Gray wolf sightings, F&G trend counts for prey species, habitat monitoring following Recovery Plan; coordinate with F&WLS.	L/L	Annual	Annual	Any documented change in current status
e.	Bald eagle	Co-op. winter and spring counts with F&W Service.	H/H	Annual	Annual	Any documented change in current status
f.	Aquatic	Stream channel stability and GAWS surveys, riparian vegetation conditions, Valley Bottom Inventory, water and sediment sampling. Develop monitoring in AMPs.	M/M	Annual	Annual	10% change (or as stated in Standards & Guidelines).
		Pileated Woodpecker - Arcview/GIS analysis of satellite vegetation classification imagery.	M/M	2 Times/5-Years	5-Years	Any documented change in current status

MIH Reference Code	Activity, Practice or Effect to be Measured	Monitoring Technique	Expected Precision/Reliability	Measurement Frequency	Reporting Period	Variation Which Causes Further Evaluation and/or Change in Mgmt. Direction
Fish and Wildlife Cont.						
	Greater Sage-grouse – Plant Species composition and structural diversity following established rangeland monitoring protocols, (including nested frequency, shrub belt density transects, etc).		M/M	1 Time/5-Years	5-Years	Any documented change in current status
	Spotted Frog - Water Temperature, pH, conductivity		H/H	5-Years	5-Years	Any documented change in current status
	Bull Trout - Water Temperature, Vegetation Cover and Large Woody Debris, Sediment, and Pool Quality.		H/H	1 Time/10-Years	10-Years	Any documented change in current status

Appendix C

Management Indicator Species Process Paper for the Salmon-Challis National Forest

February 2004

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Introduction

This paper presents the legal requirements for selection of Management Indicator Species (MIS) from the 1982 NFMA implementing planning regulations 36 CFR 219.19, and describes past MIS for the Salmon and Challis National Forests and rationale for changes between current and proposed MIS for two Forest Plan Amendments.

Legal Requirements for MIS

Federal regulation 36 CFR 219.19 requires that viable populations of all native and desirable non-native vertebrate species be maintained at the planning area level (generally considered the Forest). The regulations recommend the use of MIS populations to reflect the effects of management activities. MIS may be selected from plant and animal species that are: threatened or endangered; ecological indicators; important for recreational, commercial, subsistence, or aesthetic values; representative of special habitats, habitat components, or plant and animal communities; and/or species that are of high concern.

The following key elements relate to MIS to serving as proxies for other wildlife species:

“Each [Forest Plan] alternative shall establish objectives for the maintenance and improvement of habitat for management indicator species...to the degree consistent with overall multiple use objectives of the alternative” (36 CFR 219.19(a))

“In order to estimate the effects of each alternative on fish and wildlife populations, certain vertebrate and/or invertebrate species present in the area shall be identified and selected as MIS and the reasons for their selection will be stated. These species shall be selected because their population changes are believed to indicate the effects of management activities. In the selection of management indicator species, the following categories shall be represented where appropriate: Endangered and threatened plant and animal species identified on State and Federal lists for the planning area; species with special habitat needs that may be influenced significantly by planned management programs; species commonly hunted, fished, or trapped; non-game species of special interest; and additional plant or animal species selected because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities or on water quality” 219.19(a)(1).

“Planning alternatives shall be stated and evaluated in terms of both amount and quality of habitat and animal population trends of the management indicator species” 219.19(a)(2)

“Populations trends of MIS will be monitored and relationships to habitat changes determined. This monitoring will be done in cooperation with State fish and wildlife agencies, to the extent practicable.” 219.19(a)(6).

MIS Species in the Original Plans

MIS in the original Forest Plans (Salmon –1988 and Challis – 1987) are listed in Table 1, below. Each Forest has a different combination of MIS, as reflected in the fourth column of the table.

Table 1. Original Management Indicator Species of the Salmon and Challis Forests

Type	Common Name	Scientific Name	Forests with MIS
Mammal	Rocky Mountain Elk	<i>Cervus elaphus</i>	Salmon and Challis
	Mule Deer	<i>Odocoileus hemionus</i>	Salmon and Challis
	Bighorn Sheep	<i>Ovis canadensis</i>	Salmon and Challis
	Mountain Goat	<i>Oreamnos americanus</i>	Salmon and Challis
	Pine Marten	<i>Martes americana</i>	Salmon
	Red Squirrel	<i>Tamiasciurus hudsonicus</i>	Challis
Bird	Pileated Woodpecker	<i>Dryocopus pileatus</i>	Salmon
	Vesper Sparrow	<i>Poocetes gramineus</i>	Salmon
	Yellow Warbler	<i>Dendroica petechia</i>	Salmon
	Ruby-crowned Kinglet	<i>Regulus calendula</i>	Salmon
	Goshawk*	<i>Accipiter gentilis</i>	Salmon
	Great Grey Owl	<i>Strix nebulosa</i>	Salmon
	Yellow-bellied Sapsucker**	<i>Sphyrapicus nuchalis</i>	Salmon
	Pygmy Nuthatch	<i>Sitta pygmaea</i>	Salmon
	Brown Creeper	<i>Certhia americana</i>	Salmon
	Mountain Bluebird	<i>Sialia currocooides</i>	Salmon
Plant	Big Sagebrush and Sub-species	<i>Artemisia tridentata, vaseyana, wyomingensis</i>	Challis
	Bitterbrush	<i>Purshia tridentata</i>	Challis
	Bluebunch Wheatgrass	<i>Agropyron spicatum</i>	Challis
	Idaho Fescue	<i>Festuca idahoensis</i>	Challis
	Western Yarrow	<i>Achillea millefolium</i>	Challis
	Canadian Thistle	<i>Cirsium arvense</i>	Challis
Fish	Rainbow Trout	<i>Oncorhynchus mykiss</i>	Challis
	Cutthroat Trout	<i>Oncorhynchus clarki</i>	Challis
	Bull Trout	<i>Salvelinus confluentus</i>	Challis
	Steelhead	<i>Oncorhynchus mykiss</i>	Challis
	Chinook	<i>Oncorhynchus tshawytscha</i>	Challis
	Anadromous Fish (salmon and steelhead)		Salmon
	Trout (all species combined)		Salmon
Macro-invertebrate	Mayfly	<i>Rhithrogena spp.</i>	Challis
	Mayfly	<i>Epeorus spp.</i>	Challis
	Mayfly	<i>Ephemerella doddsi</i>	Challis
	Stonefly	<i>Zapada spp.</i>	Challis
	Mayfly	<i>Ephemerella inermis</i>	Challis
	True Fly	<i>Chironomidae spp.</i>	Challis
	Aquatic Macroinvertebrates		Salmon

*This species is now known as the northern Goshawk

**This species is now known as the red-naped sapsucker.

Proposed Dismissal from Current MIS Lists

Vegetation management activities cannot simultaneously improve habitat conditions for all species; some will improve, maintain, or decline along with the species that use them. This is also true for natural disturbance events. Forest Service habitat management efforts should focus habitats that have declined or changed substantially because of past management actions and attempt to bring such habitats within their historic range of variability (HRV). Reasons why selected MIS in the current plans are being dropped from further consideration for MIS status on the Salmon-Challis National Forest are stated below, by species:

Terrestrial Wildlife Species

A total of 16 terrestrial wildlife species were identified as Management Indicator Species in the two Forest Plans.

- **Rocky Mountain Elk (*Cervus elaphus*)**

Elk are an MIS on the Salmon-Challis National Forest under both current plans. This species is a habitat generalist, is present across all vegetative communities, and use all forest successional stages available. Primarily due to hunting issues, this species generates a high amount of interest from the public, state wildlife agencies and organizations, government land management agencies, and American Indian tribes. Current populations are believed to be greater than historic levels in some areas. Harvest levels for elk in the past several years have been high in most management units.

- Rationale for Removal from MIS List – Although elk can be affected by Forest management activities, including access management, such effects are typically not exclusive, nor rarely even primary. Vegetation management, for example, may alter elk habitat, but because elk are habitat generalists, they can adjust to utilize altered habitat. Thus, timber harvest activities may displace elk temporarily through disturbance, but elk will likely remain in the area as long as a variety of key habitat components (forage, cover, water, movement corridors, security area) are present. Cumulatively, state wildlife agency decisions, annual harvests, predation, access management, disease, and management of off-Forest winter range and migration routes can also greatly influence elk populations. These influences are described in more detail below.

Elk are a hunted species and are affected by hunting season regulations (sex, number of permits, and season length) and changes in access management, which can affect their vulnerability to harvest. The Idaho Department of Fish and Game (IDFG) set hunting regulations. Depending on winter conditions, elk are sometimes supplementally fed to maintain target population levels. Decisions to provide supplemental feed are made by the Idaho Department of Fish and Game and their governing Commission.

The gray wolf has recently been re-introduced into central Idaho and is now commonly found on both Forests. Wolves are an additional predator on elk that have not been an influence in the recent past, although elk historically evolved

with wolf predation. The extent of current predation is unknown, but will likely increase as wolf populations grow, and should level off once wolf populations stabilize. Until that time, the extent of annual predation on elk will be difficult to predict. However, annual herd composition and trend counts conducted by the IDFG indicate low elk calf recruitment in some areas, especially where wolf packs are established.

Several important areas where elk winter are off-Forest-administered lands, and the management of these lands may not be in the best interest of elk. Agricultural production and residential development may be the highest demand for these lands, but the potential for farming, urbanization, and development may occur at the expense of wintering animals and available habitat. Such habitat reduction and fragmentation can have very adverse impacts on elk populations.

Hunting season regulations, predation, disease, and off-Forest winter range decisions are outside the administrative control of the Forest Service. Even supplemental feeding on the National Forest is controlled by the state agency and is not a Forest Service management decision. The Forest Service can exert control over access management and vegetation management on Forest administered lands. However, these two factors alone are not influential enough to correlate to elk population fluctuations. Therefore elk do not meet the intent of CFR 219.19 to use MIS populations to reflect the effects of management activities.

- **Mule Deer (*Odocoileus hemionus*)**

Mule deer are an MIS on the Salmon and Challis National Forests in both current plans. Mule deer use all forest and non-forest habitats and successional stages available. They are considered a habitat generalist and are present across all vegetation communities on both Forests.

- Rationale for Removal from MIS List – Although mule deer can be affected by Forest management activities, including access management, such effects are typically not exclusive, nor rarely even primary. Vegetation management, for example, may alter mule deer habitat, but because mule deer are habitat generalists, they can adjust to utilize altered habitat. Timber harvest activities may displace mule deer temporarily through disturbance, but mule deer will likely remain in the area as long as a variety of key habitat components (forage, cover, movement corridors, security area) are present. Cumulatively, state wildlife agency decisions, annual harvests, predation, access management, disease, and management of off-Forest winter range and migration routes can also greatly influence mule deer populations. These influences are described in more detail below.

