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Forest Service

Rocky Mountain Region

Black Hills National Forest

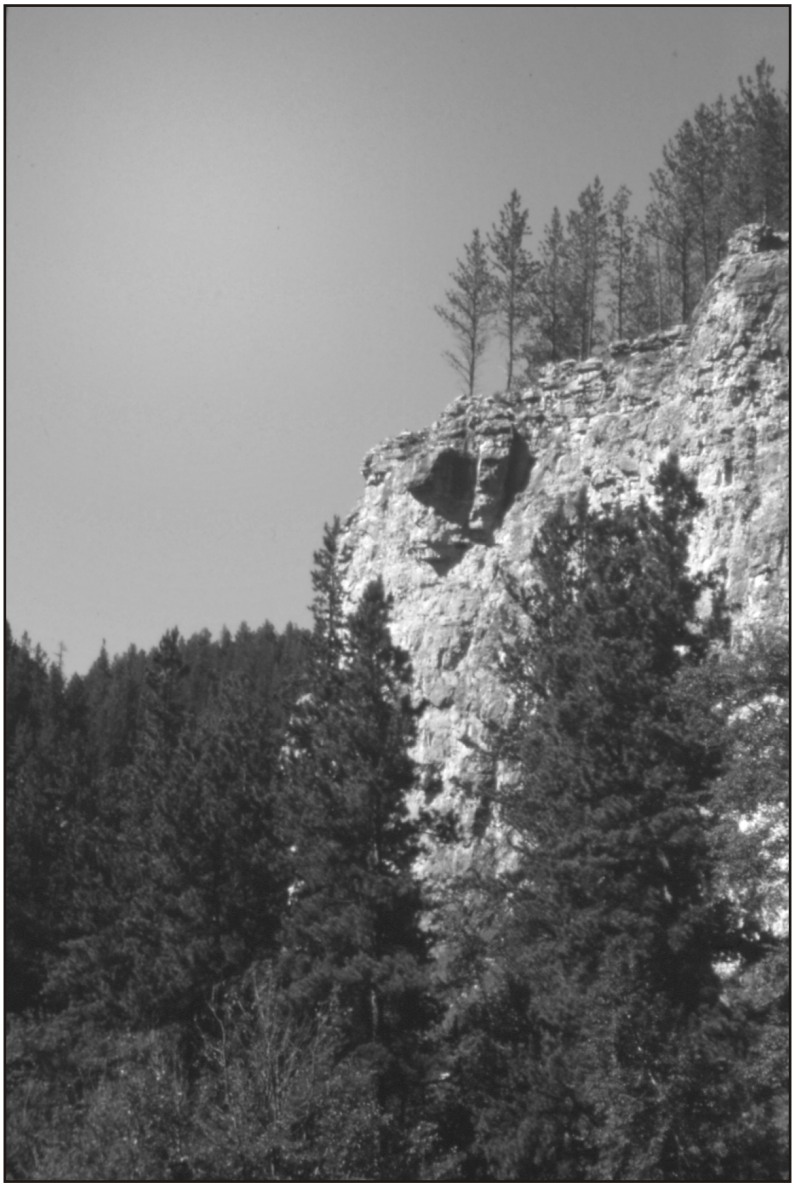
Custer, South Dakota

Black Hills National Forest

Phase I Amendment
2001

1997 Land and Resource Management Plan

Environmental Assessment



BLACK HILLS NATIONAL FOREST
LAND AND RESOURCE MANAGEMENT PLAN
PHASE I AMENDMENT 2001
ENVIRONMENTAL ASSESSMENT

MAY 2001

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Definition of Acronyms and Terms Used in this Document

Acronyms

ASQ	Allowable Sale Quantity
AUM	Animal Unit Month
BA/BE	Biological Assessment/Biological Evaluation
CFR	Code of Federal Regulations
FEIS	Final Environmental Impact Statement
FSH	Forest Service Handbook
FSM	Forest Service Manual
HABCAP	Habitat Capability model
HE	Habitat Effectiveness
KV	Knutsen-Vandenberg
MIS	Management Indicator Species
MMBF	Million Board Feet
NEPA	National Environmental Policy Act
NFMA	National Forest Management Act
OHV	Off-highway Vehicle
PFA	Post-fledging Family Area (northern goshawk)
POL	Products Other than Logs
PSG	Project Sample Group
RIS	Resource Information System
RNA	Research Natural Area
USFWS	U.S. Fish and Wildlife Service

Terms

1997 Revised Forest Plan	Black Hills National Forest Revised Land and Resource Management Plan (1997)
1999 Appeal Decision	Decision on administrative appeals of 1997 Revised Forest Plan, issued by James R. Furnish (Reviewing Officer for the Chief of the Forest Service) on October 12, 1999
2000 Expert Interview Summary	Summary of interviews of experts on various species conducted in conjunction with the Phase I Amendment process
Forest (capitalized)	Black Hills National Forest
Forest Plan	Land and Resource Management Plan
FEIS for the 1997 Revised Forest Plan	Final Environmental Impact Statement for the 1997 Revised Forest Plan
Interim Direction	Forest management direction specified by the 1999 Appeal Decision to be used until the sufficiency of the 1997 Revised Forest Plan could be re-evaluated
Phase I	First phase of adjustments to the 1997 Revised Forest Plan
Project File	Phase I Forest Plan Amendment Project File
Settlement Agreement	Settlement Agreement for Civil Action 99-N-2173
Southwest Guidelines	Management Recommendations for the Northern Goshawk in the Southwestern United States (Reynolds et al. 1992)

Species Discussed in this Document

Wildlife

American marten	*Martes americana*
Bald eagle	*Haliaeetus leucocephalus*
Black bear	*Ursus americanus*
Black Hills red-bellied snake	*Storeria occipitomaculata pahasapae*
Black-backed woodpecker	*Picoides arcticus*
Black-tailed prairie dog	*Cynomys ludovicianus*
Brown creeper	*Certhia americana*
Cockrell's striate disc	*Discus shemiki*
Cooper's Rocky Mountain snail	*Oreohelix strigosa cooperi*
Dwarf shrew	*Sorex nanus*
Fox sparrow	*Passerella iliaca*
Fringed myotis	*Myotis thysanodes*
Golden-crowned kinglet	*Regulus satrapa*
Lewis's woodpecker	*Melanerpes lewis*
Loggerhead shrike	*Lanius ludovicianus*
Leopard frog	*Rana pipiens*
Merlin	*Falco columbarius*
Merriam's turkey	*Meleagris gallopavo merriami*
Milk snake	*Lampropeltis triangulum*
Mountain bluebird	*Sialia currucoides*
Mountain goat	*Oreamnos americanus*
Mountain lion	*Felis concolor*
Mule deer	*Odocoileus hemionus*
Northern (common) flicker	*Colaptes auratus*
Northern flying squirrel	*Glaucomys sabrinus*
Northern goshawk	*Accipiter gentilis*
Northern three-toed woodpecker	*Picoides tridactylus*
Olive-sided flycatcher	*Contopus cooperi*
Osprey	*Pandion haliaetus*
Ovenbird	*Seiurus aurocapillus*
Peregrine falcon	*Falco peregrinus*
Purple martin	*Progne subis*
Pygmy nuthatch	*Sitta pygmaea*
Red-breasted nuthatch	*Sitta canadensis*
Red-naped sapsucker	*Sphyrapicus nuchalis*
Regal fritillary	*Speyeria idalia*
Rocky Mountain elk	*Cervus elaphus*
Ruby-crowned kinglet	*Regulus calendula*
Ruffed grouse	*Bonasa umbellus*
Swift fox	*Vulpes velox*
Tawny crescent	*Phyciodes batesii lakota*
Tiger salamander	*Ambystoma tigrinum*
Townsend's big-eared bat	*Corynorhinus townsendii*
Upland sandpiper	*Bartramia longicauda*
White-tailed deer	*Odocoileus virginianus*

Fish

Brook trout	*Salvelinus fontinalis*
Brown trout	*Salmo trutta*
Finescale dace	*Phoxinus neogaeus*
Lake chub	*Couesius plumbeus*
Mountain sucker	*Catostomus platyrhynchus*

Plants

American trailplant	*Adenocaulon bicolor*
Autumn coralroot	*Corallorhiza odontorhiza*
Autumn willow	*Salix serissima*
Bloodroot	*Sanguinaria canadensis*
Dwarf scouring rush	*Equisetum scirpoides*
Fox-tail sedge	*Carex vulpinoidea*
Giant helleborine	*Epipactis gigantean*
Great bladder sedge	*Carex intumescens*
Great-spurred violet	*Viola selkirkii*
Large round-leafed orchid	*Platanthera orbiculata*
Long-stalked sedge	*Carex pedunculata*
Marsh muhly	*Muhlenbergia glomerata*
Northern arnica	*Arnica lonchophylla*
Prairie moonwort	*Botrychium campestre*
Southern maidenhair fern	*Adiantum capillus-veneris*
Trailing clubmoss	*Lycopodium complanatum*
Tree-like clubmoss	*Lycopodium dendroideum*
Woolgrass	*Scirpus cyperinus*

CHAPTER 1

PURPOSE AND NEED FOR ACTION

This chapter describes why the Black Hills National Forest is proposing the Phase I Amendment and preparing this Environmental Assessment, what is proposed, and the major issues driving the proposal.

The chapter is divided into the following sections.

1-1. Background
1-2. Location
1-3. Purpose and Need for Action
1-4. Decision to be Made
1-5. Proposed Action
1-6. Significance Evaluation
1-7. Issues and Concerns
1-8. Summary of Chapter 1 and Preview of Chapters 2 and 3

1-1. BACKGROUND

On August 19, 1983, the Regional Forester for the Rocky Mountain Region of the Forest Service approved the original Land and Resource Management Plan for the Black Hills National Forest (hereafter referred to as the **Forest**). A Land and Resource Management Plan provides a programmatic framework for decision-making on a National Forest or National Grassland. After a decade, National Forest Management Act (NFMA) implementing regulations and new information about the Forest and its uses required revision of the 1983 plan. Accordingly, then-Regional Forester Elizabeth Estill signed the Record of Decision on June 24, 1997, for the Forest's 1997 Revised Land and Resource Management Plan (hereafter referred to as the **1997 Revised Forest Plan**) and accompanying Final Environmental Impact Statement (hereafter referred to as the **FEIS for the 1997 Revised Forest Plan**). The 1997 Forest Plan, its Appendices, Addenda, and Record of Decision, the FEIS for the 1997 Forest Plan and its Appendices, and the associated Planning Record are incorporated in this document by reference.

A number of groups and individuals submitted appeals of the Regional Forester's decision. On October 12, 1999, Deputy Chief James R. Furnish, the Reviewing Officer for the Chief of the Forest Service, issued his decision on three of the appeals (hereafter referred to as the **1999 Appeal Decision**). His decision affirmed the Regional Forester's June 24, 1997 decision in part, with instruction for further actions concerning the issues of species viability

and diversity and mining.[1] The mining issue will be resolved by a minor wording change in the 1997 Revised Forest Plan (see page 5). See Appendix C for the Summary of the 1999 Appeal Decision. Specifically, the Appeal Decision included:

> "After reviewing the record relative to the species diversity and viability concerns expressed by the appellants, I find that the Revised Plan does not fully meet all aspects of the intent and requirements of the NFMA and its implementing regulations at 36 CFR 219, with regard to the diversity of plants and animal communities, and species viability. Some of these concerns may be adequately addressed by supplementing the record; however, enough deficiencies were noted to warrant re-evaluating the sufficiency of the Revised Plan in relation to diversity and viability." (1999 Appeal Decision p. 61)

The decision further stated:

> "Apply the following interim direction to all projects or activities for which decision documents have not been signed as of the date this appeal decision is rendered. The interim direction will remain in effect until appropriate adjustments have been made to the /Revised Plan, in accordance with the above Action Plan." (1999 Appeal Decision p. 61)

A lawsuit challenging the implementation of the Veteran Salvage Timber Sale in the Forbes Gulch area of the Beaver Park Roadless area was filed against the Forest Service in October 1999. This legal action was based on certain of the deficiencies identified in the October 12, 1999 Appeal Decision. Settlement negotiations were begun in November 1999 and completed in September 2000. Several Forest timber sale analyses completed prior to October 1999 were included in the scope of the Settlement Agreement for Civil Action 99-N-2173 (hereafter referred to as the **Settlement Agreement**). This amendment to the 1997 Revised Forest Plan is partially a result of the negotiations.

The Forest proposes to make the required adjustments to the 1997 Revised Forest Plan in two phases:

The **Phase I** effort includes an amendment to the 1997 Revised Forest Plan for the short term (two to five years). This amendment addresses the 1997 Revised Forest Plan's deficiencies as identified in the 1999 Appeal Decision. The Forest proposes that Phase I result in a "non-significant" amendment to the 1997 Revised Forest Plan (see discussion of "significance" on page 6). The intent of the Phase I Amendment is to: 1) provide assurance that the Forest's actions during the next two to five years will not foreclose management options over the period needed to re-evaluate the sufficiency of the 1997 Revised Forest Plan in maintaining species viability and diversity, and 2) ensure that adequate habitat for species for which there may be a viability concern is maintained on the Forest until additional analysis of species viability and diversity is completed. This approach will provide the opportunity for the

[1] USDA Forest Service. October 12, 1999. Decision for Appeals #97-13-00-0085 - Oglala Sioux Tribe; #97-13-00-0120 - Biodiversity Associates/Friends of the Bow, Standing Rock Sioux Tribe, Sierra Club, Prairie Hills Audubon Society, Oglala Sioux Tribe, Biodiversity Legal Foundation, The Wilderness Society, Donald J. Duerr, Leila Stanfield; #97-13-00-0125 - Lionel P. Trepanier, The Greens/Green Party USA, Wildlands and Forest Issues Direct Action Network of the Black Hills National Forest Land and Resource Management Plan. Washington, DC.

Forest to go forward with management actions until Phase II of the amendment process is complete while reducing the level of risk for these species.

Phase I includes incorporation of new and updated monitoring protocols in the Monitoring Implementation Guide associated with the 1997 Revised Forest Plan for 1) sensitive species survey and monitoring, 2) streambank monitoring and 3) evaluation of the effectiveness of Best Management Practices for the Prevention of Non-Point Source Pollution. Forest Service Manual provides direction for Management Indicator Species at FSM 2621, and sensitive species at FSM 2670 that will continue to be followed.

Phase II of the 1997 Revised Forest Plan adjustment process will re-evaluate the sufficiency of the 1997 Revised Forest Plan in relation to species viability and diversity. The Forest expects Phase II to take two to five years to complete. The Forest plans to prepare an Environmental Impact Statement further examining longer-term management strategies regarding species viability and diversity. The Phase II analysis will build on the information developed by the Forest's technical teams and policy group. It will determine what level of amendment to the Revised Forest Plan or Forest policy is necessary. The Forest intends, in the near future, to publish in the Federal Register a Notice of Intent to begin public involvement for the Phase II effort. Additional information on species is currently being collected for use in the Phase II amendment process.

1-2. LOCATION

The planning area consists of the Black Hills National Forest, containing approximately 1.2 million acres in western South Dakota and eastern Wyoming (Map 1-1). The bulk of the Black Hills National Forest is located in a contiguous block in western South Dakota, with parcels in eastern Wyoming, including the Bearlodge Mountains.

1-3. PURPOSE AND NEED FOR ACTION

This is a **programmatic** Environmental Assessment, meaning it provides general guidance for an overall program of work across the Forest rather than site-specific actions. The purpose of this document is to provide guidance for protection of habitat and populations of plants and animals by forming a legal and scientific basis for amending management direction found in the 1997 Revised Forest Plan. The analysis contained in this document is based on the best available science.

The purpose and need for the Phase I Amendment are to address 1997 Revised Forest Plan deficiencies as identified in the 1999 Appeal Decision that must be corrected to assure that projects implemented during the re-evaluation of species viability and diversity (the next two to five years) will maintain viable populations of plant and wildlife species.

This analysis provides the decision maker with a range of options for ensuring compliance with agency obligations under NFMA to: 1) maintain viable populations of existing native and desired non-native vertebrate species, and 2) provide for diversity of plant and animal communities and tree species on the Forest (36 Code of Federal Regulations (CFR) 219.19; 36 CFR 219.26). This analysis provides continuing opportunities to incorporate the latest scientific information into resource plans and management practices. Alternative strategies presented in this Environmental Assessment are designed to maintain options over the interim period. Because the re-evaluation of species viability and diversity has not yet been completed and the conclusions of the analysis are not yet known, it is possible that Phase I may contain more comprehensive mitigation or environmental protection measures than the re-evaluation may determine to be necessary. This analysis also discloses the effects of Phase I Amendment direction on the environment (particularly on continued viability of species on the Forest) as well as the effects on issues raised by the public. The Phase I Amendment will be subject to appeal under 36 CFR 217.

The Phase I Forest Plan Amendment Project File (hereafter referred to as the Project File) documents the Interdisciplinary Team's evaluation of this analysis and is hereby incorporated by reference.

1-4. DECISION TO BE MADE

The Rocky Mountain Regional Forester will decide whether to amend direction in the 1997 Revised Forest Plan concerning species viability and diversity and, if so, in what manner. The decision will be based on the analysis in this document and the accompanying Project File. Although the Forest Supervisor would usually sign a non-significant amendment to a Forest Plan, the Settlement Agreement stipulated that the Regional Forester would sign the Phase I Amendment. This direction will remain in place across the entire Forest until the more comprehensive re-evaluation (Phase II) is completed for species viability in the planning area.

1-5. PROPOSED ACTION

The National Forest Management Act and its implementing regulations require that changes to management direction in Land and Resource Management Plans will be accomplished through the amendment process, and that this will include “appropriate public notification and satisfactory completion of NEPA procedures” (16 U.S.C 1604(i); 36 CFR 219.10(f)).

The Phase I Amendment to the 1997 Revised Forest Plan proposes to change existing management direction as described below, and would apply to the entire Black Hills National Forest.

The proposed action is to make specific changes to management of habitats related to the northern goshawk, American marten, species associated with snags, and other species designated as Sensitive by the Regional Forester. These changes are designed to reduce the risk of loss of resident populations of the above species or negative effects on their habitat. The proposed action would amend the management direction established in the 1997 Revised Forest Plan unless the existing direction would provide more protection. The proposed Phase I Amendment direction is based on the best available scientific information.

Specifically, the proposed action would amend the 1997 Revised Forest Plan in the following ways:

- **Change management direction contained in Standards and Guidelines in the 1997 Revised Forest Plan**, as appropriate, to assure that projects implemented during the interim period of the next two to five years will maintain viable populations of plant and animal species. After two to five years, this direction may be superseded by Phase II direction. Amendment direction would consider the Interim Direction contained in the 1999 Appeal Decision and other new information to assure that options for providing species viability are maintained over the next two to five years. Existing guidance may be changed to provide for the needs of the northern goshawk, American marten, individual species of snag-dependent birds, and other sensitive species.

- **Replace Guideline 3201** (regarding use of habitat capability values) with specific direction for providing protection of Northern goshawk habitat, American marten habitat, late succession habitats, snags, and sensitive species.

- **Modify the Sensitive Species list** in Appendix L of the 1997 Revised Forest Plan to reflect new information. Modifications include: removing the lynx from the list, since the Black Hills has been found to be outside the range of this species; and addition of the black-tailed prairie dog, which was added to the Region 2 sensitive species list since June 1997.

- **Make minor changes to the list of Management Indicator Species** (MIS). These changes include the addition of one or more aquatic MIS and removal of the black bear, which does not occur on the Forest.

- **Adjust habitat effectiveness guidelines for deer and elk.** The purpose of this change is to correct for cover/forage modeling errors that were discovered after release of the 1997 Revised Forest Plan.

- **Clarify Standard 1511** regarding recreational mining activities to incorporate a reference to 36 CFR 228, Subpart A, as discussed in the 1999 Appeal Decision.

Because Phase I is a programmatic amendment affecting the overall management of the Forest, it does not include specific decisions on individual projects.

1-6. NFMA SIGNIFICANCE EVALUATION

The NFMA significance evaluation and determination is located in Appendix B.

The intention of the proposed action is to provide programmatic direction for management of the Forest, including measures to limit potential environmental effects that may result from future projects and activities. The proposed action makes no irreversible commitment of resources. Additional mitigation measures may be added to individual projects in response to site-specific conditions.

Under NFMA, Land and Resource Management Plans (also known as Forest Plans) may be amended after final adoption and public notice. The NFMA implementing regulations at 36 CFR 219.10(f) state: “Based on an analysis of the objectives, guidelines, and other contents of the Forest Plan, the Forest Supervisor shall determine whether a proposed amendment would result in a significant change in the plan.” Neither NFMA nor its implementing regulations define the term “significant.” Instead, the regulations place full discretion to determine whether a proposed amendment will be significant in the hands of the Forest Service.

Under NFMA and its regulations, an amendment that does not result in a significant change in a Forest Plan must be undertaken with public notice and appropriate National Environmental Policy Act (NEPA) compliance. If a change to a Forest Plan is determined to be significant, the Regional Forester must follow the same procedure required for the development of the Forest Plan, including preparation of an Environmental Impact Statement.

The Land and Resource Management Planning Handbook (Forest Service Handbook (FSH) 1909.12) provides more detailed guidance for exercising this discretion. This guidance offers a framework for consideration but does not demand mechanical application. No one factor is determinative, and the guidelines make it clear that other factors may be considered. Section 5.32 of FSH 1909.12 lists four factors to be used when determining whether a proposed change to a Forest Plan is significant or not: 1) timing; 2) location and size; 3) goals, objectives and outputs; and 4) management prescriptions. It also states that "[o]ther factors may also be considered, depending on the circumstances."

The determination of whether a proposed change to a Forest Plan is significant depends on analysis of all of these factors. The decision-maker must consider the extent of the change in the context of the entire Plan affected, and make use of the factors in the exercise of his or her professional judgment. The Forest Service has carefully evaluated the proposed management direction and concluded that it does not constitute a significant amendment of the 1997 Revised Forest Plan.

1-7. ISSUES AND CONCERNS

To determine management concerns and develop alternatives, the Interdisciplinary Team sought public comment and reviewed the 1999 Appeal Decision and direction in the 1997 Revised Forest Plan. Public scoping efforts included an initial scoping letter, newsletters, and three open houses to inform and update the public on the Phase I Amendment process. A newsletter update provided an extended opportunity for public comment. The Forest met with interested individuals, groups and Tribal representatives during the Phase I Amendment process.

Appendix D contains a list of individuals, groups, organizations, and agencies notified of the proposed project and invited to comment. It also contains all public comments and an explanation of how this analysis addresses each comment. Copies of scoping letters and public responses are available in the Project File.

The 1999 Appeal Decision identified two concerns to be addressed in the short term until re-analysis is completed: 1) species viability and diversity, and 2) recreational mining references. Two key issues or concerns relevant to the proposed action were identified internally: 1) species viability and diversity, and 2) effects on forest outputs and services. Most of the scoping comments received pertained to these two issues, and an additional issue regarding social and economic effects was identified. These issues were refined and are summarized in the three significant issues listed below.

1-7.1. Significant Issues

1. **The Forest should maintain habitats to ensure that viability and diversity requirements will be met for native and desired non-native plant and animal species.**

   Discussion. The issue of species viability and diversity is the driving force behind this amendment. In response, the Forest conducted interviews of experts in biological science fields to review current management and proposed management changes, and to identify possible measures that would reduce risk to species viability and diversity over the next two to five years. As described in the next chapter, Alternatives 1 and 2 were evaluated using the results of these interviews and other scientific literature, and Alternative 3 was developed using this information.

2. **The Forest Service should manage the Black Hills National Forest under a multiple use philosophy. Management should consider species viability and diversity along with local concerns and possible effects on recreation, forest health, timber harvest, water quality and quantity, wilderness, heritage resources, grazing permits, and public access.**

Discussion. Some public responses expressed concern that the Phase I Amendment could result in management of the Forest for only a few uses. Chapter 2 of this document discusses the proposed changes in Forest management direction. Chapter 3 discloses the effects of these changes on various resources, including those of local concern.

3. **The Forest should consider the full economic and social effects of the amendment, including effects on economic stability.**

   Discussion. Some public responses expressed concern about this amendment's possible negative effects on economic and social resources. Chapter 3 of this document includes both social and economic analyses.

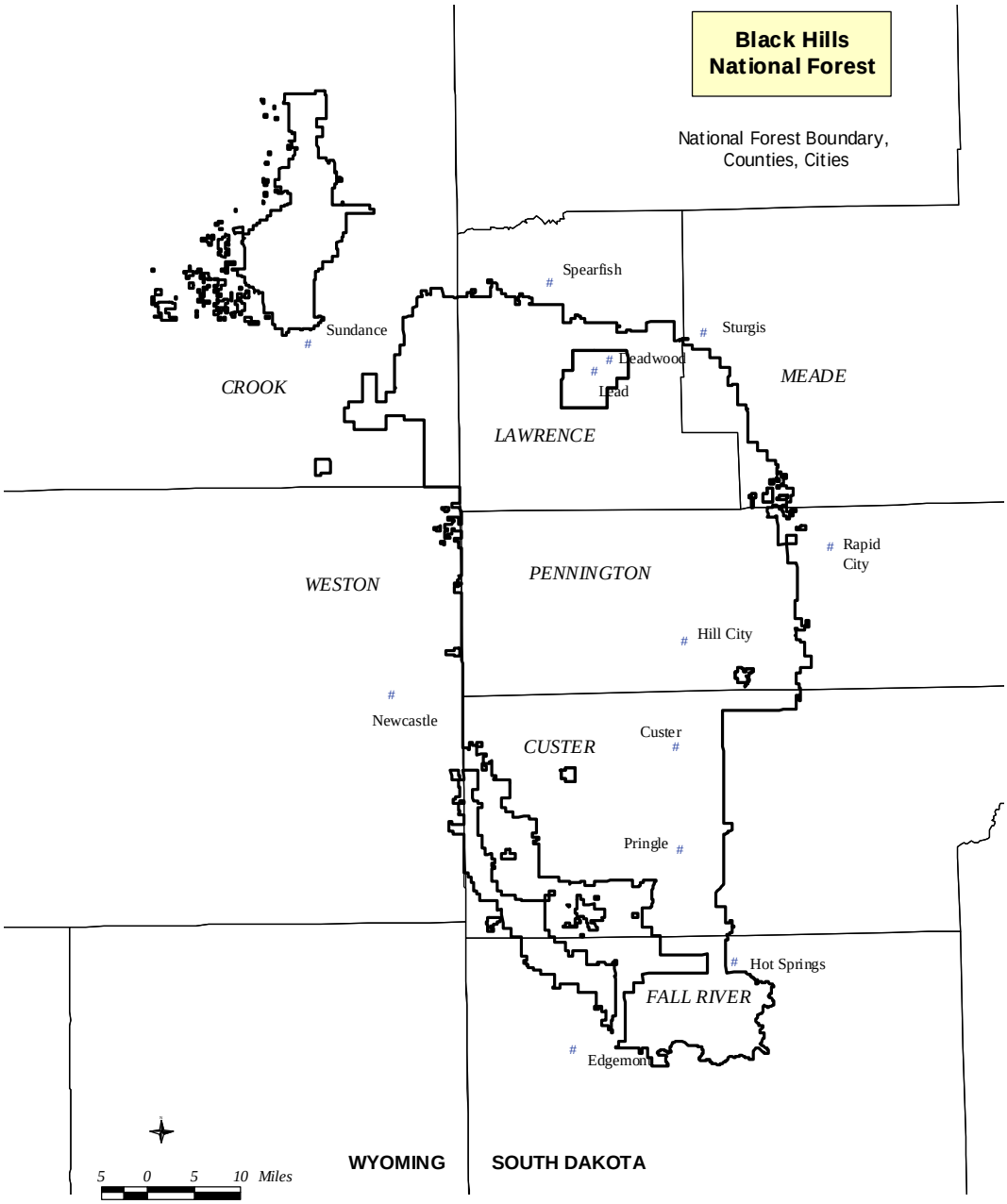
1-8. SUMMARY OF CHAPTER 1 AND PREVIEW OF REMAINING CHAPTERS

Chapter 1 presents the purpose and need for action.

Chapter 2 discusses the alternatives, including No Action (Alternative 1) and two options for action (Alternatives 2 and 3). The action alternatives meet the purpose and need for the proposed action as described in Chapter 1 to varying degrees. This chapter also briefly describes other alternatives considered but eliminated from detailed analysis, and includes a comparison of the alternatives.

Chapter 3 describes the affected environment and environmental consequences anticipated from implementation of each of the alternatives and provide the scientific and analytic bases for the comparison of alternatives.

Map 1-1


Black Hills National Forest
National Forest Boundary, Counties, Cities
Spearfish
Sundance
Sturgis
Deadwood
Lead
CROOK
MEADE
LAWRENCE
Rapid City
WESTON
PENNINGTON
Hill City
Newcastle
Custer
CUSTER
Pringle
Hot Springs
FALL RIVER
Edgemont
WYOMING
SOUTH DAKOTA
5 0 5 10 Miles

CHAPTER 2

ALTERNATIVES

This chapter describes in detail the three alternatives considered for interim management of the Black Hills National Forest, including a No Action Alternative.