Mule deer are a hunted species and are affected by hunting season regulations (sex, number of permits, and season timing and length) and changes in access management. Hunting regulations are set by Idaho Department of Fish and Game.

The gray wolf has recently been re-introduced into Central Idaho and is now commonly found on both Forests. Wolves are known to prey on mule deer.

Wolves are an additional predator on mule deer that have not been an influence in the recent past, although mule deer historically evolved with wolf predation. The extent of current predation is unknown, but will likely increase as wolf populations grow, and should level off once wolf populations stabilize. Until that time, the extent of annual predation on mule deer will be difficult to predict.

Most low elevation winter ranges for mule deer are located off of Forest Service administered lands. These winter ranges are very important to maintaining current populations of mule deer. The Forest Service has no control over the management of these lands, which may not be in the best interest of mule deer. Agricultural production and residential development may be the highest demand for these lands, but the potential for urbanization and development may occur at the expense of wintering animals.

Hunting season regulations, predation, disease, and off-Forest winter range management are outside the administrative control of the Forest Service. The Forest Service can exert control over access management and vegetation management on Forest administered lands. However, these two factors alone are not influential enough to correlate to mule deer population fluctuations. Therefore, mule deer do not meet the intent of CFR 219.19 to use MIS populations to reflect the effects of management activities.

- **Bighorn Sheep (*Ovis canadensis*)**

The bighorn sheep is listed as an MIS in both the Salmon and Challis Forest Plans. Bighorn sheep use rock outcrops, scree and talus slopes, open and partially timbered slopes and various habitats ranging from alpine and subalpine down to lower montane communities. In most areas, this species spends all of each year on lands administered by the Forest Service. They were selected as an MIS because they are in great demand by hunting and wildlife viewing forest visitors, alike, and are important to American Indian's traditional uses of this area.

Bighorn sheep are a hunted species and are affected by hunting season regulations (sex, number of permits, and season timing and length) and changes in access management. Hunting regulations are set by the Idaho Department of Fish and Game and the Shoshone-Bannock Tribe.

The gray wolf has recently been re-introduced into Central Idaho and is now found throughout both Forests. Wolves are known to prey on bighorns. Wolves are an additional predator that have not been an influence in the recent past, although bighorns sheep historically evolved with wolf predation. Wolf predation on this species has been documented but the extent of current predation is unknown. It will likely increase as wolf populations grow, and should level off once wolf populations stabilize. Until that time, the extent of annual predation on bighorn sheep will be difficult to predict.

In the past decade, much attention and research has been directed at transmission of disease, primarily pneumonia, from domestic sheep to bighorn sheep. The evidence is now conclusive that domestic sheep do harbor stains of pneumonia that are not native to bighorn sheep and for which they have not developed titers. Without exception, direct contact between these two species results in die-offs of the bighorn

sheep populations, sometimes approaching 90 percent or higher and spreading across entire contiguous occupied habitats (hundreds of square miles).

Hunting season regulations, predation and disease transmission are outside the administrative control of the Forest Service. The Forest Service can exert control over access management and vegetation management on Forest administered lands. However, these two factors alone are not influential to correlate to bighorn sheep population fluctuations.

- Rationale for Removal from MIS List – Although bighorn sheep can be affected by Forest management activities, including access management and vegetative manipulation, such effects are typically not exclusive, nor rarely even primary, especially at higher elevations. Timber harvest, for example, may alter bighorn sheep habitat, but generally speaking, reducing the canopy coverage of forested habitats would stimulate forage production and encourage use by bighorns. Other vegetative management activities such as use of prescribed fire to increase the age diversity of shrub communities and stimulate production of grasses and forbs enhance available habitats for this species. Cumulatively, state wildlife agency decisions, annual harvests (both sport harvest and Native American harvest), predation, access management and disease can greatly influence bighorn sheep populations. Therefore, bighorn sheep do not meet the intent of CFR219.19 to use MIS populations to reflect the effects of Forest management activities.

- **Mountain Goat (*Oreamnos americanus*)**

The mountain goat is an MIS in both the Salmon and Challis Forest Plans. Mountain goats use steep rocky high elevation habitats. They generally spend most of their entire life cycle on Forest Service administered lands. They were selected as an MIS because of suspected conflicts with domestic sheep grazing (forage competition) and dispersed recreational use (displacement/ avoidance from habitat) in alpine and sub-alpine habitats.

- Rationale for Removal from MIS List – Mountain goat population levels do not indicate the effects of Forest management activities very well. The majority of mountain goat habitat is on cliffs or steep, rocky, high-elevation areas, and Forest management activities are limited in their effects to these habitat or species. Little if any vegetation management occurs in mountain goat habitat, except occasional prescribed burning. Some livestock grazing, primarily by domestic sheep, rock climbing and recreational trail use occurs in goat habitat, but use is largely restricted to the summer and fall. Other factors that are known to influence goat populations are hunting and predation. Goats are a hunted species and are directly affected by hunting season regulations (sex, number of permits, and season length). The gray wolf has recently been re-introduced into the central Idaho area, and wolves are known to prey on mountain goats. The extent of such predation is unknown. However, all these factors are outside the control of the Forest Service, and thus changes in goat populations may not be in response to management activities over which the Forest Service has administrative control. Therefore, mountain goats do not meet the intent of CFR

219.19 to use MIS populations to reflect the effects of Forest management activities.

- **Pine marten (*Martes americana*)**

The pine marten, now known as the American marten, was selected as an MIS for the Salmon National Forest’s current Forest Plan as an indicator of old growth subalpine fir and old growth lodgepole pine. This mid-level forest carnivore preys on birds, fruits and small mammals, especially voles, hares and red squirrels. Marten are strongly associated with late-successional coniferous forests with abundant down logs and the subnivean spaces they provide for hunting prey during winter.

- Rationale for Removal from MIS List – The American marten is closely associated with late-successional coniferous forests and is potentially a good MIS for loss or alteration of such habitats through timber harvest, including related activities such as fuel reduction, and stand replacing fires. However, this species has been trapped for fur since aboriginal times (Ruggiero et al. 1994) and remains a popular furbearer, throughout its range. Trapping opportunities for marten are greatly enhanced via motorized access and such access is thought to be largely responsible for noticeable decreases in some populations and apparent range contractions. This species may no longer be harvested by any means in 5 western states, California, Nevada, New Mexico, South Dakota and Utah, and Regions 2 and 5 of the USFS have placed them on their Regional Foresters’ “sensitive species” list. Protocols do exist for monitoring marten however accessibility to many habitats for winter track surveys is very difficult at best. For these reasons, this species may not meet the intent of CFR 219.19 to monitor MIS populations to determine trends that reflect the effects of Forest management activities.

- **Red squirrel (*Tamiasciurus hudsonicus*)**

The red squirrel or pine squirrel was selected as an MIS for the Challis National Forest’s current Forest Plan as an indicator for all species dependent upon climax coniferous forests or mature conifer stands. This species is dependent upon seed-bearing coniferous cones for winter food and constructs large cone caches each fall. Coniferous species utilized ranges from ponderosa pine to subalpine fir but lodgepole pine is often utilized because that species bears cones at very young ages and may be the first and/or only such source available within several decades after stand replacing fires or other disturbances, including timber harvest.

- Rationale for Removal from MIS List – This species indicates the presence of cone-bearing conifers, not necessarily climax coniferous forests or even “mature” conifer stands. Consequently, it does not represent habitats required for species that actually need late-successional stand structure and large diameter coniferous trees. For these reasons, this species may not meet the intent of CFR 219.19 to monitor MIS populations to determine trends that reflect the effects of Forest management activities, especially for the stated array of species.

- **Pileated woodpecker (*Dryocopus pileatus*)**

The pileated woodpecker is listed as an MIS in Chapter II of the current Salmon National Forest Plan. However, it was not carried forward into Chapter IV of the Forest Plan where management direction, standards and guidelines are identified for all resources, an apparent oversight or typographical error. This species is a strong MIS candidate for retention on the revised Salmon-Challis National Forest MIS List and is discussed, in detail, in the Proposed MIS for the Forest Plans Amendment (Proposed Action) section of this document.

- **Vesper Sparrow (*Pooecetes gramineus*)**

The vesper sparrow was selected as an MIS for the Salmon National Forest's current Plan as an indicator of non-forested shrub steppe communities, especially sagebrush/grasslands. This species is a migratory land bird. It summers throughout Idaho in non-forested areas, but winters south of Idaho. Vesper sparrows prefer dry, open areas with short, sparse, and patchy vegetation, including shrub steppe, grasslands, sagebrush, woodland edges, and clearings. This species utilizes a narrow set of habitat conditions for nesting; sparsely or patchily distributed brush with abundant grass cover. Nesting habitat may be affected by grazing, burning or other activities that cause changes in early successional stages of non-forested habitat (Groves et al. 1997).

The vesper sparrow is a moderate priority species in the state of Idaho (Idaho Partners in Flight 2000). Wisdom et al. (2000) estimated a 38 percent decrease in source habitat within the Columbia River Basin (CRB) and a 13 percent decrease in Ecological Reporting Unit 13 (ERU). The Salmon and Challis National Forests lie within ERU 13. The loss of source habitat within the CRB and ERU 13 was attributed to the conversion of sagebrush to agriculture and conversion of sagebrush to exotic weeds and grasses. The species can use some agricultural crops for nesting, but may face nest loss due to crop harvest timing. No special habitat feature was identified for this species. Cowbirds are known to parasitize this species (Wisdom et al. 2000).

- Rationale for Removal from MIS List - As a migratory land bird, population changes may be a result of situations occurring on wintering grounds or through parasitism by cowbirds rather than management activities over which the Forest Service has administrative control (Burleigh 1972, Groves et al. 1997). Most conversion of sagebrush to agriculture or exotic species has occurred off Forest Service administered lands in the past, and no extensive conversion is expected to occur on Forest Service administered lands in the future. However, habitat for this species can also be converted to unsuitable conditions through wild fires, especially where noxious weed seed sources are already present. For these reasons, this species may not meet the intent of CFR 219.19 to monitor MIS populations to determine trends that reflect the effects of Forest management activities.

- **Yellow Warbler (*Dendroica petechia*)**

The yellow warbler is a MIS on the Salmon National Forest in the current Forest Plan. The species was selected as an MIS because it uses riparian areas with

shrubby deciduous vegetation, especially willows. This species is a neotropical migratory land bird. The yellow warbler migrates to southern California, southern Arizona, northern Mexico, and further south to Brazil to winter.

- Rationale for Removal from MIS List - Because of the yellow warbler's seasonal migrations, population changes may be a result of situations occurring on wintering grounds rather than responses to management activities on Forest Service administered lands within the Salmon National Forest (Burleigh 1972, Groves et al. 1997). For these reasons, this species may not meet the intent of CFR 219.19 to monitor MIS populations to determine trends that reflect the effects of Forest management activities.

- **Ruby-crowned kinglet (*Regulus calendula*)**

Ruby-crowned kinglets are listed as an MIS on the Salmon National Forest in the current Forest Plan. This species was selected as an indicator for Douglas-fir communities. It is a Neotropical migratory land bird that winters south through Mexico to Guatemala.

- Rationale for Removal from MIS List - Because of the ruby-crowned kinglet's seasonal migrations, population changes may be a result of situations occurring on wintering grounds rather than responses to management activities on Forest Service administered lands within the Salmon National Forest (Burleigh 1972, Groves et al. 1997). For these reasons, this species may not meet the intent of CFR 219.19 to monitor MIS populations to determine trends that reflect the effects of Forest management activities.

- **Northern Goshawk (*Accipiter gentilis*)**

This species is an MIS on the Salmon National Forest in the current Forest Plan. It was selected as an indicator of mature Douglas-fir. Goshawks are habitat generalists and are known to nest in a wide variety of forest communities and structural conditions ranging from open park-like stands of aspen to mature multi-storied Douglas-fir forests (Wisdom et al. 2000). However, this species usually does select the largest trees and most dense canopy cover available within the area, regardless of forest community type, for nest stands (Reynolds et al. 1992). Very little is known about goshawks in winter but they are considered to be "partial migrants" in that some birds apparently winter within their breeding areas while others make elevational and/or latitudinal migrations (Wisdom et al. 2000), probably correlated with local prey availability. Goshawks generally winter at lower elevations in more open habitats but can be found in all of the upland woodland types.

- Rationale for Removal from MIS List – Although the goshawk may be sensitive to Forest management activities such as fire suppression, timber harvesting and livestock grazing, that affect prey habitats (Hann et al. 1997), the use of winter ranges located off-Forest and the lack of knowledge concerning seasonal migrations make this species a poor candidate for MIS status. In addition, the effects of human disturbance during the non-breeding season are unknown and the Breeding Bird Survey (BBS) data are insufficient to determine population trends in the Columbia River Basin (CRB). For these reasons, this species may

not meet the intent of CFR 219.19 to monitor MIS populations to determine trends that reflect the effects of Forest management activities.

▪ **Great Gray Owl (*Strix nebulosa*)**

Great gray owls are listed as an MIS on the Salmon National Forest in the current Forest Plan. It was selected as an indicator of mature subalpine fir and Douglas-fir communities. This species is widely distributed across the Forest and the CRB, although at low population levels (Wisdom et al. 2000). Source habitats for great gray owls include a wide variety of old-forest, unmanaged young forest and stand-initiation stages of montane forests, Engelmann spruce, subalpine fir and riparian woodlands (Wisdom et al. 2000). This species is distributed across the boreal forests of North America and Eurasia and the central Idaho mountains form the southern extent of their nesting range. These owls generally winter throughout their nesting range but are known to migrate south probably due to periodic fluctuations in prey abundance. Large diameter broken topped snags and/or live trees and mistletoe brooms are a special habitat feature of importance for platform nesting species. Great gray owls do not build their own nests but rely on nest-building species such as goshawk, red-tailed hawks and ravens to construct stick nests that can be use in the absence of broken topped trees.

- Rationale for Removal from MIS List – Great gray owls are a contrast species that requires a complex juxtaposition of habitats for foraging, nesting and roosting. Although they may be sensitive to several forest management activities, including timber harvest, fire suppression and firewood cutting, effects of these activities are mixed and would be very difficult to quantify. This species is known to make periodic migrations to winter habitats that may be far removed from this Forest and survey techniques have proven both difficult to apply and unproductive. For these reasons, this species may not meet the intent of CFR 219.19 to monitor MIS populations to determine trends that reflect the effects of Forest management activities.

▪ **Yellow-bellied (Red-naped) Sapsucker (*Sphyrapicus nuchalis*)**

This species is an MIS on the Salmon National Forest in the current Forest Plan. It was selected because of its dependence on aspen clones. Yellow-bellied sapsuckers are cavity nesters and usually nest in large diameter aspen, however, it is also known to nest in coniferous snags or live trees with heartrot. This species is a migratory land bird that summers throughout the Rocky Mountain region, including the central mountains of Idaho, but winters as far south as Baja California and Jalisco. In Idaho, this sapsucker has a limited and patchy breeding range and is most commonly found at elevations between 5000 and 8000 feet. This woodpecker may be affected by changes in successional stages of forest habitat, especially where conifers replace seral stands of aspen. Wisdom et al. (2000) indicates a decrease in source habitats, both within the CRB and in ERU 13, for this species.

- Rationale for Removal from MIS List - Although this species may be affected by fire suppression and forest successional stage changes, it is uncommon on the Forest and its source habitat (aspen) is patchy and very limited in extent. Also, these woodpeckers are Neotropical migratory land birds. Therefore, population changes may be a result of situations occurring on wintering grounds rather than

a response to management activities on Forest Service administered lands (Burleigh 1972, Groves et al. 1997). For these reasons, this species may not meet the intent of CFR 219.19 to monitor MIS populations to determine trends that reflect the effects of Forest management activities.

- **Pygmy nuthatch (*Sitta pygmaea*)**

This species is listed as an MIS on the Salmon National Forest in the current Forest Plan. It was selected because of its dependence on large diameter ponderosa pine, especially late-seral single-strata stands, for both foraging and nesting habitat. Pygmy nuthatches often excavate their own nesting cavities but are also known to be secondary cavity nesters. This species is thought to be a year-long resident of open pine forests between 2000 and 3500 feet in elevation, possibly exhibiting some seasonal movements to the lowest available ponderosa pine forests during the winter months.

- Rationale for Removal from MIS List - This species is an uncommon resident on the Salmon National Forest and has one of the most limited ranges of any species occurring in the Salmon River drainage (Roberts 1992). Sightings of these small nuthatches have been very infrequent, over the last 50 years and usually have occurred along the main Salmon River below Shoup (Burleigh 1972 and Roberts 1992). Although this species is considered to be a good indicator for vegetative changes occurring in late-seral single-strata ponderosa pine communities, it is not present at all in much of the ponderosa pine type and, where found, is present in such low numbers that survey and monitoring techniques would be extremely difficult to employ and results obtained would be of very limited value. For these reasons, this species may not meet the intent of CFR 219.19 to monitor MIS populations to determine trends that reflect the effects of Forest management activities.

- **Brown creeper (*Certhia americana*)**

This species is listed as an MIS on the Salmon National Forest in the current Forest Plan. It was selected as an indicator of old growth subalpine fir, Douglas-fir and lodgepole pine communities and large diameter snags. This bird summers throughout central Idaho at elevations ranging from 5000 feet to over 9000 feet and nests under the loose bark of large old trees. It is variously considered a Neotropical migrant species and/or a species that makes seasonal elevational movements from high elevation summer habitats to low elevation winter habitats, often in late-seral single-strata ponderosa pine forests.

- Rationale for Removal from MIS List - The brown creeper is considered an uncommon summer resident of the Salmon National Forest but a very rare resident during winter (Roberts 1992). Wisdom et al. (2000) considers this species to be a Neotropical migrant in the Columbia River Basin and states that populations may be affected by habitat conditions on their wintering grounds. Like the pygmy nuthatch, this species is inconspicuous and not easily surveyed or monitored. For these reasons, this species may not meet the intent of CFR 219.19 to monitor MIS populations to determine trends that reflect the effects of Forest management activities, even though it may be sensitive to loss of large

diameter snags due primarily to firewood gathering activities in the roaded portions of its habitats.

- **Mountain bluebird (*Sialia currocooides*)**

This species is listed as an MIS on the Salmon National Forest in the current Forest Plan. It was selected as an indicator of ecotones. Mountain bluebirds nest at all elevations in central Idaho, from less than 1000 feet to timberline at over 10,000 feet. It is a Neotropical migrant that winters as far south as Sonora and Nuevo Leon. The mountain bluebird is found in open areas that have enough trees to provide snags for nesting cavities, along ecotones between forested and non-forested communities, and is particularly fond of old forest burns.

- Rationale for Removal from MIS List – Although this species may be sensitive to some Forest management practices, including firewood gathering (felling of snags), timber harvest and fire suppression, effects can be either positive or negative. In addition, since this species is a Neotropical migratory land bird, population variations could be due to changes occurring on winter habitats rather than as a response to Forest Service resource management activities. For these reasons, this species may not meet the intent of CFR 219.19 to use MIS populations to reflect the effects of Forest management activities.

Plants

A total of eight plant species were selected for MIS in the Challis Forest Plan. Of the eight MIS species, five were selected to indicate unsatisfactory conditions or trends either as increasing in abundance from naturally occurring levels or by their presence within a native vegetation community. Each is described below by life form.

- **Shrubs**

Big sagebrush (*Artemisia tridentata*); three subspecies; *tridentata*, basin big sagebrush; *wyomingensis*, Wyoming big sagebrush; and *vaseyana*, mountain big sagebrush. Generally speaking, the basin and Wyoming big sagebrush community types occupy the lower elevations where annual precipitation is less than 12 inches per year while the mountain big sagebrush occupies the higher elevations receiving greater than 12 inches of precipitation per year. These three big sagebrush species were selected as indicators of decreasing ecological condition recognized by increases in big sagebrush over 20% of natural levels.

Bitterbrush (*Purshia tridentata*) was selected as being important wildlife winter forage. Bitterbrush can occur in the transition zone between the Wyoming and mountain big sagebrush areas and can become co-dominant with mountain big sagebrush in the higher elevations.

- **Grasses**

Bluebunch wheatgrass (*Agropyron spicatum*) and Idaho fescue (*Festuca idahoensis*) were selected as being indicative of climax rangeland conditions. These grasses often occur together in varying amounts depending on the site. However, bluebunch

wheatgrass is typically the dominant grass in the lower, dryer sites while Idaho fescue dominates the higher, wetter sites.

- **Forbs**

Western yarrow (*Achillea millefolium*) and Canadian thistle (*Cirsium arvense*) were selected as being indicative of disturbance in riparian areas. Western yarrow is a native perennial forb while Canada thistle is a non-native, state listed noxious weed and a target species for eradication in weed treatment activities.