This chapter is divided into the following sections:

2-1. Introduction
2-2. Alternatives Considered but Eliminated from Detailed Study
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2-4. Scientific Interviews, Alternative Development, and Alternative Evaluation
2-5. Features Common to All Alternatives
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2-1. CHAPTER 2 INTRODUCTION

The alternatives described in this chapter are based on the purpose and need for action and shaped by the issues discussed in Chapter 1. Interdisciplinary Team identified management actions and measures for resource protection to address issues and incorporated these into the alternatives. Several alternatives were considered and subsequently dismissed from further analysis. A description of these alternatives follows.

2-2. ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER DETAILED STUDY

2-2.1. Adopt the Settlement Negotiation Measures

This alternative would have incorporated the measures identified in the Settlement Agreement for Civil Action 99-N-2173 for all projects undertaken during the re-analysis period.

The Forest chose to use available scientific information and species specialist interviews. The Forest felt this was a stronger and scientifically more valid approach than proposing the Settlement negotiation measures. As the product of negotiation, those measures may not necessarily have been based on science applicable at a Forest scale.

2-2.2. Alternative with More Protective Measures for Wildlife and Plant Species

Several of those who commented during the public scoping period recommended that the Forest develop an alternatives for the Phase I Amendment that would provide more protective measures for wildlife and plant species than are included in Alternative 2 or 3. The result is this alternative, which incorporates a number of protective measures for all projects undertaken during the re-analysis period.

This alternative was not considered in detail because some of the measures are included wholly or in part in one or more of the alternatives considered in detail; others would be more appropriately addressed in the Phase II analysis or were not included in Alternative 2 or 3 for other reasons. The extent to which each measure is addressed by the alternatives considered in detail is stated in italics. The measures are listed by the resource area or species they were intended to address.

Northern Goshawk

1. Protect additional goshawk habitat outside the Jasper Fire area: Protect dense patches of mature and older forest habitat by establishing additional old growth landscape Management Areas, Research Natural Areas (RNAs), wildlife habitat areas, etc. *The Forest is in the process of completing an analysis of candidate areas for RNA designation as part of the Phase II analysis effort. The scientists interviewed recommended a landscape level approach for providing habitat for northern goshawks; this recommendation was included in Alternative 3. Establishing additional old growth/late succession landscape Management Areas is outside the scope of the Phase I Amendment.*
2. Protect the best available nesting habitat for goshawks in patches of 30 acres or more. *Alternatives 2 and 3 incorporate measures to ensure protection of habitat for species of concern. Protection measures were developed from the 1999 Appeal Decision and recommendations from the 2000 Expert Interviews. The measures may not be identical to those listed here, but the intent is the same.*
3. Require protection of 360 acres of the best available habitat in each goshawk nest area and post-fledging family area (PFA) for a combined 600 acres. Goshawk nest stands and PFAs should contain a high percentage and large patches of mature dense forest to help provide thermal protection for young birds. *See #2 above.*
4. Provide direction to ensure a good distribution of goshawk habitat (mature, dense forest stands) across the entire Forest. Require that at least 20 percent old growth and at least 20 percent other mature, dense stands be maintained and distributed in each watershed on the Forest for foraging and as replacement nest and PFA habitat. Where less than 20 percent mature, dense forest and old growth exist, require that the best available mature, moderately dense habitat be retained and left unmanaged to develop into these more dense stand structures. *See #2 above.*

American Marten

1. Prevent further decrease in patch size of late-succession forest within areas currently occupied by martens or with high potential for occupancy. *Protection measures were developed from the 1999 Appeal Decision and recommendations from the 2000 Expert Interviews. The measures may not be identical to those listed here, but the intent is the same.*
2. Prohibit building roads in potential marten habitat and in areas identified as important connectivity corridors for marten to maintain canopy closure and density. *Alternatives 2 and 3 include restrictions on building new roads in high-potential marten habitat. See also #1.*

Snags

1. Provide for recruitment of large snags by preserving large green trees. *Protection measures were developed from the 1999 Appeal Decision and recommendations from the 2000 Expert Interviews. The measures may not be identical to those listed here, but the intent is the same*
2. Establish direction to maintain snags in the Jasper Fire area rather than cutting them during salvage logging. *Site-specific analysis completed for the Jasper Fire area will include direction on snags. Phase I includes direction for providing snags at the watershed scale.*

Snails

1. Where colonies of snail species of concern exist, prohibit road building and other activities if they would cause springs or seeps to dry up or otherwise result in a hotter, drier microclimate. *Protection measures were developed from the 1999 Appeal Decision and recommendations from the 2000 Expert Interviews. The measures may not be identical to those listed here, but the intent is the same.*
2. Conduct thorough inventories for land snails in project areas before ground-disturbing activities area allowed. *Forest Service Manual 2670 provides direction on surveying sensitive species.*
3. Protect all known or suspected colonies of the seven species of land snails that are of special concern. Prohibit livestock grazing, logging, road construction, prescribed fire, use of chemicals (e.g., dust palliative, pesticides, insecticides), and other ground-disturbing activities within 100-200 meters of known or suspected colonies of snails of special concern on the Black Hills. Designate all of the snail species of special concern as MIS. *See #1.*

Aquatic Communities

1. Designate non-fish aquatic MIS, including aquatic macroinvertebrates, northern leopard frog, tiger salamander, beaver, American dipper, willow communities, and aquatic plants that may indicate other effects of management activities. *As part of the Phase II process, MIS/focal species will be reviewed, including species for which there may be a local concern.*
2. Designate the creek chub and finescale dace as Sensitive species. *Sensitive species are designated only by the Regional Forester.*
3. List an aquatic invertebrate as both MIS and Sensitive Species. *See #1 and 2 above.*

4. Provide direction to address stream fragmentation, over-utilization of water, restoration of willow and beaver communities, introduction of non-native species to aquatic systems, and to ensure viable, well-distributed populations of American dippers, beavers, and other species associated with aquatic systems. *Direction in the 1997 Revised Forest Plan providing protection of stream habitats and water quality would remain intact under all alternatives. Under Alternatives 2 and 3, existing Guidelines related to water quality would be treated as Standards.*
5. Provide direction to protect and improve the condition of streams and other aquatic habitats and conserve the populations of sensitive aquatic invertebrates. *Protection measures were developed from the 1999 Appeal Decision and recommendations from the 2000 Expert Interviews. The measures may not be identical to those listed here, but the intent is the same.*
6. Provide direction for maintaining the viability and improving the distribution of imperiled native fish on the Forest. This direction should include restrictions on land uses and water developments. *See #1.*

Botanical Communities

1. Provide buffers around rare plant areas to prohibit potentially harmful activities such as grazing and off-highway vehicle (OHV) use. *Protection measures were developed from the 1999 Appeal Decision and recommendations from the 2000 Expert Interviews. The measures may not be identical to those listed here, but the intent is the same.*
2. Protect montane grasslands to ensure they are not further degraded in the next two to five years. Designate the highest quality montane grasslands as Research Natural Areas and protect them with a ½mile buffer. *See #1.*

Species of Concern – General

1. Prohibit any degradation in habitat and any decrease in habitat capability for goshawk, marten, snail species of special concern, and snag-dependent species. *Protection measures were developed from the 1999 Appeal Decision and recommendations from the 2000 Expert Interviews. The measures may not be identical to those listed here, but the intent is the same.*
2. Prohibit proposed activities if it is determined the activities may impact even one individual from the population of any species of concern. *See #1.*
3. Protect all remaining habitat for the next two to five years. Management activities that would provide better habitat in the future should only be allowed if it is shown that they would not negatively affect the species of concern or otherwise degrade any of their habitats. *See #1.*
4. Change Guideline 3201 to a Standard and prohibit any decrease below 40 percent habitat capability. *Phase II will include review of analysis models.*
5. Provide direction to ensure well-distributed habitat across the Forest for species of concern. *See #1.*
6. Treat as Standards all the Guidelines that affect wildlife habitat to help avoid any further impacts to the species of concern on the Forest. *Alternatives 2 and 3 identify environmentally protective Guidelines that affect wildlife habitat, and would treat these as Standards for the interim period.*

7. Maintain more than the minimum amount of habitat believed to be necessary to sustain viable, well-distributed populations of the species of concern on the Forest. *See #1*.
8. Designate the black bear, mountain lion, and other snail species of concern as Sensitive Species. *Sensitive species are designated only by the Regional Forester.* Provide direction to restore the black bear to the Forest. *Restoring the black bear to the Forest is outside the scope of the Phase I Amendment as identified by the purpose and need for action.*

Other Protective Measures

1. Prohibit further road building during Phase I. *Alternative 3 includes a restriction regarding roads and reptile habitat.*
2. Prohibit even-aged silvicultural prescriptions during Phase I. *This measure is not included in any of the alternatives considered in detail. It would inhibit regeneration and restoration of hardwood communities.*
3. Prohibit logging of old growth or dense, mature forest during Phase I. *Protection measures were developed from the 1999 Appeal Decision and recommendations from the 2000 Expert Interviews. The measures may not be identical to those listed here, but the intent is the same.*
4. Prohibit logging of any live, damaged, or dead trees larger than 18 inches in diameter. *See #3.*
5. Reduce the Allowable Sale Quantity on the Forest to fully account for the reduction in timber volume caused by the Jasper Fire. *The Phase II analysis will review Forest allocations and how they contribute to ecological sustainability.*
6. Prohibit logging in all remaining patches not logged in the past 50 years that are at least 1,000 hectares in size. If less than 10 such patches remain, prohibit logging in all remaining patches not logged in the past 50 years that are at least 500 hectares in size. *See #3.*
7. Allow large scale, stand-replacing fires and beetle infestations to occur in the Black Hills. *Regulations require the Forest Service to minimize serious or long-lasting hazards from flood, wind, wildlife, erosion, or natural physical forces (36 CFR 219.27(a)(2)) and prevent or reduce serious, long-lasting hazards from pest organisms (36 CFR 219.27(a)(3)). Allowing uncontrolled, large-scale, stand-replacing fires and beetle infestations would not meet the intent of these regulations.*

2-2.3. Alternative to Achieve the 1997 Revised Forest Plan Outputs for Timber, Livestock, and Motorized Recreational Access

This alternative would provide additional documentation to the Forest Service Washington Office regarding the sufficiency of the 1997 Revised Forest Plan in providing for species viability and diversity, possibly contributing to a change in the 1999 Appeal Decision. It would consider social and economic sustainability in equal measure with species viability and diversity. It would take only the minimum steps necessary to provide species viability

and diversity until completion of the Phase II amendment, and would contain no direction more restrictive than that in the 1999 Appeal Decision. It would maintain current levels of access and outputs other than timber.

This alternative was not considered in detail because providing additional documentation to the Washington Office on the sufficiency of the 1997 Revised Forest Plan in providing for species viability and diversity would not address the purpose and need of ensuring maintenance of species viability and diversity during the interim period. Specific Interim Direction measures from the 1999 Appeal Decision are incorporated into Alternative 2. Additional measures identified as reducing species viability risk in the interim period are incorporated into Alternative 3. Access throughout the Forest will remain near current levels under any of the alternatives, and the 1997 Revised Forest Plan currently allows obliteration of unneeded roads.

2-2.4. Complete Just One Amendment to the Forest Plan

One option is to complete just one amendment to the Forest Plan to address wildlife management for the next 10 to 15 years. This alternative would define and implement specific wildlife habitat plans on a landscape level.

This alternative would defer vegetation management actions that could impact wildlife habitat until the re-analysis and associated Environmental Impact Statement were completed.

This alternative was eliminated from detailed consideration because 1) it did not respond to the purpose and need for action, 2) in some cases, projects that would be deferred would improve existing wildlife habitat conditions (e.g. road closures, hardwood restoration, fuel treatments), and 3) delaying all forest management during preparation of the amendment would have tremendous social and economic effects that could be avoided by preparing the Phase I Amendment while still maintaining options for species management in the long term.

2-3. ALTERNATIVES CONSIDERED AND ANALYZED IN DETAIL

2-3.1. Introduction

This section of Chapter 2 describes the specific features of the three alternatives, including the No Action Alternative. Following the alternative description section is a description of the role of scientific interviews in alternative development and evaluation, a discussion of features common to all alternatives, and a comparison of the alternatives considered in detail.

2-3.2. Alternative 1

This is the No Action Alternative required by NEPA and NFMA. The 1997 Revised Forest Plan Goals, Objectives, Standards, Guidelines, MIS list, and monitoring of sensitive species would remain as they are. The Settlement Agreement terms would be adhered to for the affected projects.

Under this alternative, project analyses would continue to tier to the 1997 Revised Forest Plan with site-specific Biological Assessment/Biological Evaluation analyses. Under this alternative the Forest may not meet the regulatory requirements related to species viability and diversity identified in NFMA, as noted in the 1999 Appeal Decision.

Though this alternative does not address the purpose and need for action, the Forest Service Handbook requires the Forest Service to study the No Action Alternative in detail and to use it as a baseline for comparing the effect of alternatives (FSH 1909.15 section 14.1).

2-3.3. Alternative 2

Alternative 2 is based on the Interim Direction issued as part of the 1999 Appeal Decision. It focuses on increased protection for the northern goshawk, American marten, land snails, and snag dependent species. In addition, errors previously identified in the 1997 Revised Forest Plan would be corrected. A full listing of the Guidelines to be treated as Standards under Alternative 2, revisions to Standards and Guidelines, and new measures may be found in Appendix E.

Alternative 2 includes:

- Certain Guidelines would be treated as Standards. See Appendix E for a complete listing and new measures by alternative.

- Interim Direction from the 1999 Appeal Decision (See Appendix C). This direction includes the following measures:

    - Revise Standard 3109 to include 180 acres of the best available nesting habitat for northern goshawk to be located within a half-mile of existing nests.
    - Revise Guideline 3114 to provide a balance of forest structural stages within ponderosa pine forested areas in 420-acre PFAs. **Table 2-1** on the following page displays the desired balance of structural stages.

Table 2-1. Preferred Balance of Tree Size Classes in Ponderosa Pine in Goshawk Post-Fledging Family Areas

Tree size class	Diameter range (inches)	Minimum canopy closure %	Percent of total (range)
1 - grass/forb/shrub	0-1	None	10 (7-13)
2 - seedling/sapling	1-5	None	10 (7-13)
3 - young forest	5-9	None	20 (15-25)
4 - mid-aged forest	9-14	50	13 (8-18)
4 - mid-aged forest	9-14	60	7 (2-12)
5 - mature forest	14-20	50	20 (15-25)
6 - old forest	>= 20	50	20 (15-25)

- Revise Guideline 3111 to identify a quarter-mile "no new disturbance" zone around active goshawk nests.
- Add new Standard 3215 for American marten habitat. To prohibit decreasing patch size of late succession habitats currently occupied or with high potential for marten occupancy. **Table 2-2**, below, defines high potential marten habitat.

Table 2-2. Habitat with High Potential For Marten Occupancy

Cover type	Structural stage	Additional stand characteristics
White spruce	3B, 3C, 4B, 4C, 5	
Ponderosa pine		Adjacent to white spruce stands listed above >=30% basal area of white spruce >=40% total canopy cover percent

- Revise Standard 2308 to provide adequate down woody material in high potential marten habitat. **Table 2-3** displays the requirements for down logs per acre for marten habitat.

Table 2-3. Down Woody Debris Requirements for Marten Habitat

Logs per acre	Minimum length	Minimum diameter
8	10 feet	10 inch DBH
2	10 feet	20 inch DBH

- Revise Standards 2301 and 2302 and revise Guidelines 2303, 2304, and 2306. These measures relate to snag habitat requirements. They would be revised to provide two to four snags per acre, based on aspect, averaged across the watershed for ponderosa pine types. Twenty-five percent of the snags must be at least 20 inches in diameter or largest diameter available. In forest types other than ponderosa pine, six snags per acre at least 10 inches in diameter or the largest diameter available would be required.
- Revise Standard 3103 to clarify snail species habitat protection.
- Add new Standard 3.1-2503 to provide additional protection of sensitive plant populations in Botanical Areas.

A refinement to Alternative 2 was made after the interviews with the scientists and scoping. The refinement pertains to the following interim direction measure:

> *"Conduct surveys for sensitive species under the following conditions, unless such species are known not to be present: 1) the project area is within the known or suspected range of the species and suitable habitat exists within the proposed project area, and, 2) the type of activity being proposed is known or suspected to be potentially detrimental to the species. Surveys should address spatial and temporal scale considerations. Existing habitat and population data may be used. This information should be used in project planning and analysis. In situations where adequate population data do not exist, and where such data would be difficult to obtain, the project analysis may be based on the assumption that the species is present, and the project designed accordingly to provide sufficient protection such that there is a low likelihood of adverse effects to the species or its habitat within the project area." (1999 Appeal Decision)*

The assumption of presence of sensitive species, where suitable habitat exists and population information is lacking, will be made during project level analyses and may involve maintaining or managing to improve suitable habitat for sensitive species. This is now forest policy, through a Black Hills National Forest Supplement to the Forest Service Manual (see Appendix H). This approach would allow the Forest to continue to provide suitable habitat for sensitive species. In particular, for northern goshawk an approach for managing for "presumed" post-fledging family areas was developed in response to concerns related to providing goshawk nesting habitat, which was identified as the limiting factor, across the Forest (2000 Expert Interview Summary). "Presumed post-fledging family areas" is explained as follows: During project level analyses known goshawk territories would be reviewed. In areas that would support a goshawk territory, and where adequate survey information is lacking, presumed post-fledging family areas would be identified and managed to provide nesting habitat and to move toward a balance of structural stages (Guideline 3114). This approach is designed to account for undiscovered nests or territories by providing for nesting habitat across the Forest.

2-3.4. Alternative 3

Alternative 3 is based on Alternative 2. Alternative 3 includes increased protection for the northern goshawk, American marten, land snails, and snag dependent species. These additional measures are based on the best available science pertinent to the Black Hills and were developed from interviews with experts in biological science fields and review of scientific literature. In addition, errors previously identified in the 1997 Revised Forest Plan would be corrected. A full listing of the Guidelines to be treated as Standards under Alternative 3, revisions to Standards and Guidelines and new measures may be found in Appendix E.

Alternative 3 includes the measures proposed under Alternative 2 and the following:

- Revise Guideline 3114 to provide a balance of structural stages within northern goshawk PFAs and across the ponderosa pine forested portions of the landscape.

Table 2-1 (page 17) displays the desired balance of structural stages for PFAs. **Table 2-4** displays the desired balance of structural stages across the landscape.

Table 2-4. Preferred Balance of Tree Size Classes in Ponderosa Pine Across the Landscape

Tree size class	Diameter range (inches)	Minimum canopy closure %	Percent of total (range)
1 - grass/forb/shrub	0-1	None	10 (7-13)
2 - seedling/sapling	1-5	None	10 (7-13)
3 - young forest	5-9	None	20 (15-25)
4 - mid-aged forest	9-14	40	20 (15-25)
5 - mature forest	14-20	40	20 (15-25)
6 - old forest	>= 20	40	20 (15-25)

- Revise Guidelines 1401, 3207, and 3208 to increase protection for bats.
- Revise Standard 3103 to clarify snail species habitat protection.
- Revise Standard 3109 to include 180 acres of the best available nesting habitat for northern goshawk to be located within a half-mile of existing nests, or within the northern goshawk territory.
- Add new Standard 3116 for red-bellied snake protection.
- Add new Standard 3117 to provide for woody material piles for marten prey species habitat.
- Add new Standard 3118 to maintain existing black-tailed prairie dog populations.
- Add new Standard 8.2-9106 to provide additional protection of sensitive plants in the Cascade Creek/Cascade Spring area.

2-4. SCIENTIFIC INTERVIEWS AND ALTERNATIVE DEVELOPMENT

During 2000, the Forest interviewed a number of experts on various wildlife and plant species and population ecology. The purpose of the interviews was to gather information on the effects of current and proposed management activities on viability of the Forest's Region 2 Sensitive Species. The interviews were conducted in accordance with the Phase I Expert Interview Process, which was developed by the Forest and individuals with expertise in the fields of species viability and forest planning.

The experts also reviewed management activities as outlined by the 1997 Revised Forest Plan and under Interim Direction to determine where risks to viability of any species might be excessive. These recommendations were used to develop Alternative 3.

At the conclusion of the interviews, the Forest developed a summary of the information obtained (referred to hereafter as the 2000 Expert Interview Summary). This summary includes natural history information, current condition of populations and habitats, probable effects of proposed activities, overall effect on the ecosystem's capability to support the species, interview team conclusions, recommendations, and suggested survey and monitoring methods for many Region

2 Sensitive Species. The information in the summary is a compilation of individual knowledge from experts interviewed.

For many of the species, experts indicated that either Alternative 1 or 2 would be effective in maintaining management options over the next two to five years (Alternative 3 did not yet exist at the time of the interviews and is based on the interview results). Some differences of opinion did, however, exist with regard to protection of some Region 2 Sensitive Species and associated habitats. Most notable were those related to the northern goshawk. Scientists interviewed on the northern goshawk suggested additional protective measures beyond those outlines in the 1999 Appeal Decision.

Experts on the northern goshawk noted that applying special management only to the 420-acre post-fledging family areas around known historic and active nest stands, as proposed under Interim Direction, caused the experts concern. Those interviewed stated that more of a landscape approach to management should be undertaken to account for unknown goshawks that may be nesting on the Black Hills National Forest. It was noted that nesting habitat is the most important component of goshawk management. The experts stated that a landscape approach should include management to provide habitats reflecting conditions historically found on the Forest. These conditions should be determined from historical records and extrapolated through scientific research. The experts suggested that the Forest follow a process much like the one used in the development of the *Management Recommendations for the Northern Goshawk in the Southwestern United States* (Reynolds et al. 1992, hereafter referred to as the Southwest Guidelines). Until that process can be completed, the experts suggested the Forest incorporate the "balance of structural stages" concepts found in the Southwest Guidelines to account for unknown goshawks that may be nesting on the Black Hills National Forest. Those interviewed acknowledged that there are differences between the Black Hills ecosystem and those of the southwestern United States, but agreed that the Southwest Guidelines were based upon a ponderosa pine ecosystem similar to that found in the Black Hills.

The "balance of structural stages" concept, as described by those interviewed, should not be viewed as an attempt to obtain an equal amount of each habitat structure across the landscape. This concept is better described as a means of providing habitat structure (size and age class distribution) that better reflects historical distribution. The goal of managing for this balance is to provide habitats associated with goshawk nesting, fledging, and foraging, and to provide habitats needed by many other forest species as well, including goshawk prey species. "Achieving the desired forest conditions will benefit other aspects of forest health, forest productivity, forest protection, and the habitat of many native plants and animals" (Reynolds et al. 1992). This same concept is stated in the 1997 Revised Forest Plan in Goal 2, "Provide for a variety of life through management of biologically diverse ecosystems."

The balance of structural stages for post-fledging family areas is defined in proposed Guideline 3114 under Alternative 2 (see Table 2-1) and is based on the work completed for the Southwest Guidelines. The Black Hills National Forest Supplement to the Forest Service Manual, April 2001 (see Appendix H) provides an approach to address the direction in the 1999 Appeal Decision to assume presence for Sensitive species unless the species is known not to be present. For goshawks, the supplement requires identification of presumed nest stands and management

of a 420 acre post-fledging family area in areas that could support a goshawk territory, in which no nests have been located. This addresses the need to provide goshawk nesting habitat across the landscape. This provides a different type of landscape approach than the balance of structural stages that was suggested in the expert interviews (2000 Expert Interview Summary).

The concept of providing a balance of structural stages across the landscape was incorporated into the development of Alternative 3. The balance of structural stages is defined in proposed Guidelines 3114a and 3114b under Alternative 3 for post-fledging family areas and the forest wide application (see Tables 2-1 and 2-4) and is based on the work completed for the Southwest Guidelines. By providing a balance of structural stages across the landscape, nesting habitat would be provided in addition to the known nest areas.

The 2000 Expert Interview Summary provided several recommendations to increase the level of protection for Sensitive plant species and their habitats. The overall effects of management activities on the Sensitive plants found in the Black Hills are not well understood and need to be examined, but the experts agreed that ground-disturbing activities should be considered harmful to Sensitive plants and their habitats. During the interim period, the experts recommended that ground-disturbing activities should be excluded from hardwood stands, riparian areas, spruce stands, and montane grasslands until surveys have been conducted. Activities that would be excluded include increasing the number of livestock permitted to graze in these areas. Monitoring of recreational activities and Sensitive plant populations at Cascade Springs, a warm spring area in the southern Hills, was also suggested. Because of the current lack of information on the distribution and specific habitat requirements for Sensitive plant species, the experts strongly recommended habitat or community-level monitoring and conservation as opposed to species-level management.

The experts did not identify timber harvest as a direct threat to potential habitat for obligates of birch communities, but ground-disturbing activities associated with logging should be considered an impact. From what is known about *Equisetum scirpoides*, *Corallorhiza odontorhiza*, and *Botrychium campestre*, it seems likely that ground-disturbing activities could have a negative effect on habitat for these plants; however, effects on these species have not been examined, and the distributions of *C. odontorhiza* and *B. campestre* on the Forest are not currently known. Livestock grazing and trailing in riparian areas and birch bottoms were identified as concerns for seven of the thirteen Sensitive plant species addressed. The experts considered noxious weed invasions a serious threat to most of the Sensitive plant species addressed, particularly for those found in riparian and wetland areas.

Alternative 3 would modify several Standards and Guidelines pertaining to Sensitive plant species in riparian areas, wetlands and drainage bottoms (revised Standard 1304 and revised Guidelines 2207, 3104, and 3107(a)); provide protection for botanical resources in Cascade Springs (new Standard 8.2-9106); and clarify protective measures for botanical areas (new Standard 3.1-2503). See Appendix E for a complete list of Standards and Guidelines. However, the effects of protective measures for other Threatened, Endangered, and Sensitive species (e.g. American marten, northern goshawk) on Sensitive plant habitats have not been evaluated, and protection of marten habitat is not expected to directly benefit any of the sensitive plant species. For this reason, it was recommended that spruce expansion for marten habitat management be

evaluated for its effects on *Platanthera orbiculata* habitat, which could be limited or impaired due to reductions in hardwood expansion management activities.

2-5. FEATURES COMMON TO ALL ALTERNATIVES

Following are the key components of the alternatives to be considered.

2-5.1. Level of Standards and Guidelines

The 1997 Revised Forest Plan includes Standards and Guidelines for management of timber, grazing, recreation, roads, minerals, fire and fuels, and general riparian areas; restoration of watershed, fisheries, and wildlife habitat; and land uses such as those governed by leases, permits, rights-of-way, and easements. The bulk of this direction remains the same among all alternatives.

Proposed additional Standards and Guidelines have been developed to provide more protection for plant and wildlife species. Alternatives 2 and 3 both propose revision and addition of Standards and Guidelines, but they differ in how much the risk to viability and diversity would be reduced. Conclusions about the alternatives should not be drawn without reviewing the details of the Standards and Guidelines (see Appendix E).

The 1999 Appeal Decision identified a need to clarify direction in Standard 1511 regarding recreational mining. A reference to the implementing regulations at 36 CFR 218, Subpart A, needs to be added. This clarification would apply to both action alternatives.

Errors in the Habitat Effectiveness values related to deer and elk were discovered after the 1997 Revised Forest Plan was adopted. Both action alternatives would correct these errors.

In addition to the standards and guidelines, direction found in the Forest Service Manuals (FSM) will continue to be followed, including direction for Region 2 Sensitive species located at FSM 2670 and Management Indicator Species direction for designating an aquatic species located at FSM 2621. With this analysis, five aquatic species are identified for Management Indicator Species designation (see Table 3-18).

2-5.2. Geographic Area

All alternatives address the National Forest System lands located within the Black Hills National Forest. The total acreage of National Forest System lands within the assessment area is approximately 1.2 million acres.

2-6. COMPARISON OF ALTERNATIVES

This section compares the features and effects of the alternatives. The Environmental Effects section in Chapter 3 contains in-depth discussions by resource area. Both the scientific and analytical bases for comparing and evaluating the alternatives are provided.

The Interdisciplinary Team conducted two levels of analysis to determine relative changes and effects anticipated to result from the Phase I Amendment. **The first level** was a quantitative analysis performed on a set of timber sales referred to as the Project Sample Group, or PSG. The Project Sample Group was composed of the Bullock, Cub, Hanna, and Nest timber sales, all planned under the 1997 Revised Forest Plan. The selected timber sales have characteristics that are relevant to the Phase I direction (e.g. goshawk nests, spruce stands). The team analyzed the Project Sample Group in detail to determine how the Phase I alternatives would affect management activities. Based on this analysis, the team extrapolated a qualitative projection of *relative changes* in effects. **This analysis shows, by alternative, relative departure from the effects disclosed in the 1996 FEIS for the 1997 Revised Forest Plan. Alternative 1 represents the 1997 Revised Forest Plan and is used as a baseline for comparison.** Results from the Project Sample Group are displayed in **Table 2-5.** This information does not reflect an annual program of work, but the effects specific to and predicted for the Project Sample Group timber sales.

Under Alternative 2 there would be no change to domestic livestock grazing animal unit months (AUMs); however, increased site-specific protection measures (rerouting, fencing) would be put in place to meet the revised and new Standards and Guidelines related to sensitive species. The results of the Project Sample Group analysis displayed show a reduction in acres treated for timber harvest and volume produced, and a reduction in the impacts associated with ground disturbance to other resources (e.g. soils, heritage resources). Beneficial effects are anticipated for wildlife and plant species. The incremental economic analysis conducted for the Project Sample Group shows a variety of effects for the four projects. Three of the projects show a decrease in the present net value, and three of the projects show a decrease in the benefit cost ratio. This indicates the costs for the projects increase in relation to the benefits.

Treatments for Alternative 3 were developed to move most aggressively towards the balance of structural stages in ponderosa pine across the landscape. Under Alternative 3 there would be no change to domestic livestock grazing AUMs; however, increased site-specific protection measures (rerouting, fencing) would be put in place to meet the revised and new Standards and Guidelines related to sensitive species. The results of the Project Sample Group analysis displayed show an increase in acres treated for timber harvest while about the same total volume is produced, and an increase in the impacts associated with ground disturbance to other resources (e.g. soils, heritage resources). Beneficial effects are anticipated for wildlife and plant species. The incremental economic analysis conducted for the Project Sample Group shows a variety of effects for the four projects. Three of the projects show an increase in the present net value, and two of the projects show a decrease in the benefit cost ratio. This indicates the costs for two of the projects increase and two projects decrease in relation to the benefits. These results represent the Project Sample Group sales and cannot be extrapolated to the Forest as a whole.

Table 2-5. Project Sample Group Comparison
Note: "+" indicates an increase relative to the No Action Alternative -" indicates a relative decrease

Item	Alternative 1	Alternative 2	Alternative 3
Soils	No change	- Acres potential impact	+ Acres potential impact
Groundwater Recharge, Water Yield, and	No change	- Water volume	- Water volume
Streamflow Regimes	No change	No change	No change
Flooding and Floodplains	No change	+ Potential road impact	- Potential road impact
Water Quality			
Heritage Resources; Paleontology	No change	- Potential impact	+ Potential impact
Biological Elements of the Environment:			
Biological Diversity	No change	+ Structural diversity	+ Structural diversity
Vegetative composition and structure:			
Forested Ecosystems	No change	+ Large diameter trees	+ Large diameter trees
Rangeland	No change	Slight forage increase	Slight forage increase
Noxious Weeds	No change	- Potential spread	- Potential spread
Natural Disturbance Processes:			
Fire	No change	+ "High hazard" acres	- "High hazard" acres
Insects and Diseases	No change	+ "High potential" risk	- "High potential" risk
Special Ecosystem Components:			
Snags and Down Woody Material	No change	+ Available	+ Available
Riparian Areas and Wetlands	No change	- Acres impacted	- Acres impacted
Botanical Areas	No change	+ Protection	+ Protection
Fauna:			
Fisheries	No change	+ Benefit	+ Benefit
Threatened, Endangered and Sensitive Species:			
Threatened & Endangered	No change	No change	No change
Sensitive Species	No change	+ Protection	+ Protection
Specific Species/Groups			
Plants	No change	+ Protection	+ Protection
Bats	No change	+ Protection	++ Protection
Northern goshawk	No change	+ Protection	++ Protection
American marten	No change	+ Protection	+ Protection
Snails	No change	+ Protection	+ Protection
Timber Production – *Treatments*			
Commercial Thin/Products Other than Logs (POL)[1]	2080 acres	- Acres	- Acres
Precommercial Thin	313 acres	++ Acres	++ Acres
Overstory Removal	919 acres	- Acres	-- Acres
Shelterwood Seed Cut	611 acres	- Acres	-- Acres
Seed Tree Cut	521 acres	- Acres	-- Acres
Individual Tree Selection [2]	553 acres	-- Acres	-- Acres
Regeneration Openings (e.g. patch cut, group selection, irregular group shelterwood, irregular shelterwood)	1412 acres	+ Acres	++ Acres
Total Treatment Acres (estimate)	6409 acres	- Acres	+ Acres
Timber Production Volume (project totals)[3]	21 Million Board Feet (MMBF)	17 MMBF	22 MMBF
Livestock Grazing	No change to Animal Unit Months (AUMs)	No change to AUMs	No change to AUMs

(continued)

Table 2-5. Project Sample Group Comparison *(continued)*

Item	Alternative 1	Alternative 2	Alternative 3
Economic			
Benefit/Cost ratios			
Bullock	2.56	0.63	1.34
Cub	1.80	1.83	2.25
Hanna	2.45	2.18	2.41
Nest	1.25	1.15	1.46
Present Net Value ($)			
Bullock	883,439	-149,068	224,255
Cub	566,658	595,700	747,731
Hanna	508,186	458,732	556,031
Nest	262,937	134,049	460,570
Road work			
New construction	6.6 miles	6.6 miles	8.2 miles
Reconstruction	66.3 miles	65 miles	79.9 miles
Maintenance	48.1 miles	47.1 miles	56.8 miles
Travel Management			
Open	106 miles	106 miles	105.5 miles
Seasonal restriction	33.8 miles	11.1 miles	24.8 miles
Restricted	103.6 miles	126.3 miles	112.9 miles

[1] May also include precommercial thinning.
[2] Acreage supplemented with Canyon/Nest Environmental Assessment information.
[3] See Timber Production section in Chapter 3 for more information.

The second level of analysis was a quantitative analysis conducted at a landscape level. The landscape-level analysis included watersheds that contain timber sales planned to take place during the next five years. Use of these timber sales is not meant to imply that the Phase I Amendment would apply only to certain parts of the Forest; rather, they were used to estimate the level of activity that could be anticipated to occur during the next two to five years. Based on this analysis, the team extrapolated a qualitative projection of changes relative to the effects disclosed by the FEIS for the 1997 Revised Forest Plan. **This analysis shows, by alternative, relative departure from the effects disclosed in the 1996 FEIS for the 1997 Revised Forest Plan. Alternative 1 represents the 1997 Revised Forest Plan and is used as a baseline for comparison.**

Table 2-6 displays anticipated effects of the Phase I Amendment by alternative as compared to the effects disclosed in the FEIS for the 1997 Revised Forest. Timber production and volume estimates for Alternatives 1 and 2 were derived from the analysis models used for timber outputs in the 1997 Forest Plan FEIS. Timber production and volume estimates for Alternative 3 were developed based on the Southwest Guidelines, adjusted for conditions present in the Black Hills.

Table 2-6. Landscape Level Comparison for Phase I Amendment
Note: "+" indicates an increase relative to the No Action Alternative -" indicates a relative decrease

Item	Alternative 1	Alternative 2	Alternative 3
Soils	No change	- Acres potential impact	+ Acres potential impact
Groundwater Recharge, Water Yield, and Streamflow Regimes	No change	No overall change	No overall change
Flooding and Floodplains	No change	No change	No change
Water Quality	No change	- Acres impact	+ Acres impact
Heritage Resources; Paleontology	No change	- potential impact	+ potential impact
Biological Elements of the Environment:			
Biological Diversity	No change	+ Structural diversity	+ Structural diversity
Vegetative composition and structure:			
Forested Ecosystems	No change	+ Large diameter trees	+ Large diameter trees
Rangeland	No change	Slight forage increase	Slight forage increase
Noxious Weeds	No change	- Potential spread	- Potential spread
Natural Disturbance Processes:			
Fire	No change	+ High hazard acres	- High hazard acres
Insects and Diseases	No change	+ Potential risk	-/+ Potential risk [1]
Special Ecosystem Components:			
Snags and Down Woody Material	No change	+ Available	+ Available
Riparian Areas and Wetlands	No change	- Acres impact	- Acres impact
Botanical Areas	No change	+ Protection	+ Protection
Fauna:			
Fisheries	No change	+ Benefit	+ Benefit
Threatened, Endangered and Sensitive Species:			
Threatened & Endangered	No change	No change	No change
Sensitive Species	No change	+ Protection	+ protection
Specific Species/Groups			
Plants	No change	+ Protection	+ Protection
Bats	No change	+ Protection	++ Protection
Northern goshawk	No change	+ Protection	++ Protection
American marten	No change	+ Protection	+ Protection
Snails	No change	+ Protection	+ Protection
Occupation and use of the Forest			
Recreation	No change	Site specific limitations for new uses	Site specific limitations for new uses
Travel Opportunities	No change; potential for road restrictions based on site specific analyses	Slight potential for increased site specific road restrictions	Slight potential for increased site specific road restrictions
Scenic Resources	No change	No overall change	No overall change

(continued)

Table 2-6. Landscape Level Comparison for Phase I Amendment *(continued)*

Production of Natural Resources Locatable & Leasable Minerals	No change	No change	No change
Timber Production - *TREATMENTS* Commercial Thin Products Other than Logs (POL) Precommercial Thin Overstory Removal Shelterwood Seed Cut Seed Tree Cut Regeneration Openings (e.g. patch cut, group selection, irregular group shelterwood, irregular shelterwood, etc.) Total Treatment Acre Estimate	 No change No change No change No change No change No change No change No change	 + Acres + Acres + Acres - Acres - Acres - Acres + Acres - Acres	 ++ Acres ++ Acres ++ Acres -- Acres -- Acres -- Acres ++ Acres + Acres
Timber Production *Volume (5 year total)*[2]	~412 MMBF	~360 MMBF	~301-421 MMBF[3]
Livestock Grazing	No change	No change to AUMs	No change to AUMs
Social and Economic Consequences Employment and Income Payments to Counties [4] Social Environment American Indian Social and Economic Conditions	 No change No change No change No change	 +Potential job losses Reduced payments No overall change No overall change	 +Potential job losses Reduced payments No overall change No overall change
Roads	No change	Slight decrease in roadwork	Slight increase in roadwork

[1] Depends on the range of harvest and treatment types realized.
[2] Total potential from watersheds that cover the timber 5-year program plan. Analysis results determine relative change between alternatives as compared to the FEIS for the 1997 Forest Plan. Actual volumes and acres harvested will depend on site-specific conditions at the project level. See Timber Production section in Chapter 3 for more information.
[3] Over the life of the 1997 Revised Forest Plan the Forest would not exceed the Allowable Sale Quantity.
[4] Payments to Counties would likely reduce under all alternatives if Counties elect not to opt for stable payments. If Counties elect to opt for stable payments the payments would be based on the average of the highest three years payments between 1983 and 2000. See Social and Economics discussion in Chapter 3 for more information.

Comparison of Project Sample Group and Landscape Analysis. Both levels of analysis incorporate Guidelines that are to be treated as Standards. Many resource effects were found to have similar relationships when compared between the two levels of analysis.

2-7. MONITORING

Monitoring items in addition to those already included in the Monitoring Implementation Guide were identified for the interim period and are discussed below. These items will be incorporated into the Monitoring Implementation Guide. See Appendix F for updated Monitoring Implementation Guidelines.

2-7.1. Management Indicator Species and Sensitive Species Monitoring

There are several primary objectives in monitoring the Forest's Management Indicator and Sensitive Species. The primary objective is to obtain population trend information. This trend information will be used as one tool to assess the effects of management activities. Other objectives of proposed monitoring include: 1) obtaining species distribution information, 2) obtaining species habitat association information, and 3) identification of further survey and research needs.

Regulations at 36 CFR 219.19(a)(6) state: "Population trends of the Management Indicator Species 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."

The 1999 Appeal Decision directed the Forest to "determine whether a need exists to monitor habitat and/or populations of sensitive species within the affected area of proposed projects, and display the rationale for this determination." In response to this direction, the Forest has undertaken tasks to assure that Sensitive species would be adequately protected and addressed in forest planning and project-level analysis.

The Forest contacted and interviewed scientists and other individuals who have extensive experience with or knowledge of Region 2 Sensitive species found on the Black Hills National Forest. Realizing that any proposed monitoring and subsequent monitoring data would not result in useful information for several years, the Forest was interested in assessing the risks involved with proposed management and practices that would reduce those risks until further information and monitoring data could be obtained. Information from these interviews was used to develop monitoring approaches for some species.

Several written assessments for the Forest's Region 2 Sensitive species, Management Indicator Species, and other key species are currently being prepared. These written assessments will include information on the current management situation, a review of technical knowledge, and a review of conservation practices including a detailed discussion of accepted monitoring practices. These written assessments will provide a basis for establishing quantitative monitoring protocols for the Region 2 Sensitive species, MIS, and other species of concern.

The Forest is in the process of establishing quantifiable monitoring procedures for many of the Region 2 Sensitive species and Forest MIS. Baseline data is currently being collected and will continue to be collected in 2001. Because written species assessments are currently underway and new information may become available, monitoring strategies for Region 2 Sensitive species and MIS may be changed or adjusted to incorporate new information. See Appendix F for details of Monitoring Implementation Guide updates.

2-7.2. Sensitive Plant Monitoring

The 1999 Appeal Decision directed the Forest to identify Region 2 Sensitive plant species that need to be monitored and to shift from qualitative to quantitative monitoring methods. A Sensitive Plant Monitoring Task Team was formed and began the process in December 1999. A Rocky Mountain Research Station (RMRS) biometrician was consulted in the design of quantitative monitoring protocols for eight of the species. The task team decided to monitor eight sensitive plant locations during the 2000 field season to gather additional baseline data. This data is a prerequisite to development of protocols for quantitative monitoring. Data was collected during the summer of 2000; gathering of bloodroot data will be completed in the spring of 2001. Additional baseline data on foxtail sedge will be gathered at the two currently known sites in 2001 after consultation with the RMRS biometrician on quantitative monitoring protocol design.

Recommendations from the 2000 Expert Interviews included notation that the ecology of each species must be known before an adequate monitoring program can be designed. This is necessary to ensure that populations are being monitored rather than subpopulations or patches. Systematic resurvey (including site layouts, qualitative characteristics, plant distribution and plant health) was recommended as a monitoring tool until better information is obtained. During the 2001 season, field crews will use some of the monitoring/resurvey methods resulting from the expert interviews, task team work, and additional baseline site data collected during 2000.

As more information is obtained on the plant species, monitoring of Sensitive species is likely to improve. The Forest will consult annually with the RMRS to assess if monitoring meets viability objectives. The 2000 Expert Interview Summary advises that the Forest develop a monitoring program for Sensitive species that considers the use of surrogate ecosystem/plant associations as targets for long-term species viability evaluations. Where species occurrences cannot be identified by this method, a species-specific approach can be used.

The Expert Interview Summary recommended continuation of intensive surveys for many of the Sensitive plant species, which the Forest has done every year since the Region 2 Sensitive species list was issued in 1993. A comprehensive floristic survey should also be considered during the Phase II amendment (Marriott in Expert Interview Summary 2000).

The Monitoring Implementation Guide will be updated to incorporate methods to increase precision of sensitive species monitoring (see Appendix F).

2-7.3. Livestock Grazing

The 1999 Appeal Decision states: "As part of the administration of grazing activities affecting streamside riparian areas, monitor one or more measures of stream habitat integrity. Commonly used measures can include one or more of the following: stream bank stability, width-to-depth ratios, stream bank angle, water temperature, dominant streambed substrate, or other measures commensurate with maintaining the integrity of aquatic communities."

Monitoring of ecological conditions in riparian areas on allotments will be accomplished as needed in representative areas using methods from the *Region2 Rangeland Analysis and Management Training Guide* (incorporated by reference) and other sources. Methods included in the Region 2 Guide can be used to assess or reassess overall watershed condition and trend and/or diagnose the health of specific streams, soils, and riparian ecosystems. These methods include Proper Functioning Condition (a qualitative assessment) and various quantitative methods, including:

- Stream Health metrics (cumulative widths and depths, large woody debris, substrate, bank stability, flow regime, riffle insects, and water chemistry)
- Soil Health metrics (detrimental compaction, detrimental displacement, detrimental erosion, and soil heating)
- Riparian Vegetation Health metrics (ocular plant composition, cover-frequency, and line intercept to determine within-community variability; and cross-section composition, greenline vegetation, and woody species regeneration to determine ecological status and streambank stability of the riparian complex)

The Proper Functioning Condition (PFC) assessment tool is the minimum standard for assessing the condition of riparian-wetland areas. PFC is a qualitative method based on quantitative science and can be used for determining and prioritizing the type and location of quantitative inventory or monitoring desired to meet specific objectives.

2-7.4. BMP Effectiveness

The 1999 Appeal Decision states (page 62): "Some of the determination of effect in the FEIS were based on the assumption that mitigation measures would offset adverse effects, without providing an analysis of the effectiveness of such measures. In order to ensure that project-level determinations during the interim period are defensible, it is necessary that the effectiveness of BMPs and other measures proposed to reduce or offset adverse effects be addressed."

The 1999 Appeal Decision provided the following Interim Direction to address BMP effectiveness (page 3 of the Decision Summary and page 62 of the Appeal Decision):

"Environmental analysis for proposed projects must address the effectiveness of BMPs and other measures proposed to mitigate adverse effects to aquatic and terrestrial species. This analysis should assure that spatial and temporal scale considerations are addressed; and may be satisfied by previous analysis that can be incorporated by reference

BMP monitoring was completed on the Forest in 1996, 1997, and 1998. BMPs were implemented and effective for the timber sales monitored.

Documented monitoring has shown that BMPs are effective when implemented. Dissmeyer (1994) provides methodologies to monitor BMP effectiveness. This reference also cites several case studies on BMP effectiveness. In general, studies show that if BMPs are implemented they generally are effective.

The Best Management Practices Evaluation Process is an active BMP effectiveness evaluation program in the Pacific Southwest Region of the Forest Service. This region-wide program was designed to statistically show the implementation and effectiveness of BMPs for all resource areas. The program was started in 1992 and has been summarized and documented over the years. The most recent report is from April 1998. Overall, reviewers found that BMPs are implemented 83 percent of the time and are effective for 83 percent of the observations. Though the evaluation process was conducted in a different climate regime, these conclusions can be inferred to the Black Hills because of the monitoring that has been completed on the Forest. A carefully designed monitoring program will, however, need to be implemented on the Black Hills National Forest or in the Rocky Mountain Region to provide additional data. This will be addressed as part of the Phase II amendment. Before any statistical conclusions can be reached, several years of data collection will be necessary. For the Phase I Amendment, BMP monitoring will focus primarily on implementation.

CHAPTER 3

AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS

This chapter describes in detail the affected environment on the Black Hills National Forest and the environmental effects of the three alternatives for the Phase I Amendment.

This chapter is divided into the following sections:

3-1. Introduction
3-2. Forested Ecosystems
3-3. Insects and Disease
3-4. Fire
3-5. Social and Economic Considerations
3-6. Wildlife Resources
3-7. Watershed and Water Resources
3-8. Fisheries Resources
3-9. Botanical Resources
3-10. Range Resources
3-11. Noxious Weeds
3-12. Recreation Resources
3-13. Transportation and Travel Management
3-14. Scenery
3-15. Heritage Resources
3-16. Minerals

3-1. CHAPTER 3 INTRODUCTION

This chapter describes the estimated effects of the Phase I Amendment by alternative. The effects are described *relative to the effects* disclosed in the FEIS for the 1997 Revised Forest Plan. Resource measures in the 1997 Revised Forest Plan would continue to be adhered to. Appendix E notes changes to Standards and Guidelines.

The alternatives examined in this Environmental Assessment pertain to *programmatic* management direction. **None of the alternatives would, on its own, change the physical environment on the Forest.** Individual projects that would change the environment will be subject to the Standards and Guidelines prescribed under the Phase I Amendment direction set by the selected alternative. Such projects and activities would be implemented only after the appropriate level of NEPA analysis has been completed, and will be subject to administrative appeal under 36 CFR 215.

The 1999 Appeal Decision noted deficiencies regarding the ability of the 1997 Revised Forest Plan to fully meet National Forest Management Act requirements regarding species viability and diversity. Management direction proposed under Alternatives 2 and 3 was designed to decrease risk to wildlife and plant viability and diversity to maintain management options until the re-evaluation of species viability and diversity is completed in the Phase II analysis.

Three types of effects are described in this chapter. These are defined in the Council on Environmental Quality's regulations (40 CFR 1500-1508):

- **Direct effects** are caused by an action and occur at the same time and place.
- **Indirect effects** are caused by an action but occur later in time or are removed in distance.
- **Cumulative effects** result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes the other actions.

3-1.1. Analysis Methods

As discussed in Chapter 2, the planning team conducted two levels of in-depth analysis to determine relative changes and effects, including:

- Analysis of <u>four individual timber sale project areas</u> (the Project Sample Group) to determine potential changes that could occur under Alternatives 2 and 3. Separate site-specific analyses will be conducted before any management activities take place in the Project Sample Group project areas.

  This method has limitations in predicting actual effects on vegetation management, and effects to timber management program involving volume harvested. The four projects were selected since they contained characteristics that would likely be affected from alternative direction. This group does not represent a statistical sample of all projects that may occur on the Forest; therefore, direct correlation of effects cannot be made to the Forest as a whole.

- A <u>landscape analysis</u> to determine potential changes anticipated over the two- to five-year expected lifespan of the Phase I Amendment.

  This method has limitations in predicting actual effects on vegetation management, and effects to timber management program involving volume and size of trees harvested. The predictions for Alternative 2 and 3 in particular, can only estimate volume or a range of volumes and tree size-classes likely to be harvested in the interim period. Site-specific conditions (presence of sensitive species) cannot be precisely modeled.

To provide the decision maker with a means of comparing the possible effects of the alternatives, the Interdisciplinary Team's evaluation focused on components of the environment that would be affected by the proposed action. This chapter describes the direct, indirect, and cumulative effects that the alternatives would have on each component during the interim period.

Reasonably foreseeable related future actions were considered in the analysis presented in this chapter. Analyses of environmental consequences are based primarily on estimates of predicted changes in management for wildlife and plant species, timber harvesting, and livestock grazing. Other resources (such as recreational use, mineral activities, and road construction and reconstruction activities associated with those uses) are discussed, though at a lower level of detail.

Elements that would not be affected or would be minimally affected by the alternatives (such as climate, air quality, noise, topography, and geology) will not be discussed. Air quality is anticipated to meet or exceed Federal and State Standards with effects similar to those discussed in the Forest Plan FEIS (pp. III-15-17).

3-1.2. Analysis Assumptions

In analyzing the alternatives considered in detail, the Interdisciplinary Team assumed the following:

1. Because this EA analyzes the effects of programmatic decisions, none of the alternatives would result in any ground-disturbing activities or direct changes to the environment. The alternatives provide a range of management regimes and mitigation measures to be applied to new projects and activities. New project decisions will be preceded by site-specific environmental analysis, as appropriate, and comply with the direction in the decision associated with this Environmental Assessment. Previously planned timber sale projects would be modified to meet the terms identified in the Settlement Agreement. Anticipated future projects were considered in this analysis.

2. Alternative 1 represents no deviation from the level and intensity of on-going and proposed projects and activities. Conditions and trends would not change substantially, and all on-going and previously proposed projects would proceed in accordance with the 1997 Revised Forest Plan and in compliance with Agency regulations, provisions of laws, and direction provided by Congress. As under all alternatives, previously planned timber sale projects with a signed decision document would be modified to meet the terms identified in the Settlement Agreement.

3. Analyses in this Environmental Assessment consider trends and changes associated primarily with on-going, proposed, and future timber harvesting and livestock grazing uses during the interim period. Net changes to the affected environment are the basis for comparison of alternatives.

4. Environmental effects of the alternatives considered in detail are based solely on the implementation of any new strategy within proposed actions for new projects on the Forest over the next two to five years. Management direction described under each alternative would apply only to National Forest System lands.

AFFECTED ENVIRONMENT AND RESOURCE EFFECTS

The FEIS for the 1997 Revised Forest Plan describes general impacts that could result from various management activities. This Chapter discusses in what ways the Phase I alternatives would change the effects disclosed in Chapter III of the FEIS.

Since the time that the analysis for the 1997 Revised Forest Plan and FEIS was completed (1996), management activities have occurred on the Forest. Major categories are listed below.

- Timber harvest occurred on approximately 107,199 acres (approximately 9% of the Forest). The majority of the treatments were commercial and precommercial thinning.
- Through fiscal year 1999, fuel treatments occurred on approximately 92,772 acres (approximately 8% of the Forest), many of the fuels treatments occur on areas previously harvested. Of this area, approximately 18,115 acres were treated with pile or broadcast burning.
- Recreational uses.
- Road maintenance.
- Road reconstruction.
- New road construction.
- Domestic livestock grazing.
- Maintenance and installation of range improvements, including fencing and water developments.
- Vegetative diversity treatments, including hardwood restoration and regeneration and meadow restoration and maintenance.
- Wildlife habitat improvements, including maintaining and installing water guzzlers and fisheries structures.

In addition to management activities, storm damage, insect caused mortality, wildfires and other disturbances have occurred. The largest single disturbance was the Jasper Fire, which occurred in August and September of 2000, causing conditions to change on approximately seven percent of the Forest. The Phase II analysis will fully analyze the management needs for the Jasper Fire area, along with a full review of the Forest's Management Areas. See discussions under the Forested Ecosystem and Wildlife sections for specific effects on these resources.

Current and reasonably foreseeable actions include: recreational uses; road maintenance, reconstruction, new construction; domestic livestock grazing, maintenance and installation of range improvements including fencing and water developments; and wildlife habitat improvements including maintenance and installation of water guzzlers and fish improvements. Approximately 44,920 acres are currently under contract for timber harvest, including salvage efforts to remove material from the Jasper Fire area and vegetative diversity treatments including hardwood restoration and regeneration, meadow restoration and maintenance. The forest will likely experience tree mortality from future weather events, insects, diseases, and wildfires.

In addition, fuels treatments including slash disposal and prescribed burns would occur. Funding has been received to conduct fuels treatments associated with the National Fire Plan. Treatments (piling and burning slash, thinning and prescribed burning) are anticipated to be near the upper acreages as identified and discussed in the 1997 Revised Forest Plan and the FEIS for the 1997 Revised Forest Plan.

The general effects, as written in the FEIS, will not be repeated in this Environmental Assessment; rather, this assessment will discuss *changes* in the anticipated effects. This analysis concentrates on the specific resource effects involved with implementing each of the alternatives analyzed in detail. Each alternative analyzed in detail has a different mix of adverse and beneficial effects.

Affected environment and resource effects are discussed below for each resource area (water, forest vegetation, wildlife, etc.). Each section is divided into: 1) Affected Environment, 2) Direct and Indirect Effects on Resources, and 3) Cumulative Effects. The Direct and Indirect Effects section is further subdivided into discussion of effects on the resource area from a variety of management actions, such as timber management and roads.

3-2. FORESTED ECOSYSTEMS

3-2.1. Affected Environment

The Black Hills National Forest is dominated by ponderosa pine (*Pinus ponderosa*), which covers approximately 84 percent of the Forest. White spruce (*Picea glauca*) covers approximately 2 percent of the forest. Other conifers, including Rocky Mountain juniper (*Juniper scopulorum*), lodgepole pine (*Pinus contorta*), Douglas-fir (*Pseudotsuga menziesii*), and limber pine (*Pinus flexilis*) comprise less than 0.1 percent of the Forest. Hardwoods such as quaking aspen (*Populus tremuloides*), paper birch (*Betula papyrifera*), and bur oak (*Quercus macrocarpa*) comprise about five percent of the forest. Aspen is the most plentiful of these, covering about four percent of the Forest. Shrubs, grasses, water, and non-vegetated areas make up the remainder of the Forest. For a complete description of the affected environment, see the FEIS for the 1997 Revised Forest Plan, pages III-129 through III-150.

A complete description of timber production on the Forest can be found in the FEIS for the 1997 Revised Forest Plan, pages III-447 through III-450. In summary, the Black Hills are ideal for the production of commercial wood products because of the abundant natural regeneration and gentle slopes that exist throughout the majority of the area. Timber production has a proven record in the Black Hills lasting more than a century.

A high demand for wood products manufactured from ponderosa pine and white spruce exists. Approximately two-thirds of the industry's needs are supplied by the Black Hills National Forest, with the remainder from private lands, state lands, or National Forests outside the area. The demand for logs is greater than supply, and the amount of wood that is currently under contract declined from about six and a half years' supply in 1982 to about three years' supply in the 1990s. The demand for sawtimber from the Forest is expected to remain much higher than the amount that can be supplied. Consolidation of the market has been occurring.

Meanwhile, the demand for smaller diameter logs (products other than logs, or POL) has been less than the available supply. POL is generally not profitable for sawtimber purchasers. POL has been offered as part of commercial timber sales as optional material since 1986. The Forest has thinned POL stands via service contracts paid for with Knutsen-Vandenberg (KV) funds collected as part of commercial timber sales.

At the time of this writing, the timber market was very low. Advertised bid rates have declined dramatically in the last few years, and one of the Black Hills area sawmills closed last year.

Management Changes Under Alternatives 2 and 3

The following discussion refers to timber production estimates in Tables 2-5 (page 25) and 2-6 (page 27).

Alternative 2. Management of ponderosa pine under Alternative 2 would change slightly from the existing situation (Alternative 1) in the following areas: 1) Within 420-acre northern goshawk PFAs (see Table 2-1, page 17), 2) For snag and green tree retention objectives primarily in ponderosa pine cover types, and 3) Within marten habitat in spruce and some ponderosa pine cover types (see Table 2-2, page 18). Management within the goshawk PFAs would be similar to that described under Alternative 3.

Alternative 2 would slightly increase treatments producing regeneration through regenerative openings as compared to Alternative 1 as a result of providing a balance of structural stages in PFAs.