None of these plant management indicator species are directly related to recognizable issues, concerns, or habitat needs nor specific vertebrate or invertebrate species. It is also questionable that five of the eight species were selected to indicate conditions that are subjectively undesirable rather than conditions reflective of management objectives or healthy ecosystems.

Pitfalls of Using Plant Species as MIS

Plants are stationary and as such are susceptible to many environmental stressors that are not influenced by land management activities. Wildfire, climatic episodes, climate cycles, insects, disease, and herbivory all can influence plant communities and individual plants within a landscape.

All the selected shrub MIS species are very susceptible to fire. The three big sagebrush species experience high mortality even with low intensity fire, while bitterbrush may be somewhat less susceptible and may regenerate after a low intensity fire. The two grass species show little mortality with low to medium intensity fire but high intensity fires can be fatal especially to Idaho fescue. The two-forb species increase in density after fire.

Climatic episodes and climate cycles also influence the productivity, density, and cover of plants. Hailstorms can remove leaves, shred bark, and break branches on shrubs. Annual production along with flower and seed production is very dependent on seasonal temperatures and precipitation. Cycles of drought and wet periods favor various life forms over others. Cold wet winters followed by a dry spring favors the big sagebrush species providing opportunities for new plants to become established.

Insects and disease are natural predators to native plants. The Aroga moth (*Aroga spp.*) and wasp galls affect all three big sagebrush, tent caterpillars (*Malacosoma spp.*) affect bitterbrush, and grass bugs (*Lygops spp.*) can affect both the wheatgrass and the fescue, while a fungal rust affects wheatgrass.

All the MIS plants are susceptible to a variety of wild, unmanaged grazers and browsers, however rarely are they grazed to the point of long term damage or mortality. An exception is the voles and gophers that girdle (and kill) shrubs during the winter.

Various forms of plant and community type monitoring activities are performed on a regularly scheduled basis. Many of the selected MIS species along with other species and plant communities are monitored as part of the livestock-grazing program primarily in regards to utilization and species cover and density. The monitoring results are analyzed and evaluated and, along with past monitoring, used to derive a trend. Often, the results of monitoring are inconclusive due to the influence of the above mentioned

unmanageable stressors. Plant communities also change very slowly taking several decades for a change in plant community structure to be observed making it even more difficult linking the cause and effect of change to management actions.

- Rationale for Removing the Existing Forest Plan Plant Species as MIS - Although plant species and vegetation communities are relatively easy to monitor the influence of the unmanageable stressors to plant species makes it very difficult to conclusively determine the specific cause and effect management activities may have on the monitoring results and trends indicated by these species. Therefore, these plant species do not meet the intent of 36 CFR 219.19 to use MIS plant populations to reflect the effects of Forest management activities.

Aquatic Species

- **Chinook Salmon (*Oncorhynchus tshawytscha*), Steelhead Trout (*Oncorhynchus mykiss*), and Sockeye (*Oncorhynchus nerka*)**

Anadromous Species, chinook salmon and steelhead trout are listed as MIS in both Forest Plans. The Salmon Land and Resource Management Plan listed all anadromous species as MIS including sockeye salmon. The habitat requirements for these species include stream habitats with adequate sediment free spawning gravels, channels free of migration blocks and cool temperatures. These species were selected for MIS on the Salmon National Forest because they are commonly fished; they have a restricted habitat niche; they are a migrant resident, and they are easily monitored. They were selected on the Challis National Forest because they are on the Forest Service Sensitive species list; they are on the Idaho State listed “species of concern”; the Idaho chapter of American Fisheries Society listed “species of concern”; they are economically and socially important species because of their high sport value; and require high quality aquatic habitat.

- Rational for Removal from MIS List – Chinook salmon and steelhead trout meet most positive criteria for MIS species. However, their wide range causes them to be exposed to a number of outside influences making it difficult to tie adult abundance and trend to effects of Forest Service activities. Incubation and rearing success of juveniles, however, are more directly influenced by Forest Service activities, and could more accurately reflect project effects. Unfortunately watersheds outside of wilderness areas that once supported wild chinook salmon and steelhead trout have lost their historic on-forest populations. Hatchery stocked juveniles in main-stem rivers and major tributaries are the primary source of most anadromous fish production today. This stocking makes tracking of juvenile population changes due to Forest Service management difficult and masks any changes in trend.
- **Rainbow Trout (*Oncorhynchus mykiss*), and Cutthroat Trout (*Oncorhynchus clarki*)**

Resident species, rainbow trout, and cutthroat trout are listed as MIS in the Challis Forest Plan. The Salmon Forest Plan includes all the trout species. The habitat requirements for these species include cool, clean, sediment-free stream and lake habitats; ample stream flow and streamside cover. These species were selected on

the Salmon National Forest because they are commonly fished; they have a restricted habitat niche; they are resident species; they have a wide distribution over the forest; and they are easily monitored. They were selected on the Challis National Forest because they are economically important and are a site-specific species associated with aquatic stream and lake habitat.

- Rationale for Removal from MIS List – Cutthroat and rainbow trout species met much of the MIS criteria. However, they were not selected as MIS species since many watersheds on the Salmon-Challis National Forest were stocked with hatchery cutthroat and rainbow trout. Stocking can mask many natural changes in population trend resulting from Forest Service activities.

Macroinvertebrates

Mayflies (*Rhithrogena*, *Epeorus*, *Ephemerella doddsi*, and *Ephemerella inermis*), the stonefly (*Zapada*), the true fly (*Chironomidae*) are listed as MIS in the Challis Forest Plan. The Salmon Forest Plan Includes all the macroinvertebrate species.

- **Mayflies (*Rhithrogena*, *Epeorus*, *Ephemerella doddsi*, and *Ephemerella inermis*)**

Mayflies are MIS species on the Challis National Forest. *Rhithrogena ssp.* are very sensitive to water quality degradation. On a rating scale of 1-10, 1 indicates the species most sensitive to changes in water quality, while a 10 indicates a highly tolerant species. *Rhithrogena* is rated number 1. If these species are present in any numbers, water quality is in good condition.

Epeorus ssp. is another very sensitive mayfly to adverse changes in water quality that is rated number 2. If these species are present in any numbers, water quality is in good condition.

Ephemerella doddsi is intolerant to sedimentation and is rated number 2. If stream conditions are good, fairly large numbers of this species should be present.

Ephemerella inermis is moderately tolerant to sedimentation. If its numbers are increasing while the relative abundance of other species diminishes, it may indicate increasing sediment and changing habitat conditions.

- **Stonefly (*Zapada*)**

Zapada ssp. is a deciduous leaf eater, a “shredder”. It cannot exist if the riparian area is not adding leafy matter to the stream. As riparian habitat is degraded, the numbers of this species will be reduced.

- **True Fly (*Chironomidae*)**

Chironomidae is very tolerant of pollution, particularly increased sediments and is rated as a number 10. Increasing relative abundance of chironomids may indicate a degradation of aquatic habitat.

- **Rational for Removal from MIS List** – Macroinvertebrates have been used as key indicators for detecting changes in water quality and aquatic habitat. However, tracking changes in population trends over a Forest can be problematic. There is a high degree of variability in species within or between sites (Minshall and Andrews 1973). Therefore, it can be difficult to define what comprises a population (reach, stream, sub-basin) to monitor. The species of interest may not be present over a wide enough area to track population trend. Consistent information is not available across the Salmon-Challis National Forest to track specific macroinvertebrate species. Some agencies only report data on species assemblages or specific biological indices, while others may report the number of individual species at each site. Samples require specialized expertise to identify and classify species, making monitoring costly and limiting the number of samples needed to detect change.

Additional Species Suggested Through Scoping

A scoping letter and document was sent to the public on September 19, 2003 and an internal meeting was held on October 8, 2003. Four public letters were received and three comments were received from the internal meeting. The following table lists the additional species for MIS considered from scoping.

Table 2. Additional Species Considered for MIS

Type	Common Name	Scientific Name
Mammal	Pronghorn	<i>Antilocapra americana</i>
	Snowshoe Hare	<i>Lepus americanus</i>
	White-tailed Jackrabbit	<i>Lepus townsendii</i>
Bird	Ruffed Grouse	<i>Bonasa umbellus</i>
	Willow Flycatcher	<i>Empidonax trailii</i>
	Clark's Nutcracker	<i>Nucifraga columbiana</i>
Plant	Aspen	<i>Populus tremuloides</i>
	Willow	<i>Salix sp.</i>
	Black Cottonwood	<i>Populus trichocarpa</i>
	Whitebark Pine	<i>Pinus albicaulis</i>
	Mountain Mahogany	<i>Cerocarpus ledifolius</i>
	Spotted Knapweed	<i>Centaurea maculesa</i>
	Leafy Spurge	<i>Euphorbia esula</i>
Amphibian	Spotted Frog	<i>Rana luteiventris</i>
Misc.	Cryptogamic Soils	

Proposed Dismissal from Scoping Suggested MIS List

Terrestrial Wildlife Species

- **Pronghorn antelope (*Antilocapra americana*)**

Although pronghorn antelope could be affected by Forest management activities, including non-forested vegetation manipulation (i.e. burning, chaining, etc.), grazing

and access management, such effects are typically not exclusive, nor rarely even primary. Cumulatively, state wildlife agency decisions, annual harvests, predation and management of off-Forest seasonal habitats and migration routes can also greatly influence antelope populations.

Antelope are a hunted species and are directly affected by hunting season regulations (i.e. number and type of permits and season timing and length). In addition, the affinity of this species for irrigated hay meadows often results in “depredation hunts” with specific population reduction goals.

Although this species commonly occurs on lands administered by the Forest Service, most of the habitat, and especially good wintering areas, occurs on adjacent BLM and private lands where vegetation management decisions are outside the control of the Forest Service.

For the above reasons, pronghorn antelope do not meet the intent of CFR 219.19 to use MIS populations to reflect the effects of Forest Service land management activities.

- **Snowshoe hare (*Lepus americanus*)**

Snowshoe hare occur across the Salmon-Challis NF in mid to high elevation coniferous forest communities. This species is predominately associated with regenerating stands of lodgepole pine, subalpine fir and spruce where tree (seedling/sapling) heights exceed mean winter snow depths and provide both forage and protection from predators under all snow conditions. Such habitat structure also occurs in mature multi-strata lodgepole pine, subalpine fir, spruce and mixed conifer stands where overstories are open enough to allow development of multiple understory layers.

This species is known to exhibit extreme population cycles, as do most leporids. Such cycles appear to function somewhat independently from habitat conditions and are much more pronounced in the northern portions of snowshoe hare range than in the southern portions. Large stand-replacing wildfires commonly set the stage for vast expanses of conifer regeneration that usually provide optimum snowshoe hare habitat during some stage of growth, usually within 10 to 30 years after the burn.

For the above reasons, snowshoe hare do not meet the intent of CFR 219.19 to use MIS populations to reflect the effects of Forest Service land management activities.

- **White-tailed jackrabbit (*Lepus townsendii*)**

White-tailed jackrabbits occur across the Salmon-Challis NF in mid to high elevation sagebrush shrub-steppe and grassland communities. This species forages on a variety of grasses and forbs during summer months but eats buds, bark, twigs, leaves and even roots of shrubs such as sagebrush, rabbitbrush and willow during winter. White-tailed jackrabbits change to white pelage during winter months and are often confused with snowshoe hares.

This species is known to exhibit extreme population cycles, as do most leporids. Such cycles appear to function somewhat independently of habitat conditions. Stand replacing fires in the sagebrush communities greatly decrease habitat suitability, often for decades, because this species relies on brush for protection from the many bird and mammal predators. In Idaho, the white-tailed jackrabbit is classified as a predator and is subject to unlimited hunting, trapping and depredation during all seasons of each year.

For the above reasons, white-tailed jackrabbit do not meet the intent of CFR 219.19 to select MIS species whose population fluctuations indicate the effects of Forest Service land management activities.

- **Ruffed grouse (*Bonasa umbellus*)**

Ruffed grouse, a forest dwelling grouse, occurs in riparian areas on various portions of the Salmon-Challis NF and is considered to be closely associated with deciduous riparian areas and aspen clones. It is a hunted species but population fluctuations are normally attributed to nesting and brood rearing success, both of which are weather dependent.

For these reasons, the ruffed grouse, as is the case with all forest grouse, does not meet the intent of CFR 219.19 to use MIS populations to reflect the effects of Forest Service land management activities.

- **Willow flycatcher (*Empidonax trailii*)**

The willow flycatcher prefers deciduous shrubby habitats ranging from riparian willow thickets to fairly open brushy fields. This species breeds from central British Columbia east to Nova Scotia and south to southern California and northern Georgia and is fairly common through out its range. However, it is a neotropical migratory land bird and winters in Mexico and Central America.

- Because of the willow flycatcher's seasonal migrations, population changes may be a result of situations occurring on wintering grounds rather than responses to management activities on Forest Service administered lands within the Salmon-Challis NF. For these reasons, this species may not meet the intent of CFR 219.19 to monitor MIS populations to determine trends that reflect the effects of Forest management activities.

- **Clark's nutcracker (*Nucifraga columbiana*)**

This resident member of the corvid family occurs from central British Columbia and southwestern Alberta south to Baja California and southern New Mexico. It occurs in a variety of coniferous forest communities ranging from pinyon-juniper and ponderosa pine up thru spruce-fir and whitebark pine. It prefers high-altitude rocky sites with open coniferous forests ranging from 3000 feet to 13,000 feet in elevation. On the Salmon-Challis NF, this seed caching species is most common in the spruce-fir and whitebark pine forests at the highest available elevations. The Clark's nutcracker is a specialized frugivore that is known to play an important role in the ecology of pine species such as pinyon, limber and whitebark, all of which have large wingless seeds that are not dispersible by wind. When more seeds are cached than

are later either retrieved and eaten by nutcrackers or discovered and eaten by rodents, the surplus normally germinate, thus perpetuating the tree species. Although there is a very close relationship between Clark’s nutcracker and whitebark pine regeneration, whitebark pine does not have commercial timber value and only occurs at high elevation, typically rocky sites and consequently has not been subjected to management activities.

For this reason, Clark’s nutcracker does not meet the criteria for MIS since population changes of selected species should indicate the effects of management activities (CFR 219.19).

Plants

- **Plants Including Aspen (*Populus tremuloides*), Willow (*Salix ssp.*), Black Cottonwood (*Populus trichocarpa*), Whitebark Pine (*Pinus albicaulis*), Mountain Mahogany (*Cercocarpus ledifolius*), Spotted Knapweed (*Centaurea maculesa*), and Leafy Spurge (*Euphorbia esula*)**

As discussed in section Proposed Deletions from Current MIS List above, plants are stationary and are subject to numerous abiotic physical disturbances (fire) and influences (climate) in addition to biotic disturbances (insects, disease, native fauna). These influences can be very disruptive to individual plants or entire plant communities and are out of the control or influence of management activities. All plant species, whether desired plants or undesired plants, are subject to these stresses.

All of the suggested plant species are considered ‘species of interest’ or ‘species of focus’ at the project scale. This means that depending on the particular management activity these species are recognized for special consideration. Many Forest activities at the project site level are designed to manipulate these plant communities to obtain specific objectives. Monitoring is designed to measure the success of implementing the project and the effectiveness of obtaining these objectives. Activities that have the potential to disturb these communities at the broader landscape level (livestock grazing) also have mitigation measures and monitoring protocols designed to avoid such disturbance.

Since these plant species (community types) are already key species there is no reason to apply further designation of MIS since this recognition would not provide any additional management direction than already present.

Misc.

- **Cryptogamic Soils**

Cryptogam is a collective term representing a variety of plants and microorganisms that occupy the soil surface. There are numerous genera of lichen, moss, algae, fungi, and bacteria that fill this role. Many provide valuable assets in protecting the soil surface from erosion, creating desirable seedbeds, and adding nutrients to the soil. Species diversity comprising this life form can be used as indicators of disturbance and placed in seral stages similar to vascular plant community types. Cryptogams are a living component in all plant communities and habitats on the

Salmon-Challis National Forest in one form or another and virtually all Forest activities can and do affect cryptogamic soil crusts to some extent.

Cryptogam presence, distribution, and species diversity is strongly linked to the physical characteristics of the site. High elevations and cold soils (cryic and frigid temperature regimes) support less cryptogamic cover and diversity than warm soils. Sites with high amounts of unstable surface rocks and coarse fragments also have greatly reduced cryptogamic cover than soils lacking surface coarse fragments providing more bare ground and exposed soil. Soil chemistry (i.e. pH, mineralization) also plays a role in the distribution and species diversity of cryptogams, as does surface soil texture where finer textures support greater cover and diversity of cryptogams. Vascular plant cover limits the presence of cryptogams due to reduced interspaces and bare soil. Cryptogams are also very susceptible and responsive to climatic extremes and precipitation cycles. Many of the lichens are not anchored to the soil and therefore are free to be blown around by wind. Due to the dynamic nature, environmental and site variability, and diversity of cryptogamic soil crusts it would be virtually impossible to define a cover or species diversity threshold beyond a very defined and spatially limited site scale.

Cryptogamic soil crusts are recognized on the Salmon-Challis National Forest as a life form for special consideration and are monitored as an integral part of the rangeland monitoring program. Cryptogams are included when monitoring cover transects and when monitoring long term trend studies using nested frequency plots. The Forest does not have the expertise to inventory or monitor cryptogams at the genus or species level necessary to evaluate and analyze species diversity, seral stage, or disturbance regimes.

The cryptogam life form is recognized for special consideration and adequate monitoring of the life form in general is being performed. Further designation as MIS would be meaningless without the expertise to adequately monitor and evaluate at the species level.

Proposed MIS for the Forest Plan Amendments (Proposed Action)

Species proposed for MIS in the revised list for the Salmon-Challis National Forest are described below, with the supporting rationale for their use as MIS.

- **Pileated Woodpecker (*Dryocopus pileatus*)**

The pileated woodpecker is currently listed as an MIS in the Salmon Forest Plan but not the Challis Forest Plan. This woodpecker is native to North America and is a long-lived and wide-ranging resident species. It is found in forested portions of all the eastern states. In the western states they occur in Washington, Oregon, California, Nevada, Montana, and Idaho in forests that can grow large-diameter trees. Wisdom et al. (2000) estimated a 21 percent decrease in source habitat basin-wide (within the Columbia River Basin (CRB)) and a 21 percent increase within the Central Idaho Mountains ERU from historical to current times. Breeding Bird Surveys (BBS) in Idaho, which show an increasing presence of this species from the recent past in areas surveyed, support the conclusions of Wisdom et al. (2000) that habitat has

increased. Pileated woodpeckers inhabit areas under private, state, and other federal administrations; however most of their habitat is on lands administered by the Forest Service. They are also known to occur across southern Canada. Pileated woodpeckers occur on all Ranger Districts within the Salmon-Challis National Forest, but are relatively uncommon in the Lost River Mountains and may prove somewhat difficult to survey in that area.

Habitat primarily occurs in mixed conifer forests, including spruce-fir, Douglas-fir, lodgepole pine and ponderosa pine, that are capable of growing large-diameter trees (>20" diameter) with multi-storied stands. It favors these dense coniferous forests, but also uses open forests and second growth, particularly if there are isolated, large dead trees and down logs amid the younger forest (Burleigh 1972, Groves et al. 1997). Pileated woodpeckers nest in standing snags, and are the largest woodpeckers occurring within central Idaho and the US. Because they are so large, this species needs snags of sufficient diameter to accommodate their body size when excavating nest cavities. Studies in Montana and Idaho have shown that old and mature larch, ponderosa pine, grand fir, and Douglas-fir are used for nest cavities (Burleigh 1972, Groves et al. 1997).

Carpenter ants are a major food source used by pileated woodpeckers. Dead and dying trees, snags, logs, and stumps, especially those containing carpenter ants, are important foraging substrates. This species will forage in younger forests, particularly outside of the nesting season, if large, standing and down dead trees are available. Pileated woodpeckers may also dig directly into anthills (Groves et al. 1997).

This woodpecker may be affected by changes in successional stage of forest habitat that remove large-diameter dead trees or snags, alter forests with high canopy closure, convert forests to an earlier successional stage and/or remove down logs that are used as foraging sites. As a non-migratory resident species, population changes may be a result of management activities and natural events occurring within the home range (Burleigh 1972, Groves et al. 1997).