Alternative 2 would result in a slight increase in commercial and POL thinning and a decrease in overstory removals as compared to Alternative 1. A slight decrease in actual acres of shelterwood seed cuts and seed tree cuts or in the volume produced from them could also occur under Alternative 2. These changes would occur

primarily due to green tree retention requirements (see Timber Production section on page 40). Within the PFAs, the scale and distribution of seed tree cuts, shelterwood seed cuts, and overstory removals would also change.

Management of white spruce would be restricted to the same degree under both Alternatives 2 and 3. Management in other cover types may not change or may change only slightly under each alternative, depending on project-level decisions.

Alternatives 2 and 3 would both see greater emphasis placed on treating smaller-diameter material. This would occur to a lesser extent under Alternative 2 as compared to Alternative 3.

Regeneration opening treatments and thinning treatments could incorporate both even-aged and uneven-aged management techniques (within and above the stand level) to move towards the appropriate balance and distribution of structural stages in PFAs.

Management in PFAs would concentrate on retaining or developing stands with canopy closures of 50 to 60 percent in the older age classes as opposed to the maximum of 40 percent canopy closure in foraging areas (see Tables 2-1, page 17, and 2-4, page 20).

Alternative 3. Management of ponderosa pine under Alternative 3 would change more from the existing situation than under Alternative 2.

Management of white spruce would be restricted to the same degree under both Alternatives 2 and 3. Management in other cover types may not change or may change only slightly under each alternative, depending on project-level decisions.

Alternatives 2 and 3 would both place greater emphasis on treating smaller-diameter material. This would occur to a greater extent under Alternative 3 as compared to Alternative 2.

Management under Alternative 3 would concentrate on creating irregular-shaped patches of different tree sizes and age classes across the landscape in order to move towards the foraging area balance of structural stages (see Table 2-4, page 20). Foraging areas would be managed across the ponderosa pine cover types within the Forest. When compared to Alternatives 1 and 2, this alternative would result in the greatest increase in regenerative opening treatments and commercial, POL, and precommercial thinning. The scale and distribution of seed tree cuts, shelterwood seed cuts, and overstory removals would change the most under Alternative 3 as compared to Alternatives 1 and 2.

Regenerative opening treatments and thinning treatments could incorporate both even-aged and uneven-aged management techniques (within and above the stand level) to move towards the appropriate balance and distribution of structural stages in

PFAs and in foraging areas. The scale and distribution of even-aged treatments in these areas would differ from those expected under Alternative 1.

Foraging areas, grass/forb openings, and tree regeneration could be created with small-scale regenerative cuts. These could include, but would not be limited to, patch cuts, group selections, irregular group shelterwood, irregular shelterwood, or shelterwood with reserves. Younger age classes could be created through regenerative cuts or through improvement or liberation cutting (similar to overstory removals, where most trees over a certain size are removed). Regeneration and younger age classes would be thinned to achieve fast growth to move them towards older age classes (larger diameter trees). Older age classes would be managed primarily with thinning to improve growth to attain larger diameter trees. Approximately three to five green trees would be left per acre for snag and down woody recruitment in most treatment types (regenerative openings of less than one acre may not have green trees left).

As a result, younger age classes would be interspersed among older age classes. Prescribed burning and other treatments could be used in conjunction with thinning to reduce fuel accumulations. The intent of managing the PFA for a balance of structural stages is to achieve a low intensity, ground-fire regime with large diameter trees, few smaller diameter trees in the understory, and patches of younger trees and openings interspersed across the landscape.

See the Timber Production, Composition, Structure, and Diversity sections below for further discussion.

3-2.2. Direct and Indirect Effects on Forested Ecosystems

Direct and Indirect Effects from Alternative 1

Refer to the FEIS for the 1997 Revised Forest Plan, pages III-150 through III-167 (Forested Ecosystems effects of Alternative 1) and pages III-450 through III-451 (Timber Production effects of Alternative 1).

Direct and Indirect Effects on Timber Production from Wildlife and Threatened, Endangered, and Sensitive Species Management under Alternatives 2 and 3

See also pages III-163 and III-451 of the FEIS for the 1997 Revised Forest Plan for effects discussion. These effects should not change under Alternative 2 or 3. See pages II-36, III-152 through III-153 of the FEIS for the 1997 Revised Forest Plan for a discussion of the number of acres treated under Alternative 1. Changes in acreages treated under Alternatives 2 and 3 are discussed below.

The Phase II amendment analysis will include a sustained-yield analysis in accordance with the 2000 NFMA Implementing Regulations (36 CFR 219). An allowable sale quantity (ASQ) analysis was not performed during the Phase I Amendment process. Two levels of analysis, landscape and Project Sample Group, were conducted during Phase I to provide estimates of outputs from each of the alternatives. An overview of the results is described below.

Table 2-6 (page 27) summarizes relative change in timber production estimates from the landscape analysis. Volume estimates are the total potential that could be produced from watersheds covering the five-year timber sale action plan. Estimates in Alternatives 1 and 2 are based on the models developed during the 1997 Forest Plan Revision. Alternative 3 vegetative treatments are based on recommendations found in Reynolds et al. (1992) adjusted for conditions present on the Black Hills National Forest.[2] Actual volumes and acres harvested would depend on site-specific conditions at the project level.

Table 2-5 (page 25) summarizes relative change in timber production estimates from the Project Sample Group analysis. Timber production estimates in Table 2-5 are accumulated over the four Project Sample Group timber sales. Project Sample Group sales varied both in type and magnitude of increases or decreases, which will be described below. Estimates in Alternative 1 are based on the preferred alternative from Project Sample Group sales as planned under the 1997 Revised Forest Plan. Relative changes under Alternatives 2 and 3 are based on what could potentially occur from implementing the alternative at the project level, taking into account Standards and Guidelines that would be implemented under these two alternatives.[3] **Actual volumes and acres harvested during implementation of the Phase I Amendment will depend on site-specific conditions at specific project locations.**

Table 3-1 is a comparison of acres treated and estimated volume for three of the four Project Sample Group timber sales. The models developed for the 1997 Revised Forest Plan were run on these sales, including the same model used in the landscape analysis for Alternatives 1 and 2.[4] The acreage and volume estimated from this model (from Project Sample Group sales) are shown along with the acreage and volume estimates from Alternative 1 (representing planned volume) of the Project Sample Group. Estimates are accumulated over the three Project Sample Group sales.

[2] The landscape analysis was being conducted when the Jasper Fires occurred. Due to the timing coincidence between the fire and the analysis process, any watersheds that fell within or across the Jasper Fire area were not removed from the analysis for any of the alternatives. Therefore, green volume estimates may be inflated for this particular group of watersheds. Volume reductions would have been the same across all alternatives, however, so the relative comparison at the landscape level is still valid.
[3] None of the project sample group sales fell within the Jasper Fire perimeter; the fire did not affect estimates.
[4] The fourth project sample group sale was not included. The Forest Plan Revision model could not be performed due to numbering differences between the model and project level information.

Table 3-1. Forest Plan Model and Planned Volume Comparison for Three of the Project Sample Group Timber Sales

Treatments (acres)	Forest Plan Model	Project Sample Group Alternative 1
Commercial/POL thin	1,468	1,760
Precommercial thin	None given	312
Overstory removal	1,932	727
Seed cut	7,227	588
Seed tree cut	108	521
Hardwood/Meadow restoration	564	51
Remove conifers from hardwoods and meadows	None given	2,100
Total Acreage	11,299	6,059
Volume Estimate (MBF*)	~31 MBF	~15 MBF

*Thousand Board Feet

Overall, the relative change between Tables 2-5 and 2-6 are similar. Differences that occur will be described later in this section.

Timber Production

Volume production under **Alternative 1** would most likely be lower than levels described in the 1997 Revised Forest Plan, and consequently lower than the levels described in Table 2-6 (page 27). Volume production under **Alternatives 2 and 3** could be expected to be lower than that of Alternative 1, and consequently lower than levels described in Table 2-6. The volume production of Alternative 3 as compared to Alternative 2 is, however, difficult to predict.

Landscape Analysis vs. Project Sample Group. Volume estimates from the landscape analysis for Alternatives 1 and 2 should be viewed as maximums. Since the landscape analysis for these two alternatives was based on the model developed for the 1997 Revised Forest Plan, these figures are close to ASQ figures that are listed in the Forest Plan. ASQ is defined as the quantity of timber that may be sold from the area of suitable land, usually expressed on an annual basis, and usually applies for 10 years or longer. It is considered the ceiling of timber quantity that can be harvested from suitable lands over the time period specified (Glossary, 1997 Revised Forest Plan).

Table 3-1 supports this conclusion. The planned volume and acreage from the Project Sample Group is approximately 50 percent lower than what the 1997 Revised Forest Plan model predicted for these same sales. The planned volume represents what could be produced from the ground for these particular sales from implementing Goals, Objectives, Standards, and Guidelines in the 1997 Revised Forest Plan. The 1997 Revised Forest Plan model seems to be overestimating the amount of volume that can be produced at the ground level.

The volume estimated from Project Sample Group sales under **Alternative 3** shows little to no change as compared to Alternative 1 (Table 2-5). In terms of relative change (when viewing what can actually be produced from the ground) there would be little difference in volume between Alternatives 1 and 3. In project level application, however, there would be a reduction in volume produced from Alternative 3 as compared to Alternative 1 as a result of timing considerations. See also footnote below.

This can be described better when viewing the volume estimates from the landscape analysis for Alternative 3 (Table 2-6). A range of estimated volume is shown, with the estimated volume for Alternative 1 at the upper end of that range. Initial volume estimation simulations for both the landscape and Project Sample Group analyses for Alternative 3 were unconstrained. Reductions were applied in the landscape analysis to account for site-specific management constraints (e.g. Management Area and economic factors). Site-specific management constraints were also taken into account in Project Sample Group sales. While the landscape analysis took into consideration a reduction resulting from timing considerations, Project Sample Group analysis did not.[5] It is expected that timing considerations should be accounted for during project level analysis and implementation. This is closely related to the fact that the balance of structural stages will not be achieved during the Phase I Amendment timeframe. Attainment of the balance of structural stages could occur at different times in different locations depending on existing structural conditions and site capabilities at the project level. In application at the project level, therefore, Alternative 3 can be expected to produce less volume than Alternative 1, but where it will fall in relation to Alternative 2 is difficult to predict.

With a few exceptions, similar trends in acres treated can be seen when comparing Tables 2-5, 2-6, and 3-1. Table 3-1 indicates that the 1997 Revised Forest Plan model seems, when compared to planned estimates, to overestimate the amount of traditional shelterwood treatments that could potentially be performed.[6] It also shows that more commercial and POL thinning has been

[5] Simulations (in both analyses) were designed to achieve the younger structural stages (tree sizes 1, 2, and 3; see Tables 2-5 and 2-6) all at once. In practice, the achievement of the younger tree size classes should not come at the expense of older tree size classes (4, 5, and 6). In some cases, the older tree size classes may be limited on the landscape, and treatments should focus more on moving towards these classes as opposed to the younger classes. (The treatments to achieve the younger tree sizes should also not be performed at the expense of not being able to regenerate to ponderosa pine by natural means.) Timing of treatments is also critical in terms of the canopy closures maintained on the landscape. Although a minimum of 40%, 50% or 60% canopy closure is required for the balance of structural stages (Tables 2-1 and 2-4), a range of canopy closures should be provided. Simulations (in both analyses) for Alternative 3 did not always account for the distribution of canopy closures across the landscape.

[6] The seed tree cuts in Table 3-1 are from one project sample group sale. These seed tree cuts were performed in the Big Game Winter Range Emphasis area for the purpose of meeting Forest Plan objective 209 (5% of the planning unit in grass/forbs). The seed trees were not scheduled for removal, for green tree retention purposes.

planned than predicted by the 1997 Revised Forest Plan. Tables 2-5 and 2-6 show similar trends.[7]

The 1997 Forest Plan Monitoring Report compared planned volumes and acreages from seven analysis areas planned under the 1997 Revised Forest Plan (not the same sales as the Project Sample Group). The report shows that planned harvest acres were approximately 25 percent higher than what was predicted using the 1997 Revised Forest Plan model. Twelve percent of that increase was due to POL thinning. (For these seven sales, project level data indicated that there were approximately 63 percent more acres in Regional structural stages 3A, 3B, and 3C than the 1997 Revised Forest Plan predicted.) The next-greatest increase came from commercial thinning. Fewer acres of shelterwood seed cuts and seed cuts were planned compared to the 1997 Revised Forest Plan model's predictions. Five out of seven of the analysis areas were located in lower elevations or in the southern portion of the Black Hills, as compared the more evenly distributed Project Sample Group sales.

The 1997 Revised Forest Plan does not provide an estimate of precommercial thinning acres. The FEIS for the 1997 Revised Forest Plan (page II-34) predicts that approximately 5,400 acres per year would be precommercially thinned over a ten-year period. Depending on the diameter classes in the Regional structural stages 3A, 3B, and 3C indicated in the 1997 Forest Plan Monitoring Report, some increase in precommercial thinning, as well as POL thinning, could be expected over what was predicted for these same areas.

The reduction in planned treatment acreage from the 1997 Revised Forest Plan model in Table 3-1 may be related to the time since the last harvest entry and the location of sales on the Forest. Refer to Appendix G of the FEIS for the 1997 Revised Forest Plan for additional information.

Tables 2-5 and 2-6 (Chapter 2) indicate that under Alternative 3 the Forest could potentially treat more acres while producing about the same or slightly less volume. The trends depicted in Tables 2-5 and 2-6 seem already to be occurring at the project level when compared to the Forest Plan Monitoring Report (1997). Some individual areas of the Forest may, however, see a reduction in acreage treated due to timing from the last entry or overlapping sale areas.

Table 2-6, in particular, compares the changes Alternative 2 and 3 would make to the 1997 Revised Forest Plan model. At first glance, the changes seem to be large. Tables 2-5 and 3-1 and the 1997 Forest Plan Monitoring Report indicate, however, that the volume and acreage estimates from sales planned following

[7] The decline in commercial and POL thinning shown in Table 2-5 can be explained upon examination of individual project sample group sales. The decline in acres comes primarily from one project sample group sale. Commercial and POL thinning increased in most all other project sample group sales for Alternatives 2 and 3 (one sale declined slightly in acres in Alternative 2). When results were combined over all the sales, the increases in acres were not enough to offset the decline from the one sale.

Goals, Objectives, Standards, and Guidelines of the 1997 Revised Forest Plan already show these trends. Therefore, the changes that could potentially occur during project level analysis and implementation of Alternatives 2 and 3 are not as great as they appear. The greatest change that could occur at the project level is how treatments are distributed on the landscape. The proportions of treatments could change, the size of treatments could be smaller, and the distribution of treatments could be wider. This would occur to the greatest extent under Alternative 3, followed by Alternative 2.

In general, project-level existing conditions could limit the types of treatments performed (and therefore volumes produced) under any alternative. Under Alternatives 2 and 3, watersheds that currently have low numbers of large-diameter trees could be expected to produce less commercial volume than watersheds with more large-diameter trees (see discussions below).

Volume production estimates under Alternative 3 vary for sawtimber for sales in the five-year timber sale action plan. Timber sales in the northern Black Hills are projected to produce more sawtimber volume than sales in the southern Hills, due to the northern Hills' generally higher site indices and faster growth rates. As a result, the northern Hills generally have, or are capable of growing, larger diameter trees than the southern Hills within the same time period. Many of the watersheds in the northern Hills currently contain a greater percentage of the ponderosa pine forested areas in larger diameter classes, which could allow for more management flexibility in achieving the goshawk foraging area balance of structural stages. In general, watersheds in the southern Hills contain low percentages of the large diameter size classes. Treatments in these areas may focus on thinning to achieve the older tree size classes.

Moreover, the Forest Plan Monitoring Report (1997) indicated that the 1997 Revised Forest Plan model overestimated the acreage of the Forest with high site indices by approximately 13 percent. Correspondingly less volume was planned from these sales than predicted in the 1997 Revised Forest Plan scripts. The majority of the analysis areas with lower site indices are in the southern Hills or in lower elevations. Analysis areas in the southern Black Hills can therefore be expected to produce less commercial volume than those in the northern Hills. POL distribution under Alternative 3 is predicted to be relatively even, however, across sales in the five-year action plan area.

Total rotation length and the time between harvest entries could be lengthened under the action alternatives. This effect would be less pronounced under Alternative 2 (in the PFAs) than Alternative 3 (across the landscape). In some situations, such as where watersheds are short of the larger diameter classes, additional time may be needed to allow trees to grow into the target diameter class before future treatment can occur.

The timber volume reductions under Alternative 2 for both the landscape and Project Sample Group analyses reflect new or modified Standards and Guidelines that would be implemented as directed by the 1999 Appeal Decision. These reductions are a result primarily of Standard 2301, and Guidelines 2304, and 2306, which address snags and live tree replacements (see Fuelwood Gathering and Acres Treated sections below).

The new or modified Standards and Guidelines regarding snags and live tree replacements would not necessarily lead to a reduction in volume under Alternative 3. Management direction to provide reserve trees across the landscape would probably result in adequate numbers of live tree replacements for future snags (see Fuelwood Gathering section below).

Acres Treated

Alternative 2 – Project Sample Group Analysis. Project Sample Group sales for Alternative 2 depict a decrease in volume produced and acres treated as compare to Alternative 1. Most of these changes occurred due to: 1) Green tree retention requirements, 2) Providing a balance of structural stages for northern goshawk, or 3) Restrictions on treatments in American marten habitat. The majority of the reductions, however, occurred primarily in one Project Sample Group timber sale. In this case, the reduction was due to green tree retention requirements. This Project Sample Group sale contained watersheds with few trees per acre in the larger diameter classes. Watersheds elsewhere on the Forest with existing conditions similar to these may see similar trends.

Alternative 2 – Landscape Analysis. The landscape analysis for Alternative 2 predicts a decrease in volume as compared to Alternative 1. It also depicts a decrease in acreage of overstory removal treatments. Some increase in commercial and POL thinning is predicted, but not enough to offset the decline in overstory removal acres. Shelterwood seed cut and seed tree cut acreage could decline slightly. Basal area and volume removed by these treatment types may also decline. Variations would depend on past management activities and existing site-specific conditions. Watersheds that have more trees in the larger diameter classes (most in the northern Hills on the Limestone Plateau and in the Bearlodge Mountains) may have slight reductions in volume and acreages of seed tree cuts, shelterwood seed cuts, and overstory removals. These treatment types would be reduced to provide continual recruitment into the larger diameter classes. These areas (as indicated by some of the Project Sample Group sales) lack trees in pole and small sawtimber classes to provide recruitment into the larger classes over time.

Alternative 3. Average number of acres treated per decade would change the most under Alternative 3. Project Sample Group and landscape analyses both indicate a potential increase in total acres treated over Alternatives 1 and 2, but treatment types would shift. The scale and distribution of seed tree cuts, seed

cuts, and overstory removals would change the most as compared to Alternative 1. Regenerative openings and precommercial, POL, and commercial thinning would increase the most as compared with Alternative 1. This change is due to the emphasis of Alternative 3 on providing a balance of structural stages across the landscape for northern goshawk. Watersheds that contain a large amount of small-diameter timber but lack larger-diameter trees would have the greatest potential for increased precommercial and POL thinning (as indicated by one of the Project Sample Group sales – see discussions above). This could also occur in watersheds where shelterwood seed cuts were the predominant treatment during the last entry.

The Southwest Guidelines (Reynolds et al. 1992) refer to using treatments such as irregular group shelterwood, shelterwood with reserves, and group selection as regeneration methods to achieve grass/forb openings and tree regeneration. These and other regeneration methods can be performed at the project level; project-level analysis and field application would determine the most appropriate regeneration method to apply.

Under Alternatives 2 and 3, selection treatments would decline in white spruce due to protection of American marten habitat.

Acreage of patch clear cuts would not change under Alternative 2 outside of goshawk post-fledging family areas. Other regeneration methods used in post-fledging family areas under Alternatives 2 and 3 and across the landscape under Alternative 3 may function as patch cuts.

The scale of regeneration methods would change in post-fledging family areas under Alternatives 2 and 3 and across the landscape under Alternative 3 (see discussions above). Treatments in post-fledging family areas under Alternatives 2 and 3 and across the landscape under Alternative 3 could function as irregular shelterwood cuts.

A reduction in treatments removing conifers from hardwoods occurred in one Project Sample Group sale due to protection of American marten habitat under both Alternatives 2 and 3. The effect of marten habitat protection on conifer-from-hardwood treatments over the entire Forest should, however, be minimal.

Fuelwood Gathering

A Forest Order prohibiting cutting of standing dead trees for fuelwood (effective January 1, 2000) is in effect across the Forest until further notice.

Alternative 2. If the Forest Order were not in place, Alternative 2 would follow Guideline 2304 (treated as a Standard), which considers 1) Snag cutting restrictions in planning units that do not meet snag objectives and 2) Treating live

replacement trees to create snags. Snag cutting restrictions would be applied on a project-level basis as needed.

The FEIS for the 1997 Revised Forest Plan (page II-451) states that live replacement trees must be retained where snags have been lost due to fuelwood gathering or natural events. Live tree replacement rates should be reduced when fuelwood restrictions are put into place. The minimum number and diameter of snags required in Alternatives 2 and 3 both increased over Alternative 1. In addition, these alternatives would require that a sufficient number of green trees greater than 20 inches in diameter (or from the largest available diameter class) be retained for snag recruitment to move towards or maintain an average minimum density of one large green tree per acre.[8] This would result in a corresponding increase in the number of live tree replacements necessary to meet the snag and recruitment objective, and finally a reduction in volume and treated acres under Alternative 2 (see Timber Production section above for further discussion).

Limiting the cutting of standing dead trees temporarily under Alternative 2 (until the snag cutting restriction is lifted) and for the duration of the Phase I Amendment under Alternative 3 would not directly change live tree replacement rates. The new snag guidelines under Alternative 2 and the management objectives under Alternative 3 would affect live tree replacements.

Alternative 3. Alternative 3 would continue to prohibit the cutting of standing dead trees for fuelwood across the Forest, except in designated fuelwood-gathering areas.

Under Alternative 3, treatment methods and management objectives would change in order to provide a continuous supply of large-diameter trees across the landscape (as part of providing a balance of structural stages for the goshawk and its prey). See also the Alternative 2 discussion above.

See page III-451 of the FEIS for the 1997 Revised Forest Plan for further discussion of effects.

[8] 'Sufficient' number was determined at the project sample group level in Alternative 2 outside of post-fledging family areas with a Landscape Level Snag and Green Tree Retention Model (July 20, 2000) developed on the Black Hills. 'Sufficient' number was based on existing watershed conditions. Prescriptions at the PSG level were modified after the model was run in order to provide the appropriate number of green trees based on existing watershed conditions at the PSG level. 'Sufficient' number therefore is not a concrete number; it is dependent on existing watershed conditions and incorporated into prescribed treatments for individual stands. The number of green tree reserves in Alternatives 2 and 3 within PFAs and across the landscape in Alternative 3 outside of PFAs is 3-5 trees per acre of the 5 and 6 tree size classes (see Tables 2-1 and 2-4) or the largest diameter class available.

Fire, Insects and Diseases

See pages III-160, III-162, and III-451 of the FEIS for the 1997 Revised Forest Plan for a discussion of effects. These effects generally would not change under Alternatives 2 and 3. Refer to the Cumulative Effects, Fire and Insect and Disease sections below for additional effects discussions.

An increase in prescribed burning and/or silvicultural treatments could occur under any of the alternatives due to currently increased fire budgets. It may be possible to conduct projects at the full funding level described in the 1997 Revised Forest Plan. This could lower densities of seedlings and saplings in certain areas of the forest (FEIS for the 1997 Revised Forest Plan, p. III-162). All prescribed burning and/or silvicultural activities would ensure that appropriate levels of regeneration are maintained to meet management objectives.

Direct and Indirect Effects from Forest Vegetation Management under Alternatives 2 and 3

Composition

Proportions of cover types should not change from Alternative 1 under Alternative 2 or 3. The landscape would still be dominated by ponderosa pine. A slight increase in density of white spruce stands could be expected as little human disturbance occurs in marten habitat (Table 2-2, page 18). A corresponding increase in white spruce regeneration could occur in the understory of these stands due to successional processes, fire suppression, and high moisture regimes (as a result, fire generally occurs infrequently in spruce stands). These areas exist primarily on the Limestone Plateau in the north-central part of the Black Hills. The Bearlodge Mountains should not be affected since they contain minimal appropriate habitat. This effect is expected to be minimal over the next two to five years.

To improve biological diversity (page III-151, FEIS for the 1997 Revised Forest Plan), hardwoods, shrubs, and meadows would continue to increase under all alternatives. In white spruce, however, restoration activities may be limited under Alternatives 2 and 3 due to protection of marten habitat. Over the interim period of the next two to five years, hardwood clone health would not be affected. Restoration projects would continue to be reviewed on a site-specific basis to determine the appropriate level of protection needed for sensitive species.

If project level decisions move aggressively towards the balance of structural stages under Alternative 3, the Bearlodge Mountains could experience an increase in hardwood sprouting. In many areas of the Bearlodge, hardwoods aggressively pioneer disturbed areas. This is part of the ecological nature of the Bearlodge Mountains, and would probably improve the prey base of the northern goshawk. This effect would occur to a lesser extent under Alternatives 2 and 3 within post-fledging family areas. Refer to FEIS pages III-150 through III-152 for further discussion of effects.

Forest Structure

Forest vegetation management effects described for Alternative 1 (page III-152 of the FEIS for the 1997 Revised Forest Plan) would be altered under Alternatives 2 and 3. Commercial harvest activities would be designed to maintain or increase the largest and oldest trees at different levels under each alternative. This would occur to a lesser degree under Alternative 2, primarily in northern goshawk post-fledging family areas and where large-diameter trees are lacking on the landscape. It would occur to a greater degree under Alternative 3 across the landscape (see Timber Production section above). Under Alternatives 2 and 3, timber harvest cuts (with the exception of regenerative cuts) in post-fledging family areas would be geared towards retaining and providing larger-diameter, vigorous, mature trees, which are less susceptible to the influences of fire (page III-152, FEIS for the 1997 Revised Forest Plan). This same effect would also take place across the landscape under Alternative 3.

Immature stands would still be a valuable component of the forested landscape under Alternatives 2 and 3, but would probably be achieved through a variety of regeneration methods on a smaller scale than under Alternative 1 (see Management Changes and Timber Production sections above). The distribution of immature age classes achieved through vegetative management practices could also be different from that of Alternative 1. Immature age classes could occur more frequently in post-fledging family areas under Alternatives 2 and 3 and across the landscape under Alternative 3. In some places, the smaller diameter classes would need to be thinned in order to prevent stagnation.

Reforestation considerations should remain the same under all alternatives, although regenerative treatments may take place on a smaller scale in post-fledging family areas under Alternatives 2 and 3 and across the landscape under Alternative 3. The Bearlodge Mountains may see an increase in reforestation measures under Alternatives 2 and 3, depending on design measures used in achieving the balance of structural stages.

Table 3-2, page 51, depicts the increase or decrease in ponderosa pine structural stage acres under Alternatives 2 and 3 as compared to Alternative 1, based on Project Sample Group analysis (reflecting post-treatment conditions). The changes shown for Alternative 1 indicate whether the FEIS for the 1997 Revised Forest Plan predicted an increase or decrease in ponderosa pine structural stages acres after 10 years (FEIS for the 1997 Revised Forest Plan, pages III-134 and III-154).

Table 3-2 represents a snapshot in time. As stands grow, structural stages change. There may also be instances, under any alternative, where within-stand variation is not accounted for. For example, human-caused or natural inclusions of different structural stages can occur within stands (see also within-stand diversity

discussion, FEIS for the 1997 Revised Forest Plan page III-132); the structural stage representing the majority of the stand is most likely reflected. This could occur to the greatest extent under Alternative 3 and the least under Alternative 1.

Overall, the Project Sample Group results can be considered a good indicator of changes that could occur on the Forest under the various alternatives, particularly regarding the younger and older structural stages. There may be instances in the northern Hills where different changes in structural stages 1, 2, 4B, and 4C may be noted as projects are implemented. This would occur to a lesser degree under Alternative 2 (within post-fledging areas) and to a greater degree under Alternative 3. This would depend on the existing percentages of tree size classes 4, 5, and 6 (see Tables 2-1 and 2-4, pages 17 and 20). Where these size classes meet or exceed the percentage of total required, as shown in Tables 2-1 and 2-4, the excess may be treated to move it into another tree size class. If some of the excess is moved to tree size classes 1, 2, or 3, a reduction in structural stages 4B or 4C could be noted. If some of the excess is maintained or treated to achieve another of the larger size classes (4, 5, or 6), structural stages 4B or 4C could remain stable or increase. The overall objective is to move conditions towards the desired percentage in the specified tree size class, as shown in Tables 2-1 and 2-4.

In the southern Black Hills, where larger tree size classes may be more limited, structural stages 4B and 4C can be expected to remain stable. This may occur to the same degree under both Alternatives 2 and 3 (see discussion under Timber Production above).

It is more difficult to predict the changes in structural stage 3 at the landscape level; overall, the Project Sample Group timber sales can be used as an indication of this change. Variation may occur as projects are implemented.