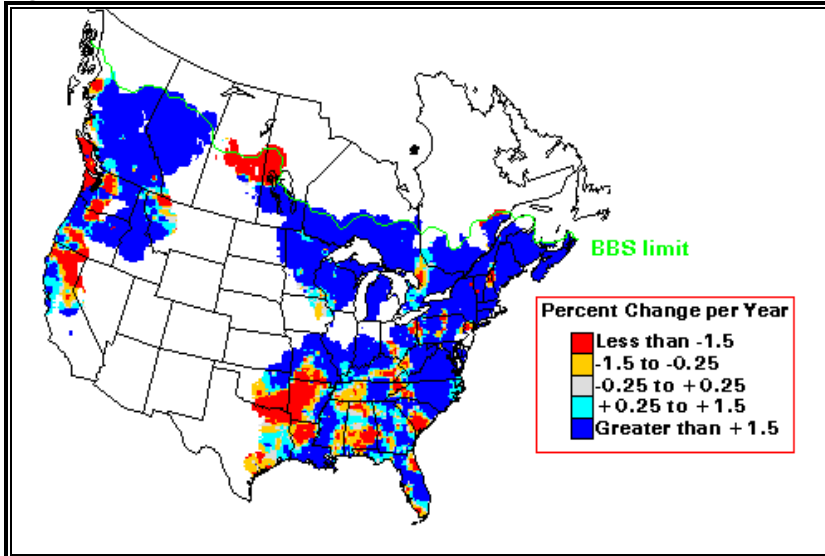
Fourteen other species of birds within the central Idaho area are dependent on cavities that woodpeckers excavate for nesting, because they are not able to excavate their own cavities. Cavities created by pileated woodpeckers are used by some of the large species that need cavities, but do not excavate them, e.g., barred owl, boreal owl, flammulated owl, etc. In addition to cavity-nesting birds, mammals such as marten, bats, and flying squirrels may use cavities excavated by pileated woodpeckers for nesting, denning, and roosting sites (Bull et al. 1997, ICBEMP 1996b, Thomas et al. 1979, Wisdom et al. 2000). Because of its importance to other species and its need for larger trees, snags and downed logs, the pileated woodpecker is a species whose presence can be correlated with certain habitat characteristics important to a number of other species (large diameter dead and downed wood, cavities). These particular habitat components are directly influenced by vegetative management activities on the Forests.

It is possible to monitor this species using established protocol. Currently, most monitoring data available for pileated woodpeckers on the Salmon-Challis Forest is limited to Breeding Bird Survey Routes. These routes, established on and near both Forests, annually collect point count data that detects the presence of pileated

woodpeckers; however this survey is not extensive. Few surveys specifically for this species have been conducted.

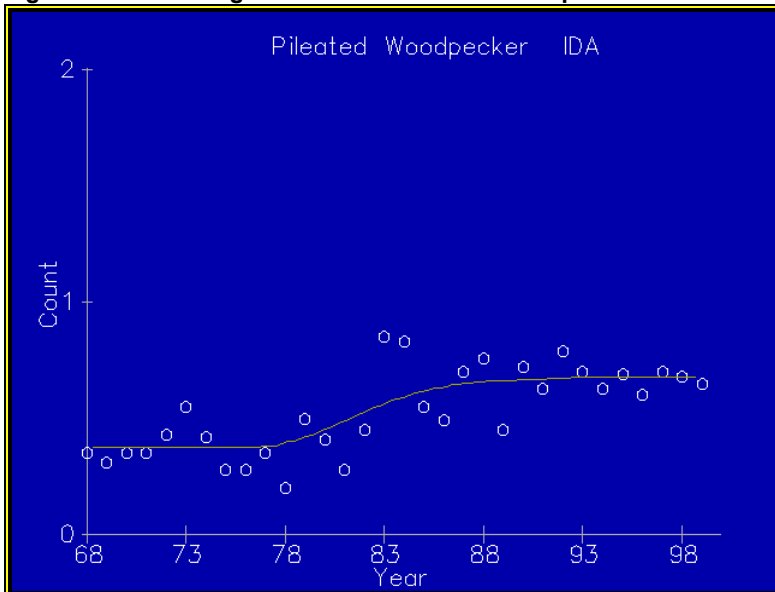
National breeding bird survey data, however, show a very broad description of population trends across the United States. For the pileated woodpecker, population trends are increasing in many areas (See Figure 1).

Figure 1 – Population Trends for the Pileated Woodpecker



Based on the BBS there has been an increasing trend for pileated woodpecker within Idaho from 1968 to 1998 period. This national and statewide BBS trend data is consistent with the habitat analysis by Wisdom et al. (2000) and indicates that habitat for this species has increased above historical (recent past) estimates.

Figure 2 – Increasing Trend of the Pileated Woodpecker



An increase in the amount of suitable habitat for this species is thought to be a result of fire exclusion that has allowed an increase in multi-storied forest stands with higher portions of shade-tolerant tree species and abundant snags and downed logs for nesting and foraging sites (Wisdom et al. 2000).

An important habitat management consideration for pileated woodpeckers is allowing trees to grow to sufficient diameter, die and become available for foraging and nesting, as opposed to being removed as firewood or other products (Bull et al. 1997, Wisdom et al. 2000). Past management activities have reduced the size and number of large trees and snags in many locations within the CRB (ICBEMP 1997c) and the Salmon-Challis Forest. There are no known population trends for pileated woodpeckers within the Central Idaho Mountains Ecological Resource Unit (ERU), other than the BBS data and some limited surveys related to project analyses. However, Wisdom et al. (2000) estimates an increase of 21 percent in source habitat, from historical to current times, for this species within the Central Idaho Mountains ERU, which includes essentially all of the Salmon-Challis Forest.

Based on recent research concerning the historical range of natural variation in forested communities, “old-growth” forests were uncommon but large trees were common components of forest stands (Morgan and Parsons, 2001; Wisdom, et al. 2000). Apparently throughout central Idaho, “old growth” as a late successional stage was historically important, but was not extensively present in the landscape. The main reason for this natural forest condition is that vegetative structural conditions in central Idaho developed in conjunction with disturbance processes (fire, insect, disease, wind, etc.) and climate variations. Conversely, late successional “old growth” characteristics develop in the absence of frequent disturbances (Hamilton, 1993). In central Idaho, disturbance was a common occurrence. Historically, forested stands in lower-elevation vegetation groups likely developed large trees and relatively open canopies during mid-successional stages, and these conditions were maintained over time by frequent low-intensity fire disturbance. Dense stands and decadence typically associated with late successional stage conditions (old growth) rarely occurred. Thus, historical stands dominated by large and old seral trees like ponderosa pine could be considered old forest, but not “old growth” under any definition that incorporated a full set of late successional conditions. On this forest, the dry Douglas-fir types, with and without ponderosa pine, had estimated historical percentages of large trees present in roughly 60 percent of the type in late development open stands and 10 percent in late development closed stands.

Currently, tree species occurrence has shifted from seral to climax in coniferous communities compared to the historic range of variability (HRV). Some of these changes are particularly evident in communities that historically maintained a large portion of the area in seral species or late-seral single-strata stands due primarily to fire. For example, the ponderosa pine types, which are adapted to the frequent, non-lethal fires that were once common in these communities, currently show pronounced shifts towards climax Douglas-fir and a concurrent change from single strata-stands to multi-strata stands. In many of these areas, the amount of ponderosa pine has declined below the estimated historical levels and Douglas-fir has greatly increased. It is assumed this shift has benefited the pileated woodpecker at the expense of species such as the pygmy nuthatch and likely other species that depend on these communities that have a high proportion of low-density, large ponderosa pine. This is consistent with the determinations of Wisdom et al. (2000)

who suggested management activities are needed to reduce the dominance of shade-tolerant tree species e.g. Douglas fir, and increase the presence of shade-intolerant species, e.g. ponderosa pine, in these communities. Wisdom et al. (2000) estimated there has been an increase of 21 percent in source habitat for the pileated woodpecker within the Central Idaho Mountains ERU.

The pileated woodpecker is being proposed as an MIS for the Salmon-Challis Forest because; (1) they are non-migratory, (2) populations are found across the forest, (3) some population trend data is available, (4) a survey protocol is established, (5) specific vegetative habitat components can be monitored and tracked at the forest and project scale and (6) proposed management activities can and will have an impact on their habitat, both positive and negative.

- **Greater Sage-Grouse (*Centrocercus urophasianus*)**

Greater sage-grouse are native to western North America, historically occurring within the eleven western states that have extensive areas of sagebrush steppe communities meeting their habitat requirements. Greater sage-grouse have been extirpated in Arizona, British Columbia, Kansas, Nebraska, New Mexico, and Oklahoma. In most areas where they are still present, trend counts have been decreasing since the 1950s. Greater sage-grouse are expected to continue to decrease over their current range because of habitat loss and degradation. Degradation is most commonly being caused by conversion of native habitat to intensive agricultural uses, the increasing spread of non-native plants, improper livestock grazing and urban development.

On the Salmon-Challis Forest, greater sage-grouse and/or formerly occupied habitat occurs across the forest and on adjacent BLM and some private lands. These large grouse are totally dependent on sagebrush/grassland vegetation to meet their habitat requirements. Some populations migrate to seasonally important ranges some do not. Despite some wide-ranging annual movements, greater sage-grouse have high fidelity to seasonal ranges for breeding (leks), nesting and wintering and need extensive areas of native sagebrush/grassland year-round. An abundant native grass/forb component within sagebrush/grassland communities is important, especially during the brood-rearing period. In summer, shrubs are used for cover while various grasses and forbs are used as food, as are many of the insect species supported by them. During winter, sagebrush that protrudes above snow accumulations actually defines potential wintering areas because sagebrush leaves are used exclusively as food (Apa 1998, Braun 1998, Burleigh 1972, Groves et al. 1997, IDFG 1997, Connelly et al. 2000).

In Idaho, greater sage-grouse statewide have declined 40 percent during the last 40 years and populations in other western states have shown similar declines (IDFG 1997). State Fish and Game, in cooperation with land management agencies, monitor Greater sage-grouse population trends annually, usually in the spring when lek counts are conducted. Additional information is gathered during the hunting season from harvested animals. Greater sage-grouse are hunted where they occur within central Idaho, and both male and female birds are legally harvested. However, there is a concern regarding the effects of legal harvest on population viability when local greater sage-grouse numbers are low (Connelly et al. 2000). Various conservation organizations petitioned this species for federal listing as a threatened

or endangered species as recently as 2002, but the United States Fish and Wildlife Service (USFWS) dismissed the petition as unwarranted. Because of habitat loss and steep population declines, the remaining habitat on Forest Service administered lands and adjacent ownerships are increasingly important to this species and other sagebrush-obligate species. Population trends are slowly improving in some locations, but are still greatly reduced from the recent past.

Sagebrush/grassland in Idaho has changed greatly over the past 150 years. Much of the lower-elevation private areas supporting sagebrush have been converted to agriculture. Some of this conversion has made former habitats totally unusable by greater sage-grouse and other sagebrush-dependent species. The extent of this conversion varies by location within and adjacent to the Salmon-Challis Forest and across central Idaho. Some of this conversion has caused the remaining habitats to become fragmented, resulting in barriers to movement between populations (Apa 1998, Braun 1998, ICBEMP 1997c, IDFG 1997, Wisdom et al. 2000, Connelly et al. 2000). The overall quality of existing greater sage-grouse habitat will likely become increasingly important as the quantity of available habitat continues to decrease due to modifications and development, largely on non-federal lands.

Many sagebrush communities that have not been converted to agriculture have changed due to a variety of factors including: livestock grazing, changes in fire regimes, road building, invasion of noxious weeds, and introduced non-native forage grasses, primarily for livestock use (Apa 1998, Wisdom et al. 2000). Sagebrush has been “treated” on grazing lands by burning, plowing, chaining, disking, spraying, and seeding to increase or maintain livestock forage. These changes have occurred both on public and private lands resulting in a change to the native sagebrush/grassland vegetation that is generally not beneficial to greater sage-grouse habitat. Remnant greater sage-grouse populations have become more dependent on native habitat remaining on and adjacent to the Forest Service and BLM administered lands (ICBEMP 1997c, IDFG 1997, Wisdom et al. 2000).

In the past, fire and livestock grazing of grasses and forbs played major roles in periodic modification of greater sage-grouse habitat. Fires started by lightning historically caused the most noticeable changes in sagebrush communities; however small-scale and infrequent native ungulate grazing may have also been mechanisms of stand renewal. This process has been overshadowed during this century by large-scale fires (Longland and Young 1995). Fires that burn in sagebrush communities usually result in total mortality of the sagebrush. These fires cause greater sage-grouse and other species to move into areas that did not burn, until the sagebrush re-establishes itself in 15-25 years or more. Native herbaceous plant communities usually re-establish within 3-5 years, depending on the presence of noxious weeds and whether or not current climate conditions are conducive for re-establishment. Because of habitat loss and conversion, the opportunities for greater sage-grouse to relocate into suitable unburned areas has been reduced or eliminated in many locations.

Livestock grazing increases successional rates, often resulting in an increase in the density of shrub-dominated communities and a subsequent reduction in the herbaceous understory, especially when crown cover of shrubs exceeds 15 percent. Domestic livestock grazing currently occurs in virtually all areas identified as greater sage-grouse habitat on the Salmon-Challis Forest. Fire exclusion has some of the

same effects on sagebrush as livestock grazing, increasing shrub densities and reducing herbaceous understory production. Another concern is the invasion of non-native plants. It is estimated that 16 species of non-native plants are a threat to sagebrush/grassland communities in central Idaho, as well as to the wildlife species that are dependent on these native plant communities.

Canopy coverage of sagebrush is important to greater sage-grouse in different ways. Most of the documented nesting of greater sage-grouse occurs in sagebrush with canopy coverage of 15 to 25 percent. Nests are usually located under sagebrush plants, but not always (Apa 1998, Braun 1998, Gregg et al. 1994, IDFG 1997, Sveum et al. 1998). Nest predation of greater sage-grouse was found to be lowest at nests that had more cover of tall, residual grasses and medium height shrubs (Gregg et al. 1994). Sagebrush canopy coverage changes due to succession and other factors. Natural-occurring lightning fires and prescribed management fires have influenced succession rates and the extent of canopy coverage changes, through time, in most sagebrush/grass communities. Losses or changes to greater sage-grouse breeding habitat or a reduction in sagebrush canopy cover that exceeds 40 percent of a large-scale area are detrimental to greater sage-grouse (Connelly et al. 2000), regardless of the source of perturbation. At some point in time, as canopy cover of sagebrush increases, understory grasses and forbs decrease, a situation that may also reduce the habitat effectiveness for greater sage-grouse. Wildfire has been and will continue to be an important factor in sagebrush communities, with or without other management considerations.

Most of the occupied greater sage-grouse habitat within the administrative boundary of the Forests is probably used for nesting, brood rearing, and summering habitat while the majority of the currently utilized wintering areas occur on adjacent, lower elevation BLM, state, and/or private lands. However, some wintering occurs within Forest Service administered lands near the boundary with other lower elevations ownerships and/or on windswept ridges where sagebrush is exposed all winter long. On the Salmon-Challis Forest, there are approximately 630,000 acres of sagebrush/grass communities that offer potential habitat for greater sage-grouse during at least some portion of each year.

The IDFG developed a greater sage-grouse management plan (IDFG 1997) and have implemented it through a Memorandum of Agreement (MOA) in Idaho with the Forest Service and BLM to further the management of greater sage-grouse and its habitat. Guidelines to manage greater sage-grouse populations and their habitats within the species range have recently been updated (Connelly et al. 2000). Because of the dramatic declines in greater sage-grouse numbers in Idaho and other western states, a Memorandum of Understanding (MOU) was signed in 2001 by the Western Association of Fish and Wildlife Agencies, Forest Service, BLM and the US Fish and Wildlife Service to consider the Connelly et al. (2000) guidelines when proposed actions may affect greater sage-grouse suitable habitat. Based on these updated guidelines, no other management-controlled reduction should take place in the near term in areas where over 40 percent of the sagebrush canopy cover has been reduced (Connelly et al. 2000). Both the MOA with Idaho and the MOU with the Western Association of Fish and Wildlife Agencies are currently in effect. Wisdom et al. (2000) suggested that a loss or change in habitat of greater than 20 percent is significant and should be analyzed at the Basin and ERU scale during proposed management activities that may alter available habitat. Although natural population

fluctuations are likely, due to habitat and climatic changes, long-term trends may reflect changes in both habitat conditions and harvest regulations.

There is a relationship between sagebrush canopy cover, herbaceous understory and greater sage-grouse nesting (Apa 1998, Braun 1998, Connelly 2000, Gregg et al. 1994, IDFG 1997, Sveum et al. 1998). Livestock grazing influences the vegetation, both overstory and understory. Not every area where nesting and brood rearing occurs is grazed every year. Livestock do not graze the same pasture at the same times of the year, year after year, due to commonly employed rotational grazing plans. Some localized areas are not grazed for several years after large portions of pastures have burned from a wildfire, to allow for recovery of vegetation. The effects of livestock grazing are not fully understood but may vary, depending upon where and when it occurs (e.g. nesting and brood rearing habitat, winter habitat, spring or fall).

Wisdom et al. (2000) estimate a 27 percent increase in source habitat for this species, within Ecological Resource Unit (ERU) 13, the central Idaho area, from historical to current times. However, the dominant trend of habitat for this species, basin wide, is neutral. Much of the habitat occupied by greater sage-grouse is susceptible to the spread and invasion of non-native plants, which alters the understory communities of shrub/steppe habitat. Within Forest Service administered lands, habitat is still widely available for this species but seasonally important areas such as winter range may be in short supply. Therefore, Forest Service administered lands will almost certainly play a major roll in maintaining long-term habitat for all species dependent on sagebrush for some stage of their life history.

Greater sage-grouse habitat occurs on all but one Ranger District, the Middle Fork, of the Salmon-Challis National Forest. It is most extensive in the Lemhi River, Pahsimeroi River, Little Lost River and Big Lost River valleys.

This species is being proposed as an MIS on the Salmon-Challis National Forest because (1) of recent population declines, (2) recent large fires that have modified extensive areas of habitat, (3) historical local habitat loss on adjacent lands under various ownerships, (4) it is a sagebrush obligate, (5) its habitat is highly susceptible to invasion by exotic and/or noxious weeds, (6) there is a strong interest in this species by many individuals and agencies, range-wide as well as locally, and (7) it is a new Region 4 “sensitive species”.

- **Beaver (*Castor canadensis*)**

Historically, beaver were one of the most common and widespread mammals throughout watersheds of the Salmon-Challis National Forest. Given the geologically young and active geomorphology of the area, much of the area’s biological expression and biotic community development was highly influenced by beaver activity. Performing as a historical keystone species influencing succession and development of aquatic and riparian habitats over the years, beaver activity and the riparian habitats it created were key components for a variety of life history stages for 75% to 90% of aquatic and terrestrial species native to the forest.

The influence of beaver activity within the forest, while occurring intermittently in steeper gradient areas, was typically most common in areas with valley bottom

profiles having less than a 6% gradient. In these areas, historic beaver activity, in association with aspen-willow-cottonwood communities, developed diverse and broad valley floor riparian and wetland communities that provided the geomorphic and ecological basis for not only historic biotic communities of the area, but most notably, most of those still in existence today. Though reintroductions of this keystone species was initiated in the 1930's, on-forest monitoring during the 1970's found declines in existing beaver communities through the end of the century, as a result of increasing land-use pressures, competition for riparian resources and the lack of beaver management. As an example, Forest surveys in the Hawley Creek watershed in the late 1970's found 19 active beaver complexes existing within an inventoried amount of aspen and willow communities at that time. By the late 1980's however, beaver activity within the watershed had declined to only 9 complexes; and, by the mid-1990's, there were none. Indications of similar declines and the development of disclimax stream and riparian communities were apparent in other watersheds throughout the Salmon-Challis National Forest, during this period.

The beaver is being proposed for MIS on the Salmon-Challis National Forest because (1) Given the preponderance of "drought" climatic conditions throughout the forest, during the majority of the past 20 years, it could appear that these conditions may likely be the norm, rather than the exception, over the foreseeable future, and (2) given the increasing incidence of large scale fire events and extremes in precipitation events, it may be more important than ever to begin not only utilizing beaver as a MIS, but also to once again implement beaver recovery and management throughout the forest, in an effort to moderate the changing watershed conditions that are being experienced at this point in history. As a historic keystone species, beaver would serve as a readily measurable and definitive riparian habitat management indicator species, for a majority of wildlife at the watershed scale.

- **Bull Trout (*Salvelinus confluentus*)**

With the exception of the Big Lost River watershed, bull trout are a common and comparable fisheries MIS within and between watersheds of the Salmon-Challis National Forest. Several local Bull trout populations and their "core areas" occur entirely within the Salmon River sub-basin. (A core area represents a biologically defined, genetically functioning unit for bull trout populations. The combination of "core habitat areas" i.e., watersheds that possess habitat necessary for long-term persistence, and "core populations" i.e., sub-populations inhabiting core habitat areas, constitute the basic units by which bull trout recovery will be determined).