Table 3-2. FEIS* Structural Stage Change (for Alternative 1) and Project Sample Group Structural Stage Changes (for Alternatives 2 and 3) ("+" indicates relative increase, "-" indicates relative decrease)

Ponderosa Pine Structural Stage	Alternative 1 (FEIS change)	Alternative 2 (PSG change from Alt 1)	Alternative 3 (PSG change from Alt 1)
1 – Grass/forb	+ acres	+ acres	+ acres
2 – Shrub/seedling (0-1" DBH**)	+ acres	- acres	- acres
3 – Sapling/pole (1-9" DBH)			
3A (less than 40% canopy closure)	- acres	- acres	- acres
3B (40-70% canopy closure)	No change	+ acres	- acres
3C (greater than 70% canopy closure)	+ acres	+ acres	- acres
4 – Mature (at least 9" DBH)			
4A (less than 40% canopy closure)	+ acres	- acres	- acres
4B (40-70% canopy closure)	- acres	+ acres	+ acres
4C (greater than 70% canopy closure)	- acres	+ acres	- acres
5 – Old growth	+ acres	No change	No change

*FEIS for 1997 Revised Forest Plan
**DBH = Diameter at breast height (4.5 feet)

Early Succession Stages. The FEIS for the 1997 Revised Forest Plan states that, based on the affected environment and effects discussion in combination, some earlier successional stages of ponderosa pine have diminished in area since the late 1800s due to the dual influences of timber management and fire suppression (FEIS for the 1997 Revised Forest Plan, pages III-151). Alternative 1 includes an objective of managing at least 5 percent of a timber harvest project area for structural stage 1. The balance of structural stages for the post-fledging family areas under Alternatives 2 and 3 and across the landscape under Alternative 3 indicates that 10 percent is the objective for tree size class 1 (see Tables 2-1 and 2-4 in Chapter 2). The objective does not change as compared to Alternative 1 (at least five percent of a timber harvest project area would be managed for structural stage 1). The observed effect, depending on what percentage of tree size class 1 is achieved through project-level decisions, would be that an increase in structural stages 1 and 2 could occur under Alternatives 2 and 3. The increase of these structural stages could be greater than the increases predicted in the FEIS for the 1997 Revised Forest Plan for Alternative 1.

Middle and Late Succession Stages under Alternative 2. The increases in structural stages 3B, 3C, 4B, and 4C under Alternative 2 show that traditional overstory removal cuts would not be performed in some stands in order to meet green tree retention requirements (FEIS for the 1997 Revised Forest Plan, pages III-155, 156; see also Timber Production section above). The increases also reflect that a movement towards the balance of structural stages for the post-fledging areas may be accomplished (Table 2-1). The degree of change depends on what percentage of each tree size class is achieved through project-level decisions.

Structural Stage Distribution under Alternative 3. The changes depicted for Project Sample Group timber sales under Alternative 3 show that a movement towards the balance of structural stages for goshawk's foraging area would potentially be accomplished (Table 2-4). The decline in structural stages 3A, 3B, 3C, and 4A indicate that some stands would be moved to the earlier or later structural stages, moving towards the foraging area balance. This would be accomplished by altering of treatment types (see Timber Production section above). The decline in stage 4C reflects that forest growth simulations conducted during the Project Sample Group analysis showed stands maintaining between 40 and 70 percent canopy closure. (Simulated treatments included thinning of the lower canopy to allow trees to move into the next larger size class.) Timing considerations were not taken into account during simulations (see Timber Production section above); all stands that reached approximately 70 percent canopy closure were simulated to move the stand to approximately 40 percent canopy closure. During project-level analysis, all stands at 70 percent canopy closure would probably not be treated at once in a particular watershed in order to provide a range of canopy closures across the landscape. The higher canopy closure percentages would retain the option of providing nesting habitat in currently unknown goshawk territories. Species other than the goshawk and its

prey may benefit from maintaining stands with higher canopy closure. Therefore, the reduction in structural stage 4C under this alternative may not occur as predicted.

Over the next two to five years, no change in structural stage 5 for either white spruce or ponderosa pine is expected under Alternatives 2 or 3 as compared to Alternative 1.

Under both Alternatives 2 and 3, white spruce in structural stages 3A and 4A would decrease while stages 3B, 4B, and 4C would increase (Project Sample Group analysis). Structural stage 3C would remain constant. Structural stages 1 and 2 would remain constant or decline slightly. This reflects a decrease in treatments in American marten habitat. The same effect would be expected throughout the forest where marten habitat exists (Table 2-2). Successional processes will continue to occur in these stands, moving them to a higher density and canopy closure of white spruce, unless some natural disturbance occurs. This effect is expected to be minimal over the next two to five years.

Refer to the FEIS for the 1997 Revised Forest Plan, pages III-134 and III-152 through III-159, for further discussion of effects.

Diversity

Effects on vegetative diversity are expected to remain relatively the same as described for Alternative 1 in the FEIS for the 1997 Revised Forest Plan. Horizontal and vertical diversity are both expected to increase in goshawk post-fledging family areas under Alternatives 2 and 3 and in across the landscape under Alternative 3, due to providing a balance of structural stages for the northern goshawk in ponderosa pine. Diversity would increase most under Alternative 3 and least under Alternative 1.

Within-stand understory (grass/forb/shrub) diversity may increase in post-fledging family areas under Alternatives 2 and 3 and across the landscape under Alternative 3 due to providing a balance of structural stages for the northern goshawk in ponderosa pine. The balance of structural stages would provide habitat for species with divergent feeding and cover habitats (FEIS for the 1997 Revised Forest Plan, page III-159). Understory diversity would increase most under Alternative 3 and least under Alternative 1. Within-stand understory diversity may decline in white spruce under Alternatives 2 and 3, but the effect should be minimal in the next two to five years.

Refer to FEIS III-159 through III-160 for further discussion of effects.

Direct and Indirect Effects on Forested Ecosystems from Recreation Management, Wilderness Management, Wild and Scenic Rivers, Range Management, Riparian Area Management, Scenic Resource Management, Mineral Exploration and Development, Utility Corridors, Cultural Resource Management, Travel and Transportation Management, and Noxious Weed Management

Recreation management under Alternatives 2 and 3 would not change effects on forested ecosystems as compared to Alternative 1. Effects would remain minimal and only affect areas of concentrated use.

There would be no change in effects on forested ecosystems from wilderness management and wild and scenic rivers. The Phase I Amendment does not change the status of existing designated areas and does not propose additional designations.

There would be no change in effects on forested ecosystems from range management, riparian area management, and scenic resource management (Alternatives 2 and 3 do not change Scenic Integrity Objectives). Although overall livestock numbers would not change as a result of the Phase I Amendment, site-specific measures taken to protect certain species' habitat could improve regeneration success of hardwoods in certain areas of the forest (FEIS for the 1997 Revised Forest Plan, page III-164).

There would be no change in effects on forested ecosystems from mineral exploration and development. The Phase I Amendment would not change the land base available to mineral exploration and development.

There would be no change in effects on forested ecosystems from utility corridors. New utility corridors would avoid sensitive species habitat under Alternative 2 or 3.

There would be no change in effects on forested ecosystems from cultural resource management and travel and transportation. Under Alternatives 2 and 3, some increases in year-round road closures may occur, but the effects would be within the overall goals and objectives of the 1997 Revised Forest Plan.

Project Sample Group results indicate that the total area infested by noxious weeds may be reduced under Alternatives 2 and 3.

See the FEIS for the 1997 Revised Forest Plan, pages III-161 through 167, for further discussion.

3-2.3. Cumulative Effects on Forested Ecosystems

Refer to the FEIS for the 1997 Revised Forest Plan, pages III-167 through III-171, for a discussion of the effects of Alternative 1. These cumulative effects are expected to be the same under Alternatives 2 and 3.

Cumulative Effects on Timber Production

Fire Simulation Harvest

The fire simulation harvest proposed in the 1997 Revised Forest Plan could still be conducted under Alternatives 1, 2, or 3. The Jasper Fire, however, may be considered an appropriate replacement for the fire simulation harvest. Should a fire simulation harvest be proposed, a site-specific NEPA document and decision would be prepared. See the FEIS for the 1997 Revised Forest Plan, page III-153, for further discussion.

Timber Salvage

Salvage treatments were not projected for the first decade under Alternative 1 but were projected to occur over the next 50 years at approximately 200 acres per year (FEIS for the 1997 Revised Forest Plan, pages II-36 and 37). All alternatives include an increase in salvage treatments in the years 2000 and 2001 due to the Jasper Fire.

As of this writing, salvage operations are under way in the Jasper Fire area. The fire burned parts of five timber sales that were under contract. In those timber sales, timber on approximately 12,276 acres is being salvaged, resulting in an estimated 46.6 MMBF. Salvage operations are being conducted under catastrophic clause modifications in existing timber sale contracts and under Supplemental Information Reports to each sale's respective environmental document. Four of these sales were involved in the September 2000 Settlement Agreement for Civil Action No. 99-N-2173 (Settlement Agreement); the Settlement Agreement is being adhered to on these sales.

Removal of burned trees from road right-of-ways is taking place for public safety within the Jasper Fire perimeter. Rights-of-way along approximately 96 miles of road (1,398 acres) should be cleared by June 30, 2001. Volume to be removed is estimated at 1.6 MMBF. This work is occurring along U.S. Highway 16 and arterial, collector, and some local roads within the fire perimeter.

The Jasper Value Recovery Final Environmental Impact Statement has been completed. The Record of Decision for the Jasper Value Recovery FEIS selected a modified Alternative B including removing approximately 23.7 million board

feet from 4,462 acres. The decision excludes sale units dropped under the Settlement Agreement. Removal of timber would occur in areas where the fire burned at moderate or high intensity outside of existing timber sale cutting units. Salvage would be conducted where slopes average less than 30 percent and where volumes average greater than 3,000-4,000 board feet per acre.

Green timber sales (as opposed to salvage sales) that were planned before the Jasper Fire in the burned area are not anticipated to occur. Some, all, or more of the volume that could have been produced from these sales may be salvaged as part of Jasper Value Recovery FEIS in the year 2001. A reduction in green volume offered could occur in future years as a result. Land allocation reviews and a sustained-yield analysis will be conducted as part of the Phase II amendment.

Salvage operations are being conducted or are planned on much of the private land within the burn perimeter. There is a total of approximately 2,826 acres of private land within the perimeter, but some of this area is meadow.

A separate analysis to be conducted in the future will address travel management within the Jasper Fire area. A separate plan of action will be conducted for other recovery efforts within the Jasper Fire area.

Snag removal along fences, range improvements, private land boundaries, power lines, and survey monuments may also occur within the Jasper Fire perimeter.

See the FEIS for the 1997 Revised Forest Plan, pages II-36 through II-37, for further discussion.

Phase I Amendment

The 1999 Appeal Decision stopped the Forest's offer of green timber sales. Project-level timber sale decisions that were not through their respective appeal periods were withdrawn for reanalysis pending the Phase I Amendment decision. Green timber sale offer will be delayed depending on the timeframes for reanalysis and sale preparation. Green timber sale offer from sales listed in Tables A and B of the Settlement Agreement should occur within the next several years.

Cumulative Effects on Forest Vegetation

Forest Vegetation Composition

Hardwoods are expected to increase in the area burned by the Jasper Fire. Hardwoods, particularly aspen and birch, are pioneer species that readily sprout from roots or stumps after disturbances such as fire. Precipitation and ungulate browsing can have major effects on the success of sprouting. The Jasper Fire

Rapid Assessment (2000) lists protective measures or other regeneration concerns that could occur based on site-specific evaluations of aspen.

Vegetation Structure

Effects of the Jasper Fire. Reforestation activities may occur in the Jasper Fire area, though the extent is not known at this time. The Jasper Fire Rapid Assessment (pages 58-59) provides recommendations for reforestation on particular soil types, seed collection, monitoring, and other items related to probability of success. Reforestation activities, should they occur, could begin in 2003. A separate plan of action will be conducted for recovery efforts within the Jasper Fire.

Forest stands are expected to convert to structural stage 1 over the areas burned with moderate or high intensity by the Jasper Fire, regardless of alternative. This is approximately 71 percent of the fire area, or approximately 5 percent of the Forest (Jasper Fire Rapid Assessment 2000, Figure 10, pages 3, 21, 37, and 60). Distribution of structural stage 1 will be concentrated in a large, relatively continuous block within the Jasper Fire.

Effects of the Settlement Agreement. The Settlement Agreement for sold and unsold sales for decisions made under the 1997 Revised Forest Plan states that no logging will occur in certain structural stages within or outside of a certain distance of active or historically active goshawk nest sites, that no logging will occur within a certain radius of active or historically active goshawk nest sites, and that a specific number of green trees will be left for retention on a sale-specific basis. The resulting effect is that distribution of mature structural stages may be in closer proximity to active or historic nest stands for all alternatives for those sales listed in Tables A and B in the Settlement Agreement. For areas outside of these sales, the distribution of mature structural stages may be more scattered under Alternative 1, but may be in closer proximity within post-fledging family areas under Alternatives 2 and 3. The distribution of mature structural stages outside of the Settlement Agreement sales may be more evenly distributed across the landscape under Alternative 3, though this effect may not fully occur within the next two to five years.

As stated in the Settlement Agreement, no decision to log in the Beaver Park area can be made until the Phase II Amendment is completed. A portion of the volume listed in Table III-59 on FEIS page III-451 for Beaver Park has been forgone due to the mountain pine beetle epidemic currently progressing in this area. See FEIS pages III-450 through III-451 and Insect and Disease section for further discussion of effects.

The balance of structural stages in post-fledging areas under Alternatives 2 and 3 and across the landscape under Alternative 3 most likely would not be attained within Phase I Amendment time frames. Attainment of the balance of structural

stages could occur in differing locations and at different times in the future, depending on existing structural conditions and site capabilities at the project level.

See the FEIS for the 1997 Revised Forest Plan, pages III-134 and III-152 through III-159, for further discussion of effects.

Cumulative Effects on Forested Ecosystems from Utility Corridors

Some utility corridors that were severely damaged by the Jasper Fire may be abandoned (Jasper Fire Rapid Assessment 2000, p. 49). This could potentially reduce the threat of new fire ignitions under Alternatives 1, 2, and 3. Natural succession could occur in these areas, slowly without regenerative actions and more quickly if abandoned corridors are reforested. See the FEIS for the 1997 Revised Forest Plan, page III-166, for further discussion of effects.

3-3. INSECTS AND DISEASES

3-3.1. Affected Environment

See the FEIS for the 1997 Revised Forest Plan, pages III-225 through III-233, for background information on affected environment and consequences related to insects and diseases. These pages describe the types of forest stand structure in which insects and diseases typically cause the most effects. For example, mountain pine beetle epidemics most often occur in dense pine stands that have a basal area greater than 120 square feet per acre and contain trees 7 to 13 inches in diameter. Changes in stand susceptibility to insects and diseases are closely related to silvicultural and timber management activities. The Forested Ecosystem discussion (see page 37) provides a detailed description of predicted effects on forest stand composition, structure, and diversity.

3-3.2. Direct and Indirect Effects on Insects and Diseases

Effects on Insects and Diseases from Forest Vegetation Management

Large-scale outbreaks of tree pathogens such as mountain pine beetle can cause tree mortality, reduce timber yields, and change stand structure, species composition, and successional trends. Effects of Alternative 1 on insects and diseases can be found on pages III-233 through III-241 of the FEIS for the 1997 Revised Forest Plan.

Implications on Mountain Pine Beetle Risk Based on Project Sample Group

This summary is based on the Project Sample Group analysis (see Table 2-5, page 25). The analysis represents the cumulative effects of proposed changes under

Alternatives 2 and 3 (for example, the effects of measures for protection of marten, goshawk, and green tree retention are all combined).

Proposed changes in timber harvest (see Table 2-6, page 27) could cause changes in the risk of mountain pine beetle infestation across the Forest. This analysis assumes that mountain pine beetle risk varies by basal area and average stand tree diameter. If basal area is over 120 square feet per acre or average stand tree diameter is greater than 7 inches, risk of infestation is considered high. If basal area is between 80 and 120 square feet per acre, risk is moderate. If basal area is below 80 square feet per acre or tree diameter is less than 7 inches, risk is low.

Table 3-3 displays the relative difference among alternatives for the four Project Sample Group timber sales.

Table 3-3. Acres in Mountain Pine Beetle Risk Categories According to Project Sample Group Timber Sale and Phase I Amendment Alternative

PSG	Alternative	High	Moderate	Low
Cub	1	19.0	1,131.0	1,974.0
	2	19.0	1,193.0	1,912.0
	3	19.0	1,131.0	1,974.0
Nest	1	819.3	1,881.6	2,953.1
	2	867.8	2,055.2	2,731.0
	3	610.2	1,855.0	3,188.8
Hanna	1	5,900.5	6,531.2	4,673.9
	2	5,833.4	6,598.1	4,673.9
	3	5,765.0	6,695.9	4,644.7
Bullock	1	1,405.0	5,858.0	9,963.0
	2	1,483.0	5,730.0	10,013.0
	3	1,473.0	5,800.0	9,953.0

The table shows that for the Cub and Hanna timber sales the analysis predicts only minor changes in beetle infestation risk under Alternatives 2 and 3 as compared to Alternative 1. In the Nest timber sale, Alternative 2 would increase acres of high and moderate risk as compared to Alternative 1, while Alternative 3 would decrease the acres in the high-risk category and increase area in the low category. In the Bullock timber sale, Alternatives 2 and 3 would increase the high-risk category as compared to Alternative 1.

Table 3-4 presents the combined results of the four individual analyses and provides a Forest-wide qualitative assessment. For all alternatives combined, the high-risk category comprises less than 10 percent of the total acreage. Conversely, the low risk category makes up more than 50 percent of the total. As a whole, Alternative 2 would result in the greatest acreage in the moderate to high risk categories. Therefore, mountain pine beetle population increase and

ponderosa pine mortality would be predicted to be the highest under Alternative 2 as compared to Alternatives 1 and 3. The risk of beetle increase and pine mortality would be lowest under Alternative 3. The lowered risk projected for this alternative can be attributed to its increased emphasis on thinning and prescribed burning to maintain fast-growing, young trees and to provide open understories in mature stands across the landscape.

As the variations among the Project Sample Group timber sales illustrate, there can either be relative increases or decreases in the amount of high-risk area for a given planning unit depending on the current stand conditions and the desired future outcomes. Therefore, site-specific analysis is necessary to examine the effects on a given project area.

Table 3-4. Summary of Mountain Pine Beetle Risk by Forest Plan Alternative for All Project Sample Group Timber Sales Combined

Alternative	MPB risk	Total PSG acres	Percent of total
1	Low	19,564.0	45.4
	Moderate	15,401.8	35.7
	High	8,143.8	18.9
2	Low	19,329.9	44.8
	Moderate	15,576.3	36.2
	High	8,203.2	19.0
3	Low	19,760.5	45.8
	Moderate	15,511.9	36.0
	High	7,867.2	18.2

Implications on Mountain Pine Beetle Risk Based on Landscape Analysis

Based on the results shown in Table 2-6 (page 27), Alternative 2 would result in fewer acres of overstory removal harvest, total treatments, and total timber harvest volume as compared to Alternative 1. This suggests that there would be greater risk of tree mortality from mountain pine beetles under Alternative 2 than Alternative 1 during the next two to five years; there may, however, be less risk under Alternative 3 than under Alternative 1, depending on how aggressively individual projects move towards a balance of structural stages. Fewer acres would be treated under Alternative 1 or 2 than under Alternative 3, but the total amount of timber volume harvested under Alternatives 1 and 2 could be either more or less than under Alternative 3.

Depending on how the outputs of Alternative 3 are calculated, risk of infestation could either be greater or less than under the other two alternatives. In addition, different treatments would be used under different alternatives. Under Alternative 2, a majority of harvest treatments would involve overstory removal and shelterwood seed cuts. The reduction in acres treated and volume harvested under

Alternative 2 as compared to Alternative 1 is primarily caused by retention of more green trees under Alternative 2. Alternative 3 treatments would be patchier in nature, focus on thinning, and occur at a landscape scale. It is uncertain how treatments such as thinning and regeneration openings (e.g. group selection, patch cuts) compare to one another in minimizing beetle susceptibility. It is known, however, that any silvicultural treatment that lowers basal area will also decrease overall susceptibility to mountain pine beetle. Tree mortality caused by mountain pine beetles can be expected to be concentrated in stands with high basal area and minimum average tree diameter of more than 7 inches.

Alternative 2 would maintain sound down logs in sufficient number and size for American marten den, resting, and prey habitat (see Table 2-3, page 18). This could conflict with Guideline 4203, which is designed to prevent the buildup of *Ips* beetle populations. *Ips* populations build up in stressed and recently fallen pine and spruce to levels that have the potential to attack adjacent live trees. Under Alternative 2, potential would increase for build-up of *Ips* beetles in mixed spruce-pine stands.

Armillaria root rot generally spreads less readily at lower levels of timber harvest activity. In contrast to mountain pine beetle, there would be less likelihood of increased Armillaria root rot under Alternative 2 as compared with Alternatives 1 and 3.

Effects on Insects and Diseases from Administrative Site Management, Recreation Management, Riparian Area and Wetland Management, Travel and Transportation Management, and Wilderness Management

No change in effects on insects and diseases from administrative site management, recreation management, riparian area and wetland management, travel and transportation management, or wilderness management would be expected under the action alternatives. Effects would be similar under Alternatives 1, 2, and 3. See the FEIS for the 1997 Revised Forest Plan for further discussion (pages III-241 through III-245 and III-408).

Effects on Insects and Diseases from Fire and Fuels Management

Because mountain pine beetle risk is predicted to be highest under Alternative 2, there would be a slight increase in the short-term probability of wildfire and higher-intensity fires (FEIS for the 1997 Revised Forest Plan, page III-220). No change in effects is expected under Alternative 3. Fuel reduction treatments would reduce fire probability in mountain pine beetle infestation areas. See the FEIS for the 1997 Revised Forest Plan for further discussions of effects on insects and diseases from fire and fuels management (pages III-220 and III-241 through 242).

Effects on Insects and Diseases from Scenic Resource Management

Because there would be an increased risk of tree mortality from mountain pine beetles under Alternative 2, there may be effects on existing scenic integrity in certain areas. Alternative 3 would not change effects as compared to Alternative 1. See the FEIS for the 1997 Revised Forest Plan for further discussions of effects on insects and diseases from scenic resource management (pages III-244 and III-437). See also Buhyoff et al. (1982) and Samman and Logan (2000).

Effects on Insects and Diseases from Wildlife Habitat Management

Alternative 2 would maintain thermal cover units in Management Area 5.4 (big game winter range). It would also prevent reduction in patch size of late-succession forests containing American marten habitat. Where these conditions occur, there would be an increased risk of tree mortality caused by mountain pine beetles. Therefore, insects and diseases could affect thermal cover and late-succession forests managed for wildlife species associated with mature forests. At the same time, an increase in tree mortality in these areas may result in increased snag density and consequent benefits for snag-dependent species (FEIS for the 1997 Revised Forest Plan, page III-359).

In general, trees become more susceptible to insects and diseases with age. Since Alternatives 2 and 3 would retain large-diameter ponderosa pine for snag recruitment, they could result in increased potential for mountain pine beetle activity. If basal area remains greater than 80 square feet per acre after treatment, risk of beetle activity would remain. If basal area after treatment decreases to less than 80 square feet per acre, the risk would not increase. The Project Sample Group analysis indicated that the greater risk of mountain pine beetle activity under Alternative 2 could, in turn, lead to a higher density of snags.

See the FEIS for the 1997 Revised Forest Plan, pages III-244 through III-245 (effects on insects and diseases from wildlife habitat management), III-359 (effects on wildlife from insects, diseases, and pest management), and III-291 (effects on snags and down woody material from insects and diseases).

Effects on Insects and Diseases from Threatened, Endangered, and Sensitive Species Management

Alternatives 2 and 3 would cause no appreciable changes in the management of insects and diseases. Alternative 2 Standards that would, in general, result in reduced levels of forest management activity could benefit species associated with mature forest and tend to retain stands that are more susceptible to mountain pine beetle epidemics (Samman and Logan 2000). Alternatives 2 and 3 both call for the maintenance of patch size in late-succession forests; these areas tend to be susceptible to mountain pine beetle attack. See the FEIS for the 1997 Revised Forest Plan, page III-245, for a discussion of effects on insects and diseases from threatened, endangered, and sensitive species management.

3-3.3. Cumulative Effects on Insects and Disease

General Cumulative Effects

Alternative 2 has a greater potential to increase mountain pine beetle populations (and associated risks) as compared to Alternative 1 and probably Alternative 3. Once mountain pine beetle populations begin to increase, beetles can spread from thermal cover and other patches of late-succession forests, such as habitat for the American marten, to areas managed for timber production and other forest resources.

Similarly, retention of large-diameter green trees for snag recruitment may increase the risk of mountain pine beetle infestation. Maintaining high stand density and large tree diameter may conflict with managing mountain pine beetle populations, since beetle outbreaks are most likely to initiate in stands with these characteristics (Samman and Logan 2000).

Activities designed to increase down woody debris may conflict with Guideline 4203, which gives guidance on management of slash to lessen the buildup of *Ips* beetles. Minimizing vegetation management activity from April through June would aid in preventing potential conflicts between Guideline 4203 and Standard 2308 (regarding down woody material).

The degree to which these effects would occur under Alternatives 2 and 3 as compared to Alternative 1 depends on the magnitude of management activities and on populations of insects and pathogens. Mountain pine beetle populations have risen throughout the Forest in recent years. Other insects and diseases currently are at endemic or static levels. Refer to page III-245 of FEIS for the 1997 Revised Forest Plan for a full discussion of cumulative effects on insects and diseases.

Effects of the Jasper Fire

The interaction between wildland fire and insect infestations was reviewed in the Jasper Fire Rapid Assessment (2000, pages 32-34). In general, areas that experienced low to moderate fire intensity could experience increased levels of activity of *Ips* beetles, red turpentine beetles, and woodboring beetles. Partial damage to the cambium can increase the tree's susceptibility to these insects, resulting in tree mortality and potential spread to undamaged trees. Trees that were severely damaged by fire are not a concern in regard to these insects, since no food remains for a developing insect brood.

There is no evidence that fire damage increases a tree's susceptibility to mountain pine beetle. Tree mortality caused by mountain pine beetles is not likely to be higher than it would have been had the fire not occurred.

Effects of the Settlement Agreement

During the life of the Phase I Amendment, the Settlement Agreement could result in increased tree mortality due to mountain pine beetle infestation. Pursuant to the agreement, no silvicultural treatments (for example, sanitation harvesting or thinning) will be implemented to manage mountain pine beetle infestations in the Beaver Park roadless area. Based on the current high population of beetles within Beaver Park, high levels of tree mortality can be expected to continue during the life of the Phase I. Similarly, there will be no timber harvest in a 30-acre area surrounding historic or active northern goshawk nests in sold timber sales listed in Table A of the Settlement Agreement; there will also be no timber harvest in a 200-foot buffer around colonies of sensitive snail species and tree diameter limits of unsold timber sales listed in Table B would be adhered to. There is an increased potential for mountain pine beetle-caused tree mortality in these areas.

3-4. FIRE

3-4.1. Affected Environment

Refer to the affected environment section in the FEIS for the 1997 Revised Forest Plan, pages III-203 through 210.

Historically, fire was a major force in shaping the composition and structure of plant communities and played an important role in ecological processes in the Black Hills. Composition and structure of vegetation in today's Black Hills are influenced more by human management activities. For this reason, fire has become a reactive force of disturbance that is influenced by forest management activities. The historical effects of fires that shaped the landscape patterns and species composition and structure of forest and non-forest habitats in the Black Hills are now largely gone. In addition, fire suppression over the last 100 years has interrupted many important ecological processes, which in combination with other human influences may have far-reaching consequences that are difficult to quantify.

3-4.2. Direct and Indirect Effects on Fire

Effects on Fire From Forest Vegetation Management

Alternative 2 would result in fewer acres treated. Alternative 3 would result in more acres treated and an emphasis on precommercial thinning, commercial thinning and small-scale regeneration cuts.

Forest vegetation management under Alternatives 2 and 3 would have the greatest effects on fire. Alternative 2 could reduce the number of acres treated and volume harvested; reducing either of these could result in a change in the acres of high-hazard

fuel profile over time. Because Alternative 3 emphasizes thinning of small diameter ladder fuels (paraphrased from Southwest Guidelines) the number of acres in a high hazard fuel profile would be less than under Alternative 2 but slightly more than under Alternative 1.

The shift in high-hazard acres over the next two to five years was estimated using the high-hazard fuel conditions discussed in the FEIS for the 1997 Revised Forest Plan and the change in stand structure as modeled in the Project Sample Group analysis. **Table 3-5** on page 65 illustrates the current acreage in high-risk fuel profile in the four Project Sample Group timber sales and also reflects the change in acreage expected to occur by alternative.