Bull trout are sensitive to stream habitat and watershed conditions. Bull trout typically have more narrowly defined habitat tolerances than other salmonids, with a closer affinity to stream bottom substrate quality and conditions (Rieman and McIntyre, 1993). In particular, five stream habitat elements are key for bull trout habitat: (1) substrate composition and size, including interstitial spaces sufficiently free of sediment; (2) complex cover elements, including large in-stream woody debris, undercut stream-banks, in-stream boulders, abundant shading from overhead and bank vegetation, plus deep pools; (3) colder water temperatures, in conjunction with appropriate seasonal timing; (4) good channel stability and; (5) connectivity of migratory stream corridors, within and between watersheds. As such, in-channel woody cover, clean substrate, cold clean water, deep pools, vegetated undercut banks, channel stability, winter high flows and the quality of summer low flows

appear to consistently influence bull trout abundance and distribution throughout their range (State of Idaho, 1996). In addition, bull trout have often been associated with the coldest stream reaches within basins or watersheds, with lower temperature limits of their distribution in areas with ground-water temperatures of about 40° to 45° F (Meisner, 1990). Because bull trout habitat requirements overlap many requirements of other fish species (west-slope cutthroat, steelhead, chinook salmon, sockeye salmon, rainbow, redband rainbow, and whitefish) and they are sensitive to watershed changes, the distribution and status of bull trout populations would be most broadly indicative of habitat changes potentially affecting all fish species.

Their unique habitat requirements make them more indicative of a wider range of effects from land management activities, across the widest range of watersheds, than any other fish species native to Salmon-Challis National Forest.

While still in the process of finalizing their draft Bull Trout Recovery Plan, the U.S. Fish and Wildlife Service, in cooperation with other management agencies and tribes, has classified ten local sub-populations of bull trout (core areas) within the “Salmon River Recovery Unit”. These include the Upper Salmon River, the Pahsimeroi River, the Lake Creek watershed, the Lemhi River, the Middle Salmon River-Panther Creek, the Opal Lake watershed, the Middle Fork Salmon River, the Middle Salmon River – Chamberlain Creek, the South Fork Salmon River, and the Little Salmon/Lower Salmon Core Areas. In combination with the Little Lost River Recovery Unit, the majority of classified bull trout core areas within the Upper Salmon River sub-basin are found in association with watersheds of the Salmon-Challis National Forest. In addition to the United States Fish and Wildlife Service’s interagency efforts to define existing distributions of bull trout populations, the Idaho Department Fish and Game is currently conducting a cooperative fish movement study to determine migration patterns, timing, and distribution of fluvial bull trout populations within the upper Salmon River Recovery Unit, from the Middle Fork - Salmon River, to the Salmon River headwaters.

Until about 1990, bull trout were classified as a form of Dolly Varden and were considered to be an undesirable predatory fish, at times with bounties for their capture, in an effort to encourage their extirpation. Not having been previously considered a desirable game-fish species, there has been no known history of bull trout being stocked within the Salmon-Challis National Forest. Most recently, with their listing as an Endangered Species Act “threatened” species in the mid-1990, Idaho fishing regulations subsequently prescribed that they were a catch-and-release only species.

The current distribution and intensity of bull trout population monitoring varies throughout the Salmon River Core Area. Presently, monitoring on the Salmon-Challis National Forest has primarily consisted of electro-fishing and snorkeling sample reaches of stream, to determine the presence or absence of various fish species, their relative abundance, and the performance of annual redd counts in identified key spawning index areas. Since several of the Forest’s other fish species have been listed as threatened or endangered under the Endangered Species Act, the extent of fisheries monitoring has increased during the past ten years. A number of agencies including Idaho Departments of Fish and Game, and Environmental Quality, the Shoshone-Bannock Tribes, United States Forest Service, Bureau of Reclamation, Bureau of Land Management, NOAA-Fisheries, and the United States

Fish and Wildlife Service all conduct various forms of annual stream and fisheries monitoring throughout Forest watersheds. In addition, stream inventory and monitoring efforts between these multiple entities has been coordinated annually, for over ten years. This cooperative monitoring program has helped to better define the distribution and status of local fish populations, providing greater insights on where to focus future inventory and monitoring efforts, as has been compiled and displayed in the Inland West Watershed Inventory - Biotic Coverage.

Proposed Additional MIS from Scoping Suggested MIS List (Alternative 3)

- **Columbia spotted frog (*Rana luteiventris*)**

The Columbia spotted frog, currently listed as a Forest Service Sensitive Species in Region 4 and on the Salmon-Challis NF, is also being considered as a MIS for riparian habitats. This species is a true frog (Family *Ranidae*) with a present distribution that includes a main population extending from southeast Alaska, Alberta and British Columbia south to central Idaho and western Wyoming. Additional disjunct populations occur in southern Idaho, Nevada, Utah, western Washington and Oregon and northeastern California. Columbia spotted frogs occupy slow-moving cool water streams, beaver ponds and marshy edges of ponds and lakes across the Salmon-Challis NF. Although these frogs are most commonly found near permanent water they are also known to make long (up to approx. 1 km) journeys overland between such habitats.

Adult spotted frogs feed on invertebrates, mollusks, crustaceans and arachnids. These opportunistic feeders are thought to also forage underwater. Tadpoles consume decomposed plant material and live green algae, which also provides protection against predators.

This species congregates at permanent water breeding sites in early spring, as soon as the spring thaw permits. Eggs are deposited in rounded softball sized masses and are not attached to vegetation. Clutch size ranges from approximately 150 to 2000 eggs and hatching time varies from 3 to 21 days, depending upon water temperature. Development of tadpoles is also temperature dependent. However, transformation occurs more quickly at higher elevations than at lower sites, ranging from 70 days to 130 days, respectively. Frogs at high elevations often mature very slowly and may not reach sexual maturity until 6 years of age. At lower elevations they often reach sexual maturity as early as 2 years of age. Longevity of spotted frogs may be as much as 12 to 13 years.

Soon after breeding they often travel considerable distances from the breeding pools to utilize a wide range of foraging areas including mixed conifer and subalpine forests, grasslands, and sagebrush shrub/steppe wherever puddles, seeps or other water sources are available. Spotted frogs hibernate in unfrozen muddy or soupy substrates in springs, streams, lakes or ponds where water is constantly renewed throughout the winter.

Columbia spotted frogs, as is the case with many amphibians, spend portions of their lives in both aquatic and terrestrial habitats where they are exposed to a wide range of environmental factors including temperature fluctuations, environmental pollutants

(air and water), prey and predators. The thin, permeable skin of all amphibians, spotted frogs included, place them in intimate contact with all aspects of their environment. This species reproduces and develops in standing pools of water where they may be exposed to high concentrations of environmental chemicals such as herbicides and pesticides. They also change trophic levels upon metamorphosis, being herbivorous as larvae and carnivorous as adults. In addition, both the riparian and upland habitats utilized by spotted frogs are subjected to a variety of land management activities including but not limited to timber harvest, grazing, road construction, weed control and vegetative manipulations such as application of prescribed fire. For these reasons and more, amphibians are often thought to provide an early warning of environmental change. The spotted frog is specifically considered to be an “early warning amphibian” in the conservation assessment developed for this species by the Intermountain Region of the USDA Forest Service in 1994.

Monitoring

Monitoring approaches for any species selected as an MIS should be designed to detect or assess both population **trends?** and habitat changes that may have occurred as a result of management activities. It is necessary to not only track and detect such changes, but we must have an understanding of how changes in populations reflect changes in habitats that result from management actions.

- **Pileated Woodpecker**

Data for the pileated woodpecker will be collected to show population trend information at the Forest level to help identify changes in the habitat they are dependent on. This will primarily occur in the ponderosa pine, Douglas-fir and subalpine fir habitat types and forest communities and will include but not be limited to activities that affect stand age and condition classes, snag densities and accumulations of large, down woody debris. Breeding Bird Survey routes will continue to collect some data for this species but point count transects will be established specifically for pileated woodpeckers and their habitats in accordance with the protocols found in Hamel et al. (1996).

- **Greater Sage-Grouse**

Data for the greater sage-grouse will be collected to show population trend information at the Forest level to help identify changes in the habitat they are dependent on. This will primarily occur in the shrub-steppe or sagebrush-grassland communities, including any interspersed riparian communities. Monitoring of greater sage-grouse will be done in conjunction with the Idaho Department of Fish and Game during their annual spring lek counts and will adhere to their established protocol. Habitat monitoring, including riparian areas, will be done in conjunction with range allotment monitoring, following existing protocols.

- **Bull Trout**

Data for the bull trout will be collected to show population trend information at the Forest level to help identify changes in the habitat they are dependent on. This will occur in all areas of the Forest except the Big Lost Watershed, where bull trout do not exist. Identified “index areas” bull trout presence/absence and abundance will be monitored following established electrofishing, snorkeling, and redd count protocols, along with stream surveys within selected 6th field HUC watersheds.

Existing Inland West Watershed Inventory - Biotic Component, fisheries data-base and GIS coverages will be utilized and updated as the focal resource for summarizing the distribution and status of Bull trout as a Fisheries Management Indicator Species, at 6th field watershed scales.

MIS baselines will be established forest-wide within the first five years, during which MIS population distribution, abundance and trend data would begin to reflect, and continue to develop greater depth and precision over time.

- **Beaver**

Data for the beaver will be collected to show population trend information at the Forest level to help identify changes in the habitat they are dependent on. This will primarily occur in riparian habitat/community types and perennial stream reaches with less than 6 percent stream gradient. A historical environmental baseline for beaver colonies, distribution, and decadal levels of activity will be developed, utilizing remote sensing of aerial photography from the 1940’s to present.

In light of the knowledge provided with the historical environmental baseline, and utilizing the most recent photography as the best available current information on a broad scale, the goal would be to begin implementation of plan components outlined in the formerly proposed interagency beaver management agreement for the Salmon–Challis National Forest public lands. (These components call for the determination of existing habitat and activity conditions, potentials and preferences for watersheds across the forest, followed by the determination of watershed-specific beaver management goals and objectives).

- **Spotted Frog**

Data for the spotted frog will be collected to show population trend information at the Forest level to help identify changes in the habitat they are dependent on. This will primarily occur in riparian habitat/community types and perennial stream reaches. Accepted protocols have been developed that are applicable to most amphibian species, including the Columbia spotted frog. Between 1994 and 1996, the Salmon-Challis NF conducted surveys for this species across most of the non-wilderness lands. During this same time period, more intensive and structured studies were contracted to various private individuals. The protocol employed was timed searches but habitat data was also collected. The primary objective of these studies was to establish baseline data necessary for a long-term monitoring program on the status and trends of amphibian populations, including Columbia spotted frog populations, on the Forest. As a result, suitable sites have been selected for monitoring and some follow-up monitoring has been conducted. Prior to, during and after these studies,

opportunistic surveys have been conducted, primarily on project assessment areas, and informal observation data have been collected. Consequently, we now have accumulated considerable baseline data concerning the spotted frog on this Forest.

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