Table 3-5. Project Sample Group Comparison of Acres of High Hazard Fuel Profile

Sample Project	Alternative 1 (acres)	Alternative 2 (acres)	Alternative 3 (acres)
Cub	5,658	5,519	5,732
Bullock	17,483	18,200	17,408
Nest	1,438	1,468	1,604
Hanna	7,115	7,121	7,189
TOTAL	31,694	32,308	31,933

The Southwest Guidelines (Reynolds et.al. 1992) state that "attaining the desired forest conditions decreases the hazards of catastrophic crown fire in the ponderosa pine and the mixed species by: 1) maintaining a more open canopy, 2) reducing tree-understory fuel ladders, and 3) increasing the growth rate of trees and reducing the length of time that stands are at risk to catastrophic fires." This can be accomplished by precommercial thinning, prescribed fire, and/or mechanized treatment methods.

Direct and Indirect Effects on Fire at the Landscape Level

The landscape-level analysis is based on professional judgment. Structural stage changes were not modeled.

Under Alternative 2, over the landscape there may be fewer acres in structural stages 2, 3A, 3B, and 3C in watersheds with few large-diameter trees. This may lead to a decrease in fire hazard, but this prediction is based solely on structural stage and does not take slope or other factors into account. Structural stages 4B and 4C are anticipated to remain stable or increase slightly over the levels identified in the FEIS for the 1997 Revised Forest Plan. Overall fire hazard may increase or remain stable, but again this estimation is based solely on structural stage.

Under Alternative 3, over the landscape it is anticipated there may be an increase in structural stages 1 and 2. This would indicate an increase in acres with a high hazard fuel profile. Structural stages 3A, 3B, and 3C may decrease under Alternative 3, especially in those watersheds with few large-diameter trees; this correlates to a potential decrease in acres at high hazard, based again solely on structural stage. In

addition, Alternative 3 promotes aggressive thinning in structural stages 1, 2, and 3 to promote fast growth and increase tree size. Again, overall result fire hazard may decrease, but this effect depends on topography and weather.

For further discussion, see the Forest Ecosystems section (starting on page 37), the alternative description discussion in Chapter 2, and pages III-211 through 213 of the FEIS for the 1997 Revised Forest Plan.

Effects on Fire from Administrative Site Management, Recreation Management, Wilderness Management, Riparian and Wetland Management, Travel and Transportation Management, Scenic Resource Management

No change in effects on fire from administration site management, recreation management, wilderness management, riparian and wetland management, or travel and transportation management is expected. All alternatives would have similar effects since management of these items would not change. See the FEIS for the 1997 Revised Forest Plan for further discussion (pages III-214 through III-216).

Effects on Fire From Wildlife Habitat Management

See Effects on Fire from Forest Vegetation Management, page 64.

Effects on Fire from Snags and Down Woody Material, Rangeland Management, Soil, Water and Air Quality Management, Threatened, Endangered and Sensitive Species Management, Minerals Management, Insect/Disease Management, Wild and Scenic Rivers, Utility Corridors and Cultural Resource Management

No change in effects on fire from snags and down woody material, rangeland management, soil, water and air quality management, threatened, endangered, and sensitive species management, minerals management, insect/disease management, wild and scenic rivers, utility corridors, or cultural resource management is expected. There may be an increase in the amount of fine flashy fuels found in meadows if rangeland conditions improve, but this would be highly dependent on weather conditions.

Effects would be similar under all alternatives. See the FEIS for the 1997 Revised Forest Plan for further discussion (pages III-217 through III-221).

3-4.3. Cumulative Effects on Fire

Refer to pages III-222 through 224 of the FEIS for the 1997 Revised Forest Plan for a discussion of cumulative effects on fire and fuels under Alternative 1. Alternative 2

would slightly increase the number of acres in the high hazard fuel profile. Alternative 3 would slightly reduce the number of acres in a high hazard fuel profile.

Since the FEIS for the 1997 Revised Forest Plan was written, national interest in fire management has grown substantially. This has been in large part an effect of the fire season of 2000. The result of this interest is the National Fire Plan, which augments the Federal Wildland Fire Policy. The National Fire Plan should result in full funding for fire suppression and prescribed fire for the next two to five years, though funding also depends on Congressional action.

The Jasper Fire, which burned 83,500 acres in the southern Black Hills in August and September of 2000, affected fuels in the fire area. The areas of the fire that burned at high intensity now have very little down and dead material, except where burnout operations took place. This is expected to change over time as the large amount of standing dead material falls. Future fuel conditions will depend on individual site conditions and the amount of wood salvaged, but on average will rise sharply in about three to five years as the standing dead timber begins to fall. Once this happens, dead fuel loading will generally range from 20 to 60 tons per acre where no standing dead is removed.

These fuels will not have a great effect on fire spread rates, but during very dry years they will burn readily and could present firefighters with control difficulties. Large fuel concentrations may contribute substantially to fire intensity and severity and, under extreme fire conditions, could cause hydrophobic soils to form. Fires burning in such conditions are also likely to have negative ecological effects such as noxious weed infestation, mortality of regenerating pine, and substantial effects on soils. Grasses and other live vegetation in the burned area are expected to respond well, resulting in fuel loadings of up to three tons per acre and fuel bed depths of one to two feet. Fires in grassy areas are likely to spread quickly, burning with low severity and at low to moderate intensity (Jasper Fire Rapid Assessment 2000).

3-5. SOCIAL AND ECONOMIC CONSIDERATIONS

3-5.1. Scope of the Analysis

The Black Hills National Forest serves national interests in many ways, but it provides most dramatically to those communities that are located in or near the Forest. The Black Hills, even before they were part of the National Forest System, provided hunting, recreation, inspiration, minerals, timber, range, and water resources to native and incoming peoples. They have been central to the lives of many for centuries. The Black Hills National Forest was established because of these values and to secure these values. These values are discussed in the FEIS for the 1997 Revised Forest Plan, especially on pages III-457 through III-534.

While the Phase I amendment affects a variety of resource conditions, it does not affect a similarly wide variety of Forest uses and values. The amounts of recreation, grazing, and mineral use will not be affected. Some recreation and other Forest experiences may be modified in small ways and in certain locations, as explained elsewhere in this document, but these changes are expected to be minor consequences of this decision. The largest potential economic and social effects on communities around the Forest are tied to timber harvest activities. For this reason, the economic and social analysis will focus on timber-related consequences.

3-5.2. Affected Environment

Processors of Black Hills Timber

Economic changes often prompt social changes in communities. Thriving businesses are key factors in determining the vitality of communities. Without them, individual and community wealth is usually not possible. Local businesses are a direct reflection of landscape and community characteristics. Areas that are rich in scenic resources and draw recreation visitors will have strong service and trade sectors. Areas that are rich in timber and minerals resources will have strong manufacturing or milling sectors. The Black Hills area has both sectors, but the manufacturing sectors are of key interest here.

The lumber and wood products industry includes approximately 20 firms in the seven-county area of the Black Hills, employing about 2,000 (about two percent of all workers in the area). Products range from wood chips to kitchen cabinets. The industry is highly integrated, whereby some firms are fully reliant upon the byproducts of others. The foundational firms for the whole industry are the sawmills. The sawmills have a combined capacity of about 190 million board feet (MMBF) per year, down about 15 percent from five years ago. Three major mills make up about 170 MMBF, or almost 90 percent of capacity. Firms in the industry have tended toward either large or small operations. The larger firms are very efficient at what they do, while the smaller ones can quickly adapt to fill market niches. Medium-sized operations have not fared well in recent years because they do not share either of these benefits. In this regard, medium-sized operations that process about 5 to 20 MMBF annually are the most vulnerable to changes in the future. Some medium-sized operations, such as the mill in Newcastle, Wyoming, have closed in recent years.

Because the three large mills dominate local industry and are major contributors to the communities around them, they are described in the following section.

The three major mills are located in the counties and communities listed in **Table 3-6**. Their recent harvest of Black Hills NF timber is listed in **Table 3-7.**

Table 3-6. Major Processors of Black Hills National Forest Timber

State	County	Community	Lumber and Wood Products
South Dakota	Lawrence	Spearfish	Pope & Talbot
South Dakota	Pennington	Hill City	Rushmore Forest Products (Neiman)
Wyoming	Crook	Hulett	Devils Tower Forest Products (Neiman)

Table 3-7. Harvest of Black Hills National Forest Timber, 1998-2000 (MMBF)

Company	1998	1999	2000
Pope & Talbot	31.6	33.6	26.6
Neiman	30.6	32.1	30.9
Others	3.5	3.5	7.2
Total	65.7	69.2	64.7

Pope & Talbot

The Pope & Talbot Sawmill in Spearfish, South Dakota is one of four large sawmills in the United States and Canada that make up the Wood Products Division of Pope & Talbot, Incorporated. The Corporation also has a Pulp Division with one facility in the U.S. and one in Canada. Pope & Talbot, Incorporated is a publicly traded Corporation on the New York Stock Exchange. It was founded in 1849 and is headquartered in Portland, Oregon.

The Spearfish facility was purchased from the Homestake Mining Company in 1981 and was completely rebuilt installing state-of-the-art computerization, scanning, and processing equipment. Employing 250 people on the plant site and contracting with 150 loggers, the sawmill produces up to 118 MMBF of ponderosa pine lumber annually. It is one of the largest ponderosa pine sawmills in the United States. Because of low timber prices, the mill recently shut down for the first time in its 20-year history. Having closed for four weeks in March 2001, production is expected to resume in April.

Timber supply sources by land ownership for the mill are variable. Historically, the Forest Service provided up to 70 percent of mill input. In recent years this has dropped by half. The balance of timber has come predominately from private lands, including those owned by the Homestake Mining Company in the Black Hills. High lumber prices and lack of available Forest Service timber over the past year combined to force reliance upon private sources. Because this level of dependence upon private stumpage is not sustainable, the company desires to increase supplies from the Black Hills National Forest to about 50 percent of their total need.

The Pope & Talbot mill in Spearfish primarily produces dimension pine lumber and premium quality pine boards. In addition, this mill produces quality specialty products like exterior log cabin siding and interior pine paneling. The Spearfish mill harvests timber from public and private lands in the Black Hills region.

Located near the Spearfish mill site is a pellet mill where Pope & Talbot also produces Heartland Wood Pellets, used as fuel in wood pellet stoves. Production of over 20,000 tons per year is made from mill by-products such as sawdust, shavings, and wood chips.

In July of 2000, Pope & Talbot closed its mill in Newcastle, Wyoming, which it operated for a little over 10 years. Historically the mill had processed about 60 percent dimension and 40 percent board volume. The final sources of volume had been 40 percent Forest Service, 35 percent private, five percent state, and five percent Bureau of Land Management. About 65 percent of this volume came from Wyoming and 35 percent from South Dakota. The mill had relatively old technology lacking technological efficiency and product focus.

Pope & Talbot is active in Spearfish and the larger Black Hills community. An example of this is their involvement as a consortium partner with Black Hills State University in Spearfish and Western Dakota Technical Institute in Rapid City. Known as CATE (Consortium for Advanced Technical Education), this organization of industrial, community and educational partners was formed in the fall of 1998 with the intention of expanding technical education opportunities for the rural high school students in South Dakota (Pope & Talbot web page, Black Hills State University web page, Rideout & Hesseln 2000, Brenneisen pers. comm.).

Devils Tower Forest Products

Devils Tower Forest Products (DTFP) is a corporation owned by the Neiman family in Hulett, Wyoming. Neiman owns the sawmill in Hulett, Rushmore Forest Products (RFP) in Hill City, South Dakota, and a remanufacturing plant in Sturgis, SD. About 125 employees work in each of the Hulett and Hill city facilities, with another 175 employed by contract loggers.

RFP, formerly Continental, was purchased by Neiman in the last two years. Neiman has made significant upgrades in the form of capital improvements to the mill. Upon completion of the restructuring, the mill is expected to increase processing from about 18 MMBF to between 26 and 30 MMBF log input annually. RFP is a dimension mill designed to produce 2x4, 2x6, 2x8, 1x4, 1x6, and five quarter decking. The Hill City location is especially well situated for Forest Service supplies and to work in tandem with DTFP, which specializes in grade products (see below). To process most efficiently, all logs are sorted by diameter with the larger logs routed to the Hulett mill and the smaller diameter logs, more suitable for dimension products, routed to RFP. Such routing affects the processing data and volumes for both mills. Because the mills are managed in tandem, logs processed at Hulett may have originated in another state. With a technologically efficient and expanding operation, Neiman is positioned to compete in the new economy.

DTFP in Hulett, Wyoming is a grade mill that reports producing approximately 40 percent shop industrials, 35 percent 4x4 boards, 15 percent random edge decking and 10 percent dimension lumber. Of DTFP's input sources, 20 percent come from Wyoming, 78 percent from South Dakota, and minor amounts from Montana. Sources of input by land ownership show the Forest Service as the primary supplier with 64 percent of the volume, private sources supply 29 percent, and State of Wyoming sources just seven percent. Neiman has aggressively managed DTFP for long-term profitability consistently positioning the corporation for future survival during difficult and dynamic times. By aggressively identifying product niches, focusing on them, and keeping the mills equipped with state-of-the-art technology, the corporation and DTFP have been successful.

Neiman is well diversified in the product markets, having access to both commodity and special product markets. Neiman is also particularly well suited to purchasing and milling Forest Service timber. Both of the Neiman mills rely heavily on Forest Service timber. Neiman mills also qualify for the Small Business Administration program, which limits bids on some Forest Service timber sales to smaller, local firms. Rideout and Hesseln identify the key concern for Neiman as the future uncertainty of the Black Hills timber program. While Neiman has consistently been acquiring private ranches with the purpose of managing them for timber, hunting, fishing, and grazing, Neiman's high percentage of Forest Service timber is an important consideration to the long-term viability of the mills.

Just as Pope & Talbot is involved in its communities, so Neiman is involved in Hulett. The corporation has made significant contributions to youth and 4H programs in Crook County, as well as being a major donor for a new ambulance in Hulett. Because Hulett is a very small town, the presence and involvement of DTFP is highly significant to the community (Rideout & Hesseln 2000, Crook County Extension Agent pers. comm., Nobel pers. comm.)

Other Processors

Several medium-sized and many small mills operate in the Black Hills area. The largest are Hills Materials, located in Spearfish, and Wyoming Sawmills, located in Sheridan, Wyoming. Hills Materials has long been a purchaser of Black Hills National Forest timber. Wyoming Sawmills is a relative newcomer among purchasers of timber from the Black Hills National Forest. Their reach into the area is the result of low timber supplies in the Bighorn Mountains and Montana plus high lumber prices in the recent past. It is not clear whether the presence of Wyoming Sawmills in the Black Hills is temporary or more lasting.

3-5.3. Direct and Indirect Effects

The Timber Economy

Both international and domestic elements have combined to shape the new western timber economy. International events play an important role in US timber markets. A strong US dollar (making domestic products more expensive) and increases in Canadian imports are key international factors. Canada accounts for the vast majority of wood imports, and Canadian imports have risen. The US-Canadian Lumber Agreement will expire in April 2001 and could have significant implications for US lumber markets. Failure to reach a trade agreement could depress lumber prices and offset increases expected from an international recovery. Lumber prices are currently very low, having dropped precipitously over the last nine months. Such low prices have not been seen since the 1970s.

Domestic events have been the driving force in shaping the new economy. Foremost is the rising effect of environmental and amenity pressures on timber harvesting. Timber sales are increasingly difficult and costly to prepare and offer for sale due to environmental regulations, appeals, and litigation. Sale volumes have declined throughout the Western US, but an additional effect is that the quality of most volumes has also declined. With an increased emphasis on vegetative treatment of the forest and a corresponding decline in commercial value, timber sales are more often of smaller diameter and poorer quality. Because of these factors, timber from private lands is becoming increasingly important.

The forestry profession has often underestimated the importance and resiliency of private inventories. Despite the recent fall in stumpage prices, many see increased value in small private timber holdings, including ranches. Commercial inventories are much more valuable, many non-commercial inventories are now commercially viable, and acres that were allocated to other uses can be brought under management for fiber products. Further, much of the volume on private ranches is thought to have the potential to benefit from more active management and cultural practices.

To every processor, hauling distance is an important consideration in the acquisition of timber. Until recently, higher stumpage prices have made hauling logs a smaller proportion of total processing costs. Today's mills reach a minimum of 200 miles, and most will need to reach ever further to be competitively viable. While mills have restructured their operations to accommodate these long hauling distances, they may have become more sensitive to cyclical price changes in lumber markets (Rideout and Hasseln 2000).

Effects on Mills

There are four factors that determine the impact of the Phase I Amendment alternatives on mill operations: lumber prices, sawtimber prices, total sawtimber supply, and sawtimber size. As stated above, lumber markets are beyond the control

of the Forest Service and Black Hills National Forest timber processors. Low lumber prices can, however, magnify any negative effect caused by the other factors. Conversely, high prices can moderate any negative effects.

Key measures of anticipated harvest of Black Hills National Forest timber by alternative are shown in **Table 3-8.** Based on the discussion in the Forested Ecosystem section (beginning on page 37), these estimated harvest levels are likely to be the maximum for Alternatives 1 and 2. The range provided for Alternative 3 should be considered the lowest and highest volumes estimated. Total sawtimber volume harvested will range from 97 percent to 136 percent of the 1993-2000 average of 61.9 MMBF. With decreasing private supplies, this is likely to represent a modest reduction of total timber supply in the Black Hills region, even at the highest harvest levels. Such a reduction in combination with relatively stable mill capacities would set the stage for greater competition between existing timber purchasers and drive up bid prices of timber. This brings in the final factor of sawtimber size. Larger diameter sawlogs have higher value per unit; smaller logs have lower value. Alternative 1 is anticipated to maintain the historic split between large and small logs, while Alternatives 2 and 3 are anticipated to decrease the amount of larger logs, thus decreasing mill viability. Small-diameter logs typically have the effect of promoting industry consolidation into larger, more technologically advanced mills.

Table 3-8. Anticipated Harvest by Alternative

Measure	Alt 1	Alt 2	Alt 3 low	Alt 3 high
Average Annual Sawtimber Volume (MMBF)	82.4	72.0	60.2	84.2
Amount greater than 14” diameter (%)	50	45	35	35
Amount less than or equal to 14” diameter (%)	50	55	65	65

All four factors are at work cooperatively. With “normal” lumber prices, Alternative 1 would be likely to have no or only a slight impact on mill operations around the Black Hills. Alternatives 2 and 3 High would be likely to have a more moderate impact on mills, with marginal mill operations – both medium-size and small – at some risk of failure. Alternative 3 Low, with low volumes and small logs, would likely threaten the viability of all remaining medium-sized operations and, some small operations, and would pose very serious challenges to the major mills. It seems likely that one major mill would close at the low end of the range for Alternative 3. Should current lumber prices remain depressed for an extended time, such a closure would be quickly hastened. It is impossible to estimate how long it would take before a major mill would close or which mill it would be.

Counties and Communities

The three large sawmills in the Black Hills are located in Spearfish and Hill City, South Dakota, and Hulett, Wyoming. Two medium-sized mills are located in Spearfish and Sheridan, Wyoming. **Table 3-9** and the narratives below provide a brief look at the characteristics of these towns and counties. Employment represents

the number of jobs occupied each month averaged over a year. Labor income includes all compensation to employees (wages, overtime pay, insurance benefits) plus income to proprietors over a year. More comprehensive descriptions of the area can be found on pages III-457 through III-524 of the FEIS for the 1997 Revised Forest Plan.

Table 3-9. Current Economic Profile of Selected Counties

State	County	Population[1]	Per Capita Personal Income[2]	Employment[3]	Labor Income[4]
SD	Lawrence	21,913	$20,437	14,796	$335,575,000
SD	Pennington	87,323	$23,858	62,224	$1,614,131,000
WY	Crook	5,781	$20,553	3,355	$69,855,000
WY	Sheridan	25,154	$25,767	16,115	$355,501,000

[1] Source: Bureau of Economic Analysis, Bearfacts; 1998 data.
[2] Source: Bureau of Economic Analysis, Bearfacts; 1998 data.
[3] Source: Minnesota IMPLAN Group, Inc; 1997 data.
[4] Source: Minnesota IMPLAN Group, Inc; 1997 data.

Spearfish and Lawrence County

Lawrence County is located on the northern edge of the Black Hills. It is the sixth-most populous county in South Dakota. In its early years, mining and timber operations were central to the identity of this part of the Black Hills. The Homestake Mining Company has long been an important employer in the county, but recently announced that it will close. The mining industry is often the highest-paying employer in Western rural communities, and that is the case here. In 1988, mining accounted for over 35 percent of all earnings in the county. By 1998, mining had dropped to 16 percent. About 400 of the highest-paying jobs in the county will be terminated because of the Homestake closure. Per capita personal income was 75 percent of the national average, ranking 44th out of 66 counties in South Dakota.

The wood products industry accounted for 3.0 percent of total employment and 4.5 percent of labor income in Lawrence County in 1997. Several sawmills are located in Lawrence County, including Pope & Talbot and Hills Materials in Spearfish. Once multiplier effects are accounted for, this industry directly and indirectly affects 4.9 percent of total employment and 6.2 percent of labor income in the county.

Spearfish, with a population of 8,500, is the largest town in Lawrence County. It is 13 miles from the Wyoming border and 48 miles west of Rapid City. Spearfish is a small retail hub of the northern Black Hills. It also is home to Black Hills State University, a major employer in the area.

Hill City and Pennington County

Pennington County cuts through the center of the Black Hills, but most of its population is in Rapid City. It is the second-most populous county in South Dakota. Rapid City is a regional service center for an area that extends from all of western South Dakota into Nebraska, Wyoming, and North Dakota. Because of this regional role, Rapid City is characterized by its service and retail sectors. In 1988, these sectors accounted for 31 percent of earnings; by 1998 the percentage had grown to 41 percent. This also reflects a growing tourism component of the economy. Per capita personal income was 88 percent of the national average, ranking 17th out of 66 counties in South Dakota.

The wood products industry accounted for 1.5 percent of total employment and 1.9 percent of labor income in Pennington County in 1997. Several sawmills are located in Pennington County, including Rushmore Forest Products in Hill City. Once multiplier effects are accounted for, this industry directly and indirectly affects 2.7 percent of total employment and 3.1 percent of labor income in the county.

Hill City, with a population of 700, is about half hour drive from Rapid City. Once a major rail stop for miners and loggers, Hill City today relies heavily upon tourism. The Hill City School District is the largest employer in town with 80 on its staff. Many employees commute from either Custer or Rapid City.

Hulett and Crook County

Crook County sits to the northwest of the Black Hills in the northeastern corner of Wyoming. It is a very rural county, the fourth-least populous county in Wyoming. The county economy is based on mining, which has remained stable over the last decade; manufacturing, primarily the wood products industry; and state and Federal government presence. Devils Tower National Monument is known nationally, and is the biggest source of tourism in the county. Per capita personal income is 76 percent of the national average, ranking 15th out of 23 counties in Wyoming.

The wood products industry accounted for 6.9 percent of total employment and 9.4 percent of labor income in Crook County in 1997. The major sawmill in Crook County is owned by Neiman and located in Hulett. Once multiplier effects are accounted for, this industry directly and indirectly affects 10.7 percent of total employment and 12.5 percent of labor income in the county.

Hulett, with a population of 470, is nestled along the banks of the Belle Fourche River. The town is located on Highway 24, nine miles north of Devils Tower National Monument. The chamber of commerce reports local services to include "two motels, three cafes, two bars, a medical clinic, bank, beauty shop, laundromat, video rental, and hardware and grocery stores. Hulett also has an attorney, two service stations, a taxidermist, silversmith, western embroidery shop, three insurance agencies, two real estate offices, car wash, RV park, five churches, one gift shop,

guest ranches, and one of the best schools in the state." The primary source of employment in Hulett is the timber industry's two sawmills. The town also serves the ranchers in the surrounding area. Because of Devils Tower, Hulett has approximately 450,000 visitors a year. With an elevation of 3,500 feet, Hulett is the lowest point in the state.

Sheridan and Sheridan County

Sheridan County lies about 200 miles to the north and west of the Black Hills. It is the eighth-most populous county in Wyoming. Sheridan is a regional service center for an area that extends from northern Wyoming into Montana. Because of this regional role, Sheridan is becoming characterized by its service sectors. In 1988, this sector accounted for 19 percent of earnings; by 1998 the percentage had grown to 24 percent. This also reflects a growing tourism component of the economy. Per capita personal income was 95 percent of the national average, ranking third out of 23 counties in Wyoming.

The wood products industry accounted for 1.3 percent of total employment and 1.5 percent of labor income in Sheridan County in 1997. The medium-sized sawmill located in Sheridan is owned by Wyoming Sawmills. Once multiplier effects are accounted for, this industry directly and indirectly affects 2.5 percent of total employment and 2.5 percent of labor income in the county.

Sheridan was founded at the confluence of two mountain streams on May 10, 1882 by an early area pioneer, John D. Loucks. Loucks named the town Sheridan after his commanding general in the Civil War. The 1890 census showed Sheridan had 281 pioneer residents. In 1990 it had 13,900 residents and 5,241 acres within its encompassing city limits boundary of 37.5 miles. From its beginning, Sheridan was a major trade center to serve the people of the area, whether they were involved in ranching, farming, lumbering, mining, railroading, manufacturing, building, or any other work that fit the times.

Sheridan is located about fifteen miles from the Bighorn Mountains and Bighorn National Forest. Sheridan could be called the hub of a historic wheel that includes, among many others, the Little Bighorn Battlefield to the north, Fort Phil Kearny to the south, the Medicine Wheel to the west, and halfway to Devils Tower to the east.

Potential impacts to counties and communities

The estimated impacts on employment and labor income in Black Hills counties are summarized in **Table 3-10.** These impacts are based upon how anticipated timber harvest levels would likely impact the mills in these counties. Alternative 1 is not displayed since there would be little to no effect.

Several key assumptions were made to estimate the impacts in Table 3-10. First, the distribution of timber harvest among major purchasers from 1998 through 2000 was maintained. Second, for each one-percent reduction in the proportion of large logs to total harvest, mill profitability and employment requirements were also reduced one percent. This conclusion is generally based on conversations with timber industry representatives. Third, the average mill was assumed to employ 5.8 jobs per MMBF of logs processed. This last assumption is based on studies done by the University of Wyoming for sawmills in southern Wyoming. Multipliers were provided through IMPLAN, a widely recognized, proprietary software and database system for modeling regional economies.

By comparing Tables 3-9 and 3-10, a picture of the relative importance of sawmill activity for each of the areas can be developed. With total Black Hills employment of about 110,000, it is clear that the overall impacts of Alternatives 2, 3 Low, and 3 High would not be significant. The potential loss of any jobs to an area is always of concern to residents, and especially the businesses and employees affected. The potential losses to the Black Hills as a total regional economy and even to Pennington County would not, however, be economically significant. This is not true when other individual counties and communities are considered. The relative importance of sawmills and associated employment to Spearfish and especially Hulett is significant. For Alternatives 2 and 3 High, the loss of up to 70 jobs in Lawrence County would be difficult to absorb locally, especially with the recent loss of Homestake Mining Company. It is reasonable to assume that some of the households affected would leave the area. For Alternative 3 Low, the effect would be doubled economically, but more than doubled socially. At this level of impact, many community organizations would feel the impact. This may be felt through the loss of key volunteers or finances or both. Property values may also be affected as a large number of households move to seek employment. Such impacts would ripple into local government revenues and may affect the ability to maintain public service levels, at least in the short term.

Table 3-10. Economic Impacts in the Black Hills (1997 dollars)--Change from Alternative 1
The mill at Newcastle has been removed from 1997 estimates.

	Employment (Jobs)			Labor Income ($1,000)		
Current – 1997#	Sawmills Only	All Other Businesses	Total	Sawmills Only	All Other Businesses	Total
Black Hills Area Total	700	700	1,400	$22,300	$17,900	$40,200
Lawrence County	270	260	530	$10,000	$5,900	$15,900
Pennington County	90	90	180	$2,700	$2,400	$5,100
Crook County	160	150	310	$4,600	$3,300	$7,900
Unspecified Areas*	180	200	380	$5,000	$6,300	$11,300
Alternative 2	Sawmills Only	All Other Businesses	Total	Sawmills Only	All Other Businesses	Total
Black Hills Area Total	-80	-100	-180	-$2,500	-$2,500	-$5,000
Lawrence County	-35	-35	-70	-$1,400	-$800	-$2,200
Pennington County	-20	-20	-40	-$600	-$500	-$1,100
Crook County	-20	-20	-40	-$500	-$400	-$900
Unspecified Areas*	-5	-25	-30	-$20	-$800	-$800
Alternative 3 Low	Sawmills Only	All Other Businesses	Total	Sawmills Only	All Other Businesses	Total
Black Hills Area Total	-180	-220	-400	-$5,600	-$5,600	-$11,200
Lawrence County	-80	-75	-155	-$3,000	-$1,800	-$4,800
Pennington County	-45	-45	-90	-$1,300	-$1,200	-$2,500
Crook County	-45	-45	-90	-$1,200	-$900	-$2,100
Unspecified Areas*	-10	-55	-65	-$50	-$1,700	-$1,800
Alternative 3 High	Sawmills Only	All Other Businesses	Total	Sawmills Only	All Other Businesses	Total
Black Hills Area Total	-60	-80	-140	-$2,000	-$1,900	-$3,900
Lawrence County	-30	-30	-60	-$1,100	-$600	-$1,700
Pennington County	-15	-15	-30	-$500	-$400	-$900
Crook County	-15	-15	-30	-$400	-$300	-$700
Unspecified Areas*	-1	-20	-20	-$20	-$600	-$600

* Unspecified areas include any and all counties within the 7-county Black Hills area plus Sheridan, WY.
Note: Columns or rows may not add due to rounding.

In Hulett and Crook County, the loss of up to 40 jobs under Alternatives 2 and 3 High in would be impossible to absorb locally. Because Hulett is fully dependent upon the sawmill for high-paying jobs and much of its other economic activity, these losses would be more disruptive. Many of the effects described for Lawrence County at Alternative 3 Low may be applicable to Crook County at Alternatives 2 and 3 High. Under Alternative 3 Low, the effect could be either extremely severe or moderated. The reason hinges on what Neiman would do in the face of reduced harvest levels and log sizes. One option is to close the mill at Hill City and process all timber in Hulett.

This seems reasonable given that Hulett is the home for Neiman industries. In this case, Pennington County would be affected, but much more moderately. The other option is to close the mill in Hulett and process all timber in Hill City. This would be devastating to the town of Hulett, which would not likely exist in the same manner as it does today. A few businesses that serve ranchers and tourists would remain, but many would close. It is difficult to estimate which social organizations would continue, what might happen to the school system, and other social impacts. However, the potential effects would be highly significant to both Hulett and Crook County.

In Table 3-10, the row entitled "Unspecified Areas" covers sawmill effects in communities like Sheridan, Wyoming, and associated effects in any part of the Black Hills. While there could be a small effect on Sheridan, it is unlikely that the effects would be felt throughout the community.

Federal Revenue Sharing

Counties also benefit from the presence of Federal lands through two revenue-sharing programs: Twenty-five percent of most Forest Service revenues and Payments-in-lieu-of-taxes (PILT).

Twenty-five percent of most revenues collected by the Black Hills National Forest, such as those received from timber sales, have been shared with states and then distributed to counties for decades. While the states have discretion to distribute these payments to counties, most are made in direct proportion to the amount of acreage of each county in the total Black Hills National Forest. Payments made to Black Hills states and counties from 1990 through 2000 are shown in **Charts 3-1 and 3-2.** 1997 was the highest year on record of Forest Service 25 Percent payments to Black Hills counties.

In October of 2000, the Secure Rural Schools and Community Self-Determination Act of 2000 was signed into law. The law states that the purpose of these payments is to compensate local governments for the additional services rendered to visitors of Federal lands. This law now gives counties the option to receive constant annual payments equal to the average of the three highest payments between 1986 and 1999. Counties have until September 30, 2001 to decide whether to continue receiving payment based on current Forest Service revenues or constant annual payments based on the highest three-year average. The fixed annual payment is shown in **Table 3-11** on the following page**.** While not all counties have made their selection, the downward trend in Black Hills National Forest revenues suggests that many will opt for the constant payments. There are provisions in the law for counties that elect the variable payments to later change that election. Counties that choose the constant payments cannot reverse that election. The impact analysis in this document is based on that premise.

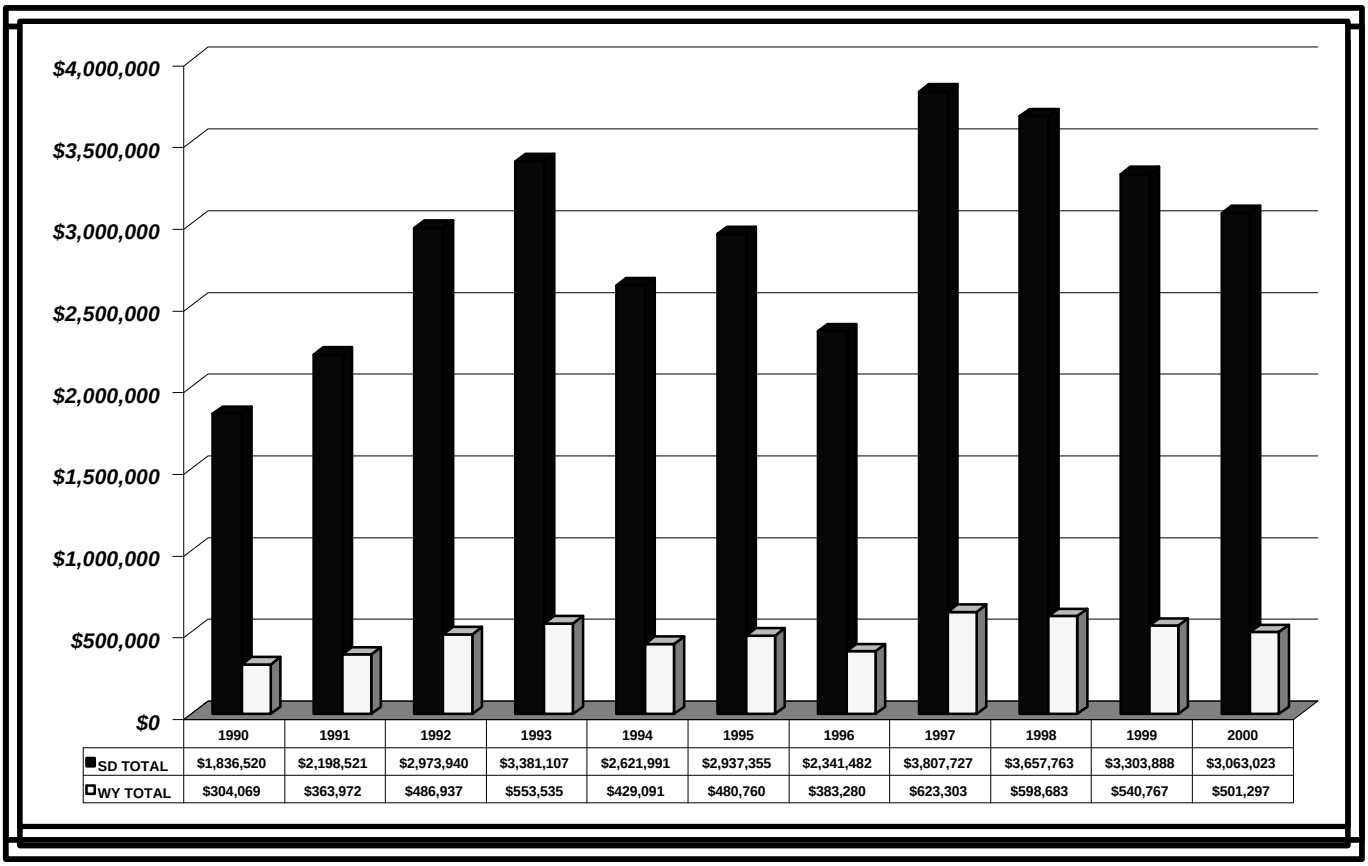
Table 3-11. Fixed Annual Payments Available under the Secure Rural Schools Act

State	County	Annual Payment
South Dakota	Custer	$1,053,000
South Dakota	Fall River	$158,400
South Dakota	Lawrence	$918,900
South Dakota	Meade	$145,600
South Dakota	Pennington	$1,334,300
Wyoming	Crook	$487,200
Wyoming	Weston	$18,700

Payments-In-Lieu-of-Taxes are made directly to counties to compensate local governments for property tax revenues lost because of Federal land ownership. This program is operated by the Bureau of Land Management and is governed by the Payments in Lieu of Taxes Act of 1976. The amount of each annual payment is determined by a complex formula that considers acres of Federal "entitlement land", county population, and Federal payments made in the prior year that are related to Federal land management. Twenty-five Percent Fund payments made by the Forest Service are included in these prior-year amounts. Payments made to Black Hills counties from 1990 through 2000 are shown in **Charts C and D**. 1998 was the highest year on record of PILT payments to Black Hills counties. While these payments are not distributed across counties in the same way that 25 Percent Fund payments are, the relationship between counties is relatively constant and permit the kind of display shown in Chart D. Annual PILT payments are not funded by any agency revenues, but rather by Congressional appropriations. In recent years, Congress has chosen to not fully fund these payments. For example, the payments based on the PILT formula in 2000 were reduced to 43 percent of their calculated amount to account for Congressional appropriations.

As stated above, Forest Service 25 Percent Fund payments may affect PILT payments. In many cases, PILT payments are inversely related to 25 Percent Fund payments. For such counties, a $1.00 increase in Forest Service payments will result in a $1.00 decrease in formula-based PILT payments. Conversely, a $1.00 decrease in Forest Service payments will result in a $1.00 increase in formula-based PILT payments. This does not account for the partial Congressional funding of PILT. The Black Hills counties in this situation are Fall River, Meade, Pennington, and Weston. Other counties do not have this situation; that is, a change in Forest Service 25 Percent Fund payments does not affect PILT payments. These counties are Custer, Lawrence, and Crook.

Chart 3-1. Forest Service Revenue Sharing – FY2000



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
SD TOTAL	$1,836,520	$2,198,521	$2,973,940	$3,381,107	$2,621,991	$2,937,355	$2,341,482	$3,807,727	$3,657,763	$3,303,888	$3,063,023
WY TOTAL	$304,069	$363,972	$486,937	$553,535	$429,091	$480,760	$383,280	$623,303	$598,683	$540,767	$501,297

Chart 3-2. County Distribution of Forest Service Revenue Sharing – FY2000

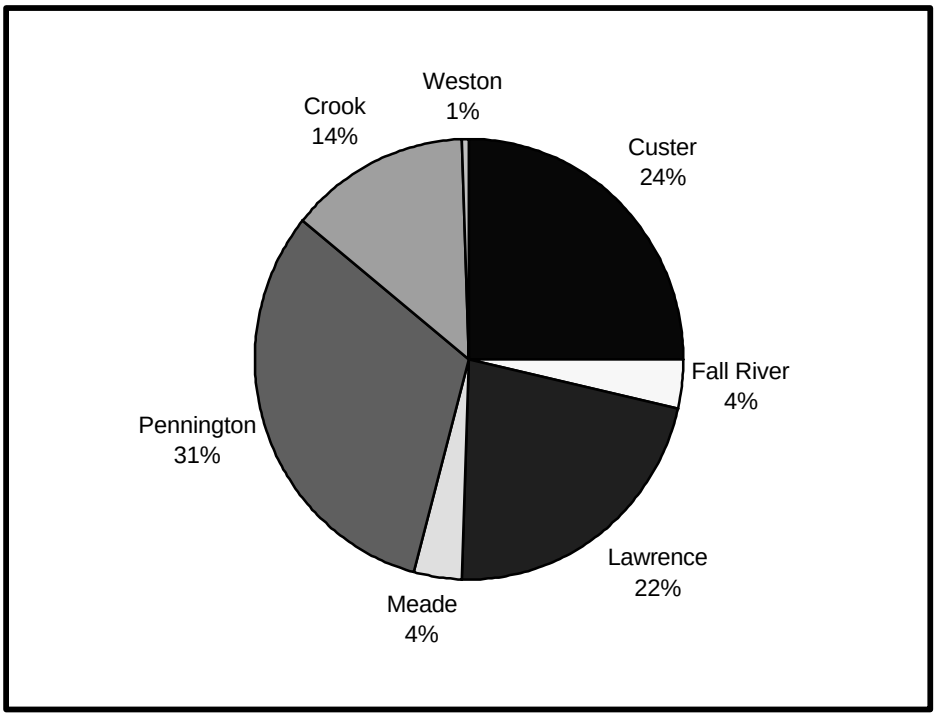
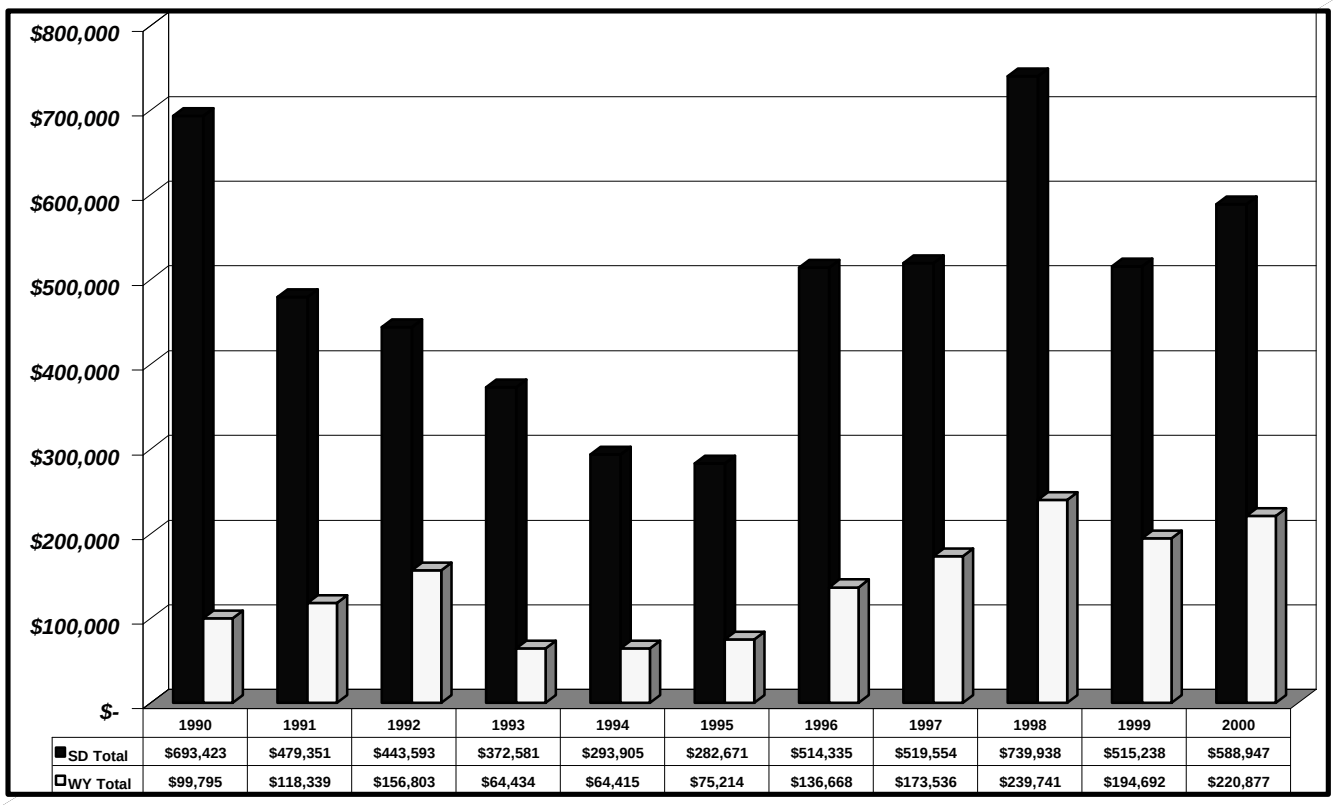
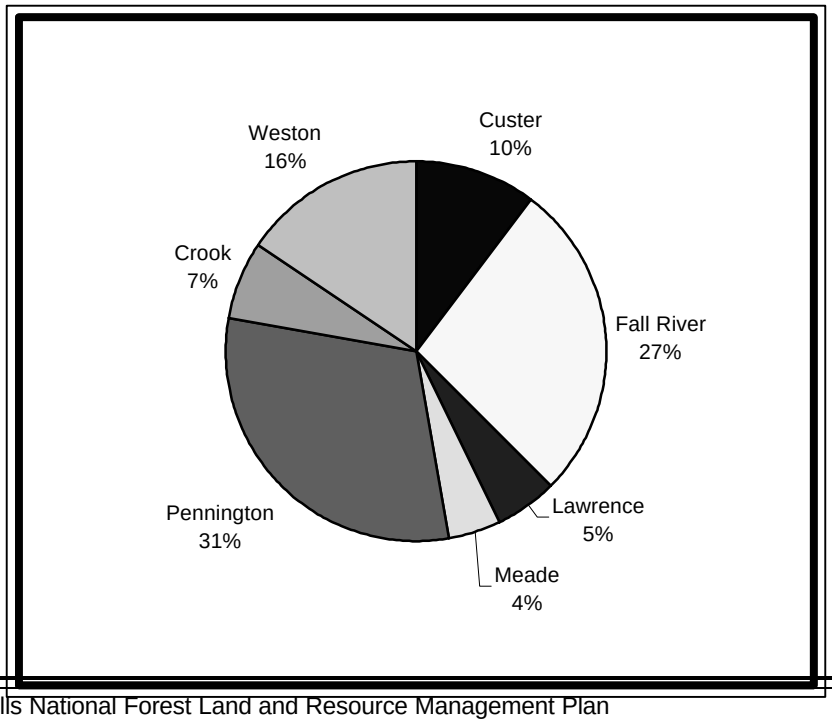


Chart 3-3. Payments-In-Lieu-of-Taxes (PILT) by State, 1990-2000.



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
SD Total	$693,423	$479,351	$443,593	$372,581	$293,905	$282,671	$514,335	$519,554	$739,938	$515,238	$588,947
WY Total	$99,795	$118,339	$156,803	$64,434	$64,415	$75,214	$136,668	$173,536	$239,741	$194,692	$220,877

Chart 3-4. Distribution of PILT to Black Hills Counties, 1990-2000 Average.



Counties in the Black Hills rely heavily upon Federal revenue sharing. **Table 3-12** shows that, at least in 1997, three counties depended on Federal revenue sharing for about one-seventh of their total revenues. While 1997 was one of the highest revenue-sharing years on record, the table suggests that Forest Service 25 Percent and PILT payments are important sources of revenues in the area.

Table 3-12. County Revenues, 1997

State	County	Total Revenues[1]	Federal Lands Revenue Sharing[2]	Percent of Total Revenues
South Dakota	Custer	Not available	$1,193,134	Not available
South Dakota	Fall River	$3,667,000	$493,388	13.5%
South Dakota	Lawrence	$7,418,000	$1,020,418	13.8%
South Dakota	Meade	Not available	$218,418	Not available
South Dakota	Pennington	$25,990,000	$1,813,365	7.0%
Wyoming	Crook	$4,684,000	$660,591	14.1%
Wyoming	Weston	$5,541,000	$288,165	5.2%

[1]1997 Census of Governments
[2]1997 USDA Forest Service 25% Fund plus USDI PILT payments.

Potential impacts of the Phase I Amendment on both 25 Percent Fund and PILT payments are expected to be inconsequential. If counties select the constant annual payment from the Forest Service offered in the new law, changes in timber harvest revenues will not change Federal revenue sharing payments. If counties select the variable 25 Percent Fund payment, only Custer, Lawrence, and Crook Counties may be affected. Should these counties find that the variable payments drop below the constant payment option, they may choose to change their election to receive the constant payment. Consequently, Custer, Lawrence, and Crook Counties have a floor on Federal revenue sharing regardless of various timber harvest levels estimated in the Phase I Amendment and timber prices driven by national and international markets.

Irretrievable and Irreversible Effects

Most social and economic effects are not considered “irretrievable and irreversible.” Should a sawmill close, however, and not be purchased, it seems likely that the facility would be dismantled. Other businesses may come into the area and generate new jobs, but it is difficult to estimate whether displaced employees would be hired to fill such new jobs. Social organizations may be somewhat resilient, but if some should fail completely, they may be hard to revive. Property values and local government revenue sources may also be resilient over the long term.

3-5.4. Cumulative Effects

To estimate cumulative effects for social and economic impacts, projections of employment are necessary. Such projections represent "reasonably foreseeable" business and other decisions that affect employment and income. Projections for employment throughout the impact area were not available.

Financial and Economic Efficiency

The Phase I Amendment is an investment with costs and returns. This investment can be analyzed from two different perspectives: 1) a narrow perspective that looks at costs and returns to the government from the viewpoint of the agency or taxpayer, and 2) a broader perspective that looks at costs and benefits to society as a whole. The first is referred to as financial efficiency as it only considers budgetary costs and revenues, such as receipts from timber sales. The second is referred to as economic efficiency that considers the value of non-market goods and services, such as recreation. The Forest Service has a limited set of approved non-market values for use in economic efficiency analyses. For the values available, none of the quantities are changing between alternatives. Because economic costs are the same as financial costs in this analysis and because there is no change for quantities with available non-market benefit values, the financial and economic efficiency analysis are identical. These are displayed in **Table 3-13.**

Table 3-13. Financial and Economic Efficiency of Alternatives ($1,000)

Measure	Alternative 1	Alternative 2	Alternative 3 Low	Alternative 3 High
Present Net Value	Baseline	-$5,429	-$11,819	$1,899

A key assumption used in this analysis is a fixed stumpage price across the alternatives. In fact, stumpage would run lower for Alternative 3 than Alternative 2 because of the higher proportion of small sawlogs. Consequently, results for Alternative 3 are somewhat optimistic.

The wide variation built into Alternative 3 is fully reflected in the efficiency analysis. Alternative 3 High is the only option with a positive net present value, while Alternative 3 Low is the most negative. Alternative 2 is roughly the midpoint between the limits of Alternative 3.

3-6. WILDLIFE RESOURCES

3-6.1. Affected Environment

The Black Hills forest consists primarily of early- to late-succession ponderosa pine communities with inclusions of white spruce, quaking aspen, paper birch, bur oak, mountain mahogany, and high mountain meadows. Riparian habitats consist mainly of sedges, forbs and willows. Private land within the boundary of the Black Hills National Forest has historically been managed for agricultural products. More recently, many of these private parcels have been developed to provide recreational opportunities and building sites for residents and summer visitors.

Wildlife populations in the Black Hills are diverse, consisting of species found in both western and eastern states. Most of the same species are present today that existed when Brevet General George Custer and his expedition visited during their historic expedition in 1874. Some notable exceptions include the grizzly bear, wolf, Manitoban elk, and Audubon's bighorn sheep, which were extirpated shortly after settlement. Other species have been introduced, including the Rocky Mountain elk, mountain goat, and bighorn sheep, as well as all present-day game fish.

Extensive resource exploitation occurred in the years following frontier settlement and continued until the Forest Reserve was established near the turn of the last century.

The FEIS for the 1997 Revised Forest Plan, pages III-322 through 323, further discusses the affected environment.

3-6.2. Models and Assumptions

HABCAP Model

The HABCAP habitat capability computer model was designed to show relative differences among management alternatives. An extensive HABCAP analysis was completed for the 1997 Revised Forest Plan, and use of the model was upheld in the 1999 Appeal Decision. The Phase I Amendment does not include another HABCAP analysis because Alternative 1 incorporates the 1997 Revised Forest Plan as is. Alternatives 2 and 3 would add further protective measures for Region 2 Sensitive Species found on Forest. These protective measures would benefit a wide range of species across the Forest.

Limitations of the HABCAP Model

This model considers any forest stand with an average tree diameter of greater than 9 inches to be "mature". Since tree diameters in the Black Hills can exceed 20 inches, this method could potentially lump a large range of tree diameters into

one classification. Vegetative Structural Stage classifications as described by the Southwest Guidelines would separate large tree diameters into more groups (see Tables 2-1 and 2-4 on pages 17 and 20, respectively, and Phase I Goshawk Analysis, 2000). Alternative 2 would provide a balance of structural stages in post-fledging family areas (PFAs), and Alternative 3 would provide for a balance of structural stages across the entire ponderosa pine community. These changes would allow additional acres of mature forest with larger diameter trees to develop. The potential increase in acres of large diameter trees would benefit those species associated with mature forest conditions.

Another limitation of the HABCAP model is that it does not assume snags are a limiting factor in habitat capability. Currently the Forest supplements HABCAP analyses for individual timber sale projects with a snag density analysis, and professional expertise.

HABCAP Model Assumptions

The HABCAP model assumes that each species is primarily associated with certain seral stages for its feeding and cover needs, as shown below.

Habitat use	Habitat type	Associated species (HABCAP assumption)
Feeding	Early seral ponderosa pine	Mule deer, white-tailed deer, Merriam's turkey, northern goshawk
	Mature to late seral spruce	American marten, pygmy nuthatch, Merriam's turkey, three-toed woodpecker
Cover	Mature to late seral ponderosa pine	Mule deer, white-tailed deer, bald eagle, elk
	Mature to late seral spruce	American marten, white-tailed deer, elk, Merriam's turkey, three-toed woodpecker
Both	Mature to late seral ponderosa pine	Brown creeper, pygmy nuthatch, black-backed woodpecker, three-toed woodpecker, black-capped chickadee, red-breasted nuthatch, northern flying squirrel, yellow-rumped warbler, Townsend's solitaire, northern saw-whet owl
	Mature to late seral spruce	American marten, white-tailed deer, elk, Merriam's turkey, three-toed woodpecker
	Hardwoods	Beaver, bobcat, dusky flycatcher, ruffed grouse, broad-winged hawk, ovenbird, red-naped sapsucker, warbling vireo, MacGillivray's warbler, robin, white-breasted nuthatch, Lewis' woodpecker
	Meadows/early seral ponderosa pine	Mountain bluebird, bighorn sheep, cottontail rabbit, peregrine falcon, northern flicker, mallard, vesper sparrow, white-crowned sparrow, green-tailed towhee, Wilson's warbler, hairy woodpecker, dark-eyed junco
	Riparian	Kingfisher
	Sagebrush/shrub	Pronghorn

All proposed alternatives would continue management designed to maintain and enhance hardwood communities. Management would not change for species associated with riparian, sagebrush, or shrubland habitats. Species associated with meadows would not be affected, since meadow communities would be managed for their unique values.

Species associated with open or early seral stage ponderosa pine habitat could be affected by the alternatives. The effects of Alternative 1 on early seral stage ponderosa pine forest condition are disclosed on pages III-324 through 352 of the FEIS for the 1997 Revised Forest Plan and incorporated here by reference. In some areas it may be necessary to increase the acreage of early seral ponderosa pine to improve goshawk foraging habitat. Alternative 2 is designed to provide a balance of structural diversity within goshawk PFAs. Alternative 3 would strive to provide this structural balance across the ponderosa pine communities. In these situations, species associated with early seral stages would benefit.

Effects of Alternative 1 on mature ponderosa pine cover and forage habitat are disclosed in FEIS for the 1997 Revised Forest Plan. Alternative 2 is designed to improve the distribution and structure of ponderosa pine stands around historic and active goshawk nests. Alternative 3 would include the entire ponderosa pine community. In some situations, existing stands of mature pine would need to be retained in order to achieve this structural balance. Species associated with these mature stands would benefit under these conditions.

Habitat Effectiveness

Habitat effectiveness (HE) is defined as the ability of an area to provide deer and elk with cover, forage, and security. **Cover** is a function of tree canopy; **forage** is a function of the herbaceous and shrub vegetation; and **security** is a function of road density.

The HABCAP model can be used to calculate habitat effectiveness. The model was designed to express relational variations of these habitat components for big game at the project level. For example, an area that has high-quality foraging and cover habitats for elk adjacent to one another in an area with few roads has high habitat effectiveness. The elk would not have to travel far to meet their biological needs, and there would probably be little disruption by human traffic.

After the 1997 Revised Forest Plan was adopted, Forest biologists found that the model was not functioning in accordance with its user guide (see HABCAP model documentation). The model was greatly exaggerating the area that functioned *both* as cover and forage habitat. These errors were discovered after the model was used in preparation of the 1997 Revised Forest Plan; therefore, the HE values listed in Management Area guidelines overestimated the level of habitat effectiveness that it is physically possible to achieve.

After the errors in the model were corrected, the Forest recalculated HE values using the same version of the Resource Information System (RIS) database that was used in the HABCAP calculations for the 1997 Revised Forest Plan. Management Area Guidelines were revised based on the new HE values.

Table 3-14 displays revised Management Area Guidelines for MAs 5.1 (timber production emphasis) and 5.4 (big game winter range emphasis). The corrected HE values are lower than those listed in 1997 Revised Forest Plan MA Guidelines. The revised HE values are achievable, whereas the 1997 HE values were not.

Table 3-14. Comparison of Habitat Effectiveness Values Calculated for 1997 Revised Forest Plan and Calculated Using Corrected Model (Management Areas 5.1 and 5.4)

Management area	Species/Season	Original HE model value	1997 Rev. Forest Plan HE guideline	Corrected HE model values	**Revised MA guidelines**
5.1 (timber emphasis)	Elk- summer	55	50	43	43
5.1	Elk- winter	49	45	34	34
5.1	Deer- summer	55	50	40	40
5.1	Deer- winter	51	45	35	35
5.4 (big game winter range)	Elk- summer	57.4	60	52	54
5.4	Elk- winter	52.2	55	46	**47**
5.4	Deer- summer	52.1	55	41	45
5.4	Deer- winter	49.1	50	43	46

3-6.3. Direct and Indirect Effects on Wildlife

See Tables 3-15, 3-16, and 3-17 for a tabular summary of anticipated effects to Federally listed, Region 2 Sensitive and Management Indicator Species.

Project Area Analysis

Alternative 1 would continue the course of action the Forest has been following for the past several years. These activities were analyzed in the FEIS for the 1997 Revised Forest Plan.

Alternatives 2 and 3. As efforts to increase forest structural diversity begin, mature ponderosa pine would probably decrease in areas that have an abundance of mature pine with greater than 40 percent canopy closure. Areas without as much dense, mature ponderosa pine would receive treatments that encourage growth of ponderosa pine (such as thinning) or no treatments. Overall, each analysis area would be managed to provide a more balanced distribution of early, middle, and late seral stages in ponderosa pine habitats. Mature ponderosa pine habitats would be managed to provide a more balanced distribution of size classes. These changes in habitat

distribution would benefit most species and maintain habitat for species associated with early- and late-succession forest alike.

Alternative 2 would manage for diameter and age class diversity in ponderosa pine communities only in the 420-acre PFAs surrounding historic and active goshawk nest stands.

Alternative 3 would manage for diameter and age class diversity in ponderosa pine communities across the Forest.

Management Indicator Species (MIS)

The FEIS for the 1997 Revised Forest Plan analyzed environmental effects using the following wildlife species (pages II-41, 42) using criteria outlined in 36 CFR 219.19 and Forest Service Manual (FSM) 2621.1. This list includes one federally listed Threatened species (bald eagle) and 11 Region 2 Sensitive species (American marten, northern goshawk, black-backed woodpecker, northern three-toed woodpecker, pygmy nuthatch, osprey, Cooper's rocky mountain snail, Cockrell's striate disc (snail), regal fritillary butterfly, fringed myotis (bat), and Townsend's big-eared bat). Eight "species of special interest" were also selected as MIS (white-tailed deer, mule deer, elk, Merriam's turkey, mountain goat, brown creeper, mountain lion, and black bear). Effects to theses species are discussed below under Federally listed species, Region 2 Sensitive, and Species of Special Interest and Management Indicator Species.

The FEIS for the 1997 Revised Forest Plan also analyzed effects on various other wildlife species that are suggested for HABCAP analysis during project-level planning. These are the northern flicker, mountain bluebird, red-breasted nuthatch, ruby-crowned kinglet, ruffed grouse, ovenbird, red-naped sapsucker, and northern flying squirrel.

The following species were included in the 1997 Revised Forest Plan HABCAP analysis: peregrine falcon, northern goshawk, black-backed and three-toed woodpeckers, Lewis's woodpecker, pygmy nuthatch, northern flicker, flying squirrel, brown creeper, red-breasted nuthatch, Rocky Mountain elk, white-tailed deer, and Merriam's turkey.

Effects on Federally Listed Species – Threatened

Bald Eagle

Natural history of the bald eagle is described in Appendix H of the FEIS for the 1997 Revised Forest Plan. This species migrates through the Black Hills in fall and spring and can occur as a winter resident. When in the Black Hills, bald eagles feed primarily on carrion (such as road-killed deer) and fish bodies of water not iced over.

Harvest of mature trees could remove potential roost sites. This effect would be common to all alternatives. Roost tree availability is not a limiting factor in the Black Hills as a whole, but could be a problem in individual areas depending on past timber harvest and site conditions. Recreation activities could cause individual eagles to relocate. None of the alternatives differ appreciably in effects on bald eagles, and roost sites would be provided under any alternative.

Effects of Alternative 1 on Bald Eagles. The U.S. Fish and Wildlife Service (USFWS) reviewed Alternative 1. The agency concurred with the determination of "May affect, not likely to adversely affect".

Effects of Alternatives 2 and 3 on Bald Eagles. These alternatives would be slightly more favorable for bald eagles because of their increased emphasis on maintaining vegetative structural diversity, recruiting additional large-diameter trees, increasing snag density and size, and treating Forest Plan Guidelines as Standards. Additional roost opportunities could be expected. Since Alternative 3 would increase the number of large-diameter trees across the landscape, it would probably provide slightly more eagle roost sites than Alternative 2. Cumulative effects described in the FEIS for the 1997 Revised Forest Plan (Appendix H, pages 20-21) would not be changed. Though the Jasper Fire burned over 80,000 acres on the Forest in 2000, mature live trees remain in the fire area and there are many more large-diameter snags than existed prior to the fire.

The predicted determination for bald eagles is that all Phase I alternatives may affect but are not likely to adversely affect bald eagles.

Other rationale and documentation on Threatened and Endangered species determination is contained in Appendix H of the FEIS for the 1997 Revised Forest Plan and the Phase I Biological Assessment/Biological Evaluation (BA/BE). **Table 3-15** summarizes predicted determinations for these species.

Table 3-15. Summary of Predicted Determinations – Federally Listed Species

Species	Status	Determination	Risk Assessment*		
			Alt 1	Alt 2	Alt 3
Bald eagle	Threatened	May affect, not likely to adversely affect	N	Less	Less+
American burying beetle	Endangered	May affect, not likely to adversely affect	N	N	N
Peregrine falcon	Endangered	May affect, not likely to adversely affect	N	N	N
Black-footed ferret	Endangered	No effect	N	N	N

*N = No appreciable difference between alternatives
Less = Slightly less risk to species from forest management activities
Less+ = Least risk to species from forest management activities

Effects on Region 2 Sensitive Species

None of the alternatives is likely to cause a loss of Region 2 Sensitive species viability during the next five years. Each alternative would, however, result in varying amounts of *risk* of loss of viability, associated with forest management activities, and could reduce options in future forest management. This ***level of risk*** to species viability is described below by species and alternative.

Effects on American Marten

The American marten is a carnivorous mammal about the size of a house cat. It was historically found throughout coniferous forests of North America (Bennett 1984). Appendix H of the FEIS for the 1997 Revised Forest Plan gives a thorough overview of marten distribution and life history. Based on recorded observations in the Black Hills, marten are generally associated with dense, mature, spruce-dominated forest. The marten is a Forest MIS. See also Appendix G.

Alternative 1 would allow timber harvest in white spruce areas, decreasing canopy closure and affecting near-ground stand structure. Occupied marten habitat could be affected, and some degradation in marten habitat would be likely. Livestock grazing could adversely affect marten prey species such as small mammals and birds by reducing herbaceous cover (Expert Interview Summary, 2000). Potential cumulative effects include reduction of habitat connectivity and isolation of populations. **This alternative could jeopardize population viability on the Forest over the long term (Expert Interview Summary, 2000), and could produce the most risk and the fewest future management options.**

Alternative 2. Interim Direction for American marten includes 1) Providing a sufficient number of large down logs per acre and 2) Preventing further decrease in patch size of late-succession forests in areas currently occupied by martens or with high potential for occupancy. Interim Direction also requires that the Forest seek opportunities to increase connectivity of such areas. Interim Direction does not define “high potential for occupancy” or “sufficient” number and size of sound logs. To define these terms, the Forest conducted a literature search and interviewed experts in the field. The definitions are summarized in Tables 2-2 and 2-3 (pages 18 and 18) and are based on Hargis et al. 1999, Huron-Manistee National Forest 1996, Buskirk and Ruggiero 1994, and the 2000 Expert Interview Summary. The definition applies to Alternatives 2 and 3.

Alternatives 2 and 3 would reduce the risk to marten (as compared to Alternative 1) over the next two to five years. These alternatives would prevent further decrease in patch size of late-succession forests in areas currently occupied by martens or with a high potential for occupancy and maintain the microclimate of these areas. No new roads would be built in high-potential marten habitat. This direction would help provide increased canopy closure, large snags, and near-

ground structure; all of these features are important for marten survival. No timber harvest activity would occur in spruce habitats where marten are likely to occur. Harvest activities near white spruce stands would be limited to hardwood or meadow enhancements. Treatment of utilization Guidelines (2505, 2507, 2508, 3210) as Standards may reduce possible adverse effects from livestock grazing on small mammal habitat. **Because of this, Alternatives 2 and 3 would likely produce the least risk to maintenance of species viability and would ensure future management options for the marten.**

Recreational activities should pose little threat to martens (2000 Expert Interview Summary). No appreciable adverse effects are expected from any of the three alternatives.

Effects on Northern Goshawk

See also Appendix G, The Phase I Biological Assessment/Biological Evaluation (hereafter referred to as BA/BE). Appendix H of the FEIS for the Revised Forest Plan gives an overview of goshawk distribution and life history.

The northern goshawk is a raptor adapted to forested habitats. In the Black Hills, the goshawk nests in dense, mature pine, but will occasionally use other tree species depending on site conditions. Often referred to as a 'habitat generalist', the goshawk forages over a wide range of forest conditions and will prey on a variety of small birds and mammals. Important habitat attributes for goshawk prey species include snags, logs, woody debris, large trees, forest openings, herbaceous and shrubby understories, and a mix of various forest vegetative structural stages (Reynolds et al. 1992).

In the Southwest, it was found that a balance of structural stages was the best long-term solution for providing prey habitat as well as goshawk nesting habitat. This balance of structural stages is desired primarily in ponderosa pine forest type, it may be more important for aspen and spruce to be managed for other species specific values. This does not include natural meadows, which would be managed as such. It is acceptable for structural stages to vary by a few percent (as shown in the Tables 2-1 and 2-4, pages 17 and 20), but an overall balance is recommended (2000 Expert Interview Summary). For goshawks, the earliest and latest structural stages are the most critical (2000 Expert Interview Summary). The goal is to manage landscapes in patches with variable tree spacing (2000 Expert Interview Summary). Managing for too much of any single structural stage would be detrimental since it would produce a bottleneck (2000 Expert Interview Summary) providing less than optimum amounts of goshawk nesting habitat or habitats that provide for ample prey sepcies.

Alternative 1 contains the following Standards and Guidelines for goshawk management.

- *Standard 3108:* Limit activities in at least three goshawk nest stands (30 acres each) in each active goshawk territory. Use historical nest stands as a first priority, and other structurally and compositionally appropriate stands as a second priority.
- *Standard 3109:* Limit activities in at least three-replacement nest stands (30 acres each) in each goshawk territory that will be suitable when existing nest sites are no longer functional.
- *Guideline 3110:* Activities should not reduce the structural and compositional integrity of active and alternate nest stands.
- *Standard 3111:* Minimize human-caused disturbances (e.g., road traffic, construction activities) not present at nest initiation in active goshawk nest areas from March 1 through September 30.
- *Guideline 3112:* Management at goshawk nest sites should be designed to conserve or enhance site conditions.
- *Guideline 3113:* From March 1 through September 30, avoid timber harvest schedules that cause simultaneous, widespread disturbance across active goshawk fledging habitat. Fledging habitat should include areas without constant human disturbance.
- *Guideline 3114:* Treatments in goshawk fledging habitat associated with active and alternate nests should be designed to enhance prey species habitat, structural, and compositional diversity.

These Standards and Guidelines are consistent with nest stand management in Reynolds et al. (1992). However, fledging habitat is not specifically defined in Guideline 3114.

Alternative 1 lacks a landscape approach to providing goshawk nesting and foraging habitat that is well distributed across the Forest. This alternative focuses on known goshawk territories and does not account for undiscovered nests or territories (2000 Expert Interview Summary). Because no single prey species is likely to be abundant enough to support goshawk populations, habitats for multiple prey species are necessary (Reynolds et al. 1992). Alternative 1 snag direction (1.08 snags per acre) is lower than that recommended by Reynolds et al. (1992) for ponderosa pine forest types; snag-dependent woodpeckers and squirrels are prey for the goshawk. This alternative may result in declines in goshawk populations and reduce future management options for goshawks. Recreation would not be expected to produce adverse effects unless it occurs near an active nest. While there is not enough information to evaluate effects of livestock grazing on goshawks, overgrazing could produce negative effects on goshawk prey species by reducing herbaceous vegetative cover and forage used by small mammals and birds (2000 Expert Interview Summary). **The lack of a landscape approach to managing habitat for the goshawk causes Alternative 1 to have the highest adverse risk to species viability.**

Alternative 2 includes changes in goshawk Standards and Guidelines 3108 through 3114. Standards 3108 and 3109 would be replaced with guidance from the 1999 Appeal Decision. The following additional project-level protective measures would apply.

1. A goshawk nest survey must be conducted prior to any projects in forested areas.
2. If the project area includes a historically active nest or a replacement stand associated with a historically active territory, the nest stand will be excluded from the project.
3. If a historically active territory occurs within one-half mile of the project area and protected acreage has not yet been identified, the project analysis will determine whether some of the protected acreage should occur within the project area.
4. If the pre-project survey identifies a previously unknown active nest, the project analysis will determine where protected acreage will be located.
5. In all cases, protected acreage will include 180 acres best suited for nesting habitat within one-half mile of the historically active or currently active nest. The acreage need not be contiguous but must occur in 30-acre units or larger.
6. If these conditions cannot be met, then the acreage will include stands that are not currently suitable but that could be managed to meet nesting conditions over time.
7. Activities within these stands should be limited to those that aid in maintaining or enhancing the stand's value for goshawks.

This guidance is consistent with Reynolds et al. (1992) as a nest management strategy.

Alternative 2 would increase the snag requirements from 1.08 hard snags per acre to two to four snags per acre in ponderosa pine and six snags per acre in other forested types (based on aspect and averaged over the watershed). This is consistent with recommendations in Reynolds et al. (1992). Downed log direction would be the same as in Alternative 1, except that this alternative increases the number of downed logs in areas with a high potential for marten occupancy.

Guideline 3114 is also replaced in Alternative 2 with direction to design silvicultural prescriptions and manage activities to enhance prey species habitat by maintaining vegetative diversity and achieving a balance of structural stages (from stand initiation to late succession) within goshawk post-fledging family areas around each historically active goshawk nest and alternate nests (3114a). Goshawk PFAs would be about 420 acres in size. Table 2-1 (page 17) depicts the balance of structural stages sought in goshawk PFAs.

Alternative 2 would improve protection for the goshawk and presents less chance than Alternative 1 for negative effects from timber management. The Interim Direction considered during the expert interview process focused on known goshawk territories and did not account for undiscovered nests or territories. The scientists felt that managing for only the known goshawk nests and territories would not ensure a viable population (2000 Expert Interview Summary). It is now forest policy, through a Black Hills National Forest Supplement to the Forest Service Manual (see Appendix H), to assume that sensitive species are present in areas where suitable habitat exists and surveys are inadequate to verify that the species is absent, and to manage the habitat accordingly. Therefore, Alternative 2 will maintain suitable habitat in both known and potential goshawk territories. This addresses the direction in the 1999 Appeal Decision to assume presence for Sensitive species unless the species is known not to be present. This direction provides a different landscape approach than the balance of structural stages suggested in the expert interviews (2000 Expert Interview Summary). Providing for potential goshawk territories, along with items 1 through 7 on the previous page and monitoring of goshawk nest sites (see Appendix F for goshawk monitoring implementation guide) provides an adequate interim strategy that addresses nesting habitat across the landscape and provides for continued viability of goshawks on the Black Hills National Forest. **This alternative would reduce the level of risk to species viability as compared to Alternative 1, but has slightly higher risk than Alternative 3.**

Alternative 3 includes all the features of Alternative 2 (see page 93) and includes additional measures to improve habitat for goshawks[1]. This alternative is designed to provide a distribution of suitable goshawk nesting and foraging habitat across the entire Forest. Alternative 3 would also prohibit the cutting of standing dead trees for fuelwood (except in designated areas), reducing loss of snags and goshawk prey species habitat over the Forest.

As under Alternative 2, Guideline 3114 would be replaced. This Guideline would direct design of silvicultural prescriptions and management activities to enhance goshawk prey species habitat by maintaining vegetative diversity and achieving a balance of structural stages (from stand initiation to late succession) within PFAs (Guideline 3114a) as well as over the ponderosa pine landscape (Guideline 3114b). Table 2-4 (page 20) depicts the balance of structural stages sought.

All Standards described above for Alternative 2 would apply under Alternative 3. Unlike Alternative 2, however, suitable nesting habitat would not necessarily have

[1] Reynolds et al. (1992) was produced by an independent team and is recognized as an important management approach. It recommends two snags per acre (greater than 18 inches diameter) and three large, downed logs per acre (at least eight feet long) in ponderosa pine habitats. The 2000 Expert Interview Summary concludes that goshawk habitat would be improved if within-stand diversity was higher, and irregular shaped patches of different ages occurred. It is likely there was once a higher large tree density and more irregular pattern to the forest (2000 Expert Interview Summary). Also, available prey in the Black Hills is similar to the Southwest, suggesting the document is applicable (2000 Expert Interview Summary).

to fall within a half-mile of the nest to be protected (see item 5 on page 94). The most suitable habitat would be considered for alternative and replacement nesting habitat. Reynolds et al. (1992) recommended nest stands be within a half-mile of each other.

Alternative 3 is designed to improve goshawk foraging and cover habitat distribution by providing stands in the large-tree diameter ranges with moderate to dense forest canopy (considered optimal goshawk nesting habitat) across the landscape.

The Project Sample Group and landscape analysis found that, in order to move the landscape toward a balance of structural stages in a shorter time frame, some traditional or customary silvicultural prescriptions would need to be modified and an aggressive treatment schedule involving additional acreages could be required. An emphasis on commercial and pre-commercial thinning and regeneration openings would be necessary. The scale and distribution of even-aged harvests would change.

On-the-ground effects of Alternative 3 would depend on scheduling of prescribed silvicultural treatments. Potential adverse effects from additional roads needed to access treatment areas could be mitigated at the project level. Because this alternative takes a landscape management approach, it would be expected to reduce the potential for adverse cumulative effects.

Based on this information, it appears that Alternative 3 would pose the smallest risk to goshawk viability on the Forest over the next two to five years. Individual goshawks could be impacted by management activities, but the landscape approach would be likely to provide well-dispersed goshawk nesting and foraging habitat across the Forest.

This balance of structural stages in PFAs under Alternatives 2 and 3 (and across the landscape under Alternative 3) most likely would not be attained within Phase I Amendment timeframes. Attainment of the balance of structural stages could occur at different times in the future and would depend on existing structural conditions and site capabilities at the project level.

Effects on Black-backed and Northern Three-toed Woodpeckers

See also Appendix G at the end of this document. Appendix H of the FEIS for the 1997 Revised Forest Plan gives a thorough overview of both black-backed woodpecker and northern three-toed woodpecker distribution and life history. The Black Hills are at the southern edge of the range for both of these species. They are both considered rare or uncommon in the Black Hills, as they are across most of their range in the United States (2000 Expert Interview Summary). Both species reach their greatest abundance in areas where insects are prolific (that is, where trees have been burned and/or killed by insects or diseases).

The three-toed woodpecker has a stronger association with spruce habitat and is usually less abundant than the black-backed in areas where stand-replacing events (such as severe wildfires) have occurred. The black-backed woodpecker reaches its greatest abundance in large areas where insects are prolific. This usually occurs during the first ten years after a fire or insect outbreak. In order for the black-backed woodpecker to persist on the landscape between these events, the forest matrix must include large stands (hundreds of acres) of old growth or large trees (2000 Expert Interview Summary). (Allowing large wildfires to burn unchecked on the Forest is not an option due to many factors, including the interspersion of private land and residences throughout the Black Hills.)

In the Black Hills, black-backed woodpeckers occur in ponderosa pine cover type. They have been found foraging in sapling and pole-sized pine with open to moderate canopy cover (2000 Expert Interview Summary). During the winter, black-back woodpeckers have been observed using two-storied mature and old ponderosa pine stands with an understory of pine regeneration (2000 Expert Interview Summary). Dixon and Saab (2000) show that nests tend to be in snags that average approximately 15 inches in diameter and occur in areas with high overall snag densities. Wood-boring insects such as the mountain pine beetle and other bark beetles are very important year-round food sources and have a great effect on these birds' abundance, distribution, and long-term viability (2000 Expert Interview Summary).

Alternative 1 would continue current snag and late-succession Standards and Guidelines. This may result in population declines for these woodpecker species over the next two to five years (2000 Expert Interview Summary). The recent Jasper Fire probably created additional habitat for these woodpeckers; insect activity will be a critical factor. While population viability is not likely to be lost across the Forest in the next five years, some population declines could occur in parts of the Forest outside the Jasper Fire area. This alternative would have the highest risk of negatively affecting species viability.

Alternative 2 would modify the snag direction of Alternative 1 to include direction from the 1999 Appeal Decision. Key features include:

- For each vegetation management project, retain within the associated watershed/s the following minimum densities of hard snags at least 25 feet in height (revised Standard 2301):
  - <u>Ponderosa pine on north- or east-facing slopes</u>: Retain an average of four snags per acre greater than 10 inches in diameter, of which (collectively) 25 percent must be greater than 20 inches in diameter.
  - <u>Ponderosa pine on south- or west facing slopes</u>: Retain an average of two snags per acre greater than 10 inches in diameter, of which (collectively) 25 percent must be greater than 20 inches in diameter.

- If snags at least 20 inches in diameter or 25 feet high are not available, retain snags in the largest size class available.
- Other forest types: Retain an average of at least six snags per acre greater than 10 inches in diameter (chosen from the largest diameter class available).

- Identify roads to be closed at project completion to protect snags from removal (Guideline 2304).
- For the purpose of snag recruitment: During vegetation management activities in ponderosa pine, retain a sufficient number of green trees greater than 20 inches in diameter (or in the largest diameter class available) to maintain or move towards an average density of at least one large green tree per acre within the associated watershed. Retention trees can be clustered or individual (Guideline 2306).
- Guidelines 2304 and 2305 would be treated as Standards.

The Alternative 2 snag Standards and Guidelines are consistent with the snag size and density recommendations of Wisdom et al. (2000) and those reviewed in Dixon and Saab (2000). The 2000 Expert Interviews on woodpeckers indicate similar conclusions.

Areas not meeting snag objectives could be restricted from fuelwood cutting during project planning. Since restrictions are not required, however, existing and new snags could be at risk from fuelwood cutting, which could reduce overall snag densities.

Alternative 2 contains direction to prevent further decreases in patch size of late-succession spruce forests that are currently occupied by American martens or that have a high potential for occupancy.

Snag direction under Alternative 2 would be expected to reduce the risk to black-backed and northern three-toed woodpeckers as compared to Alternative 1 (2000 Expert Interview Summary). There would still be risks associated with the amount, size, and distribution of late-succession forest areas. The Jasper Fire, and the woodpecker population increase that is likely to result in the fire area, could partially offset the potential for population declines in other parts of the Forest over the next five years. Population viability is not likely to be lost in the next five years and Alternative 2 would further reduce potential risks as compared to Alternative 1.

Alternative 3 includes the snag direction described for Alternative 2 (page 97). In addition, road closures could be considered in areas with low snag densities. Alternative 3 would also add direction to prohibit cutting of standing dead trees for fuelwood, except in designated areas. Protection of snags, especially large ones, is important where snag densities are below recommended levels (2000 Expert Interview Summary). Alternative 3 would add direction to focus on

opportunities for leaving snags in clumps. This is consistent with information in Wisdom et al. (2000) and the 2000 Expert Interview Summary.

Alternative 3 includes a Forest-wide, prey-based ecosystem approach to goshawk management that would probably benefit woodpeckers as well. This strategy follows the recommendations of Reynolds et al. (1992) for providing a well-distributed diversity of tree sizes and age classes. While it is true that woodpeckers are common prey items for goshawks, improving habitat for all snag-dependent wildlife is the key. Snag and goshawk direction under Alternative 3 would be likely to maintain woodpecker populations over the next five years. This direction makes Alternative 3 the most protective of woodpeckers and their habitat. As compared to Alternative 2, this alternative includes more features that would help maintain viability of these woodpecker species over the next two to five years. Alternative 3 would further reduce the level of risk to species viability and would maintain future management options.

Effects on Lewis's Woodpecker

See also Appendix G. Appendix H of the FEIS for the 1997 Revised Forest Plan gives a complete overview of Lewis's woodpecker distribution and life history, and is incorporated by reference.

Lewis's woodpeckers begin to colonize large burned areas within a year after a fire and become fairly abundant within three to four years. Lewis's woodpeckers use damaged trees, and prefer trees occurring in a mosaic pattern with undamaged trees (for example, where pockets of trees that were dead or dying before the fire flare up during an otherwise low-intensity burn). Good habitat is provided mostly by wildfires, but controlled burns can contribute habitat as well. Pre-fire conditions preferred by Lewis's woodpeckers in Idaho are characterized by moderate (40 to 70 percent) canopy closure, an average tree diameter of 19 inches, and relatively low snag densities (as compared to the preferences of black-backed woodpeckers). Large-diameter snags, spike-topped trees, and weakened green trees are all important to this species. This bird cannot excavate hard materials and prefers soft, decayed snags; if none are available, pairs may usurp the cavities used by other species (for example, bluebirds, flickers, or hairy woodpeckers). Although snags may be essential, their availability alone does not guarantee use by the species. Several areas in the Black Hills currently provide Lewis's woodpecker habitat: the Boundary Gulch burn; close to the Forest boundary near Sundance; the Elk Mountain burn near Newcastle; and in cottonwood zones around the perimeter of the Black Hills.

Alternative 1 would not change current snag direction, described in detail in the discussion on the black-backed and northern tree-toed woodpeckers (page 96).

Alternative 2 would provide additional snags as well as large-diameter live trees for future snags.

Alternative 3 would provide additional snag standards and prohibit the removal of snags for fuelwood, except in designated areas.

The level of risk to Lewis's woodpecker population viability from forest management actions would be highest under Alternative 1 and lowest under Alternative 3.

Work done by Hutto (1995) suggests that some woodpecker species (black-backed, northern three-toed and Lewis's) experience 'boom and bust' cycles as they migrate to find large areas of dead and dying trees supplied by fire or insects. Allowing wildfire and insects to 'run their natural course' is not an option in the Black Hills; surrounded and fragmented as it is by cities, towns, ranches, and homes, the National Forest must respond to fire and insect events in order to protect lives and property.

Effects on Pygmy Nuthatch

See also Appendix G. Appendix H of the FEIS for the 1997 Revised Forest Plan gives a complete overview of pygmy nuthatch distribution and life history, and is incorporated by reference.

An uncommon permanent resident in the Black Hills, the pygmy nuthatch seems to be adapted to various coniferous forest types. In the Black Hills the species is associated with mature, large-diameter pine in park-like stands. The nuthatch is a weak cavity excavator and tends to select soft, large snags. A review of the literature suggests that clumps of large-diameter snags with diameters in excess of 19 inches are very beneficial (Hay and Guntert 1983, Sydeman and Guntert 1983, Cunningham 1980). These birds are known to use communal nests and winter roosts (Clark et al. 1989). The 2000 Expert Interviews agreed with the literature on this species.

Alternative 1 would use Standards and Guidelines 3201 through 3206 from the 1997 Revised Forest Plan to provide and maintain nesting habitat in timber harvest areas. It would use the HABCAP model's estimation of suitable habitat Forest-wide, which assumes snags are not a limiting factor. This alternative does not meet the snag density and size requirements recommended by Clark et al. (1989). It also would not protect snags from firewood collection, although it maintains the option of closing areas to cutting of snags if needed. For these reasons, this alternative poses a fair risk to pygmy nuthatches. While population viability is not likely to be lost in the next two to five years, negative effects are possible. Alternative 1 has the greatest risk to cause adverse effects on population viability and would provide the fewest future management options as compared to the other alternatives. Timber harvest and fuelwood cutting would remain the greatest threats to this species. Recreation effects are expected to be minimal (Expert Interview Summary, 2000) except that any increased vehicle access could

result in increased harvest of snags for fuelwood. Livestock grazing is not expected to affect this species.

Alternative 2 would change the snag Standard (2301) as described on page 97.

Alternative 2 would reduce the risk of adverse effects on pygmy nuthatches by improving the likelihood of occurrence and more even distribution of larger trees and large-diameter snags across the watershed (refer to Revised Guideline 3114a). As compared to Alternative 1, this is more consistent with Clark et al. (1989). Alternative 2 would not, however, protect snags from being cut for firewood, although it would maintain the option of closing areas to cutting of snags if needed. This option would be treated as a Standard under Alternative 2, making it more protective.

Alternative 3 includes the same snag direction described for Alternative 2, and it would maintain the prohibition on cutting standing dead trees for fuelwood except in designated areas during the two- to five-year Phase I Amendment period. This alternative would increase the amount of suitable habitat for pygmy nuthatches since it would increase the amount and distribution of large-diameter live trees across the landscape (refer to goshawk structural balance, Table 2-4, page 20, and Revised Guideline 3114b) as well as increasing snag density. Alternative 3 would result in the least risk to species viability and the greatest range of future management options as compared to the other two alternatives.

Summary of Effects-
The positive effects for all wildlife dependant on standing dead (snags) and down wood will be highest with Alternative 3 and least with Alternative 1 for the reasons explained in the effects on each of the sensitive woodpecker species, and pygmy nuthatch. Snags provide nesting, roosting, and perching habitat. In turn, this will provide prey species for avian predators, primarily. Down wood provides denning and resting habitat, as well as a foraging substrate for reptiles and amphibians, and some small mammals.

No adverse effects to any wildlife species are expected from protecting snags, down wood material, or increasing the standards for snags on the landscape.

Effects on Osprey

See also Appendix G. Appendix H of the FEIS for the 1997 Revised Forest Plan gives a complete overview of osprey distribution and life history and is incorporated by reference.

Because osprey feed exclusively on fish, they are closely associated with large bodies of water (Expert Interview Summary, 2000). Osprey nests known to exist in the Black Hills are adjacent or near to reservoirs. Most of these nests are located near recreation areas where little habitat alteration from timber harvest is

likely to occur. Timber harvest activities within one mile of reservoirs could remove potential nest trees. Recreational activities on these lakes could disrupt feeding and nesting behavior. Seasonal restrictions can be used to avoid impacts during critical activity periods (for example, nest construction and incubation) and are determined on a site-specific basis. These options would be available under all alternatives. No new recreation facility construction is planned at the large reservoirs on the Black Hills National Forest in the foreseeable future.

All alternatives contain direction to protect active raptor nests (Standard 3204). Alternatives 2 and 3 could increase availability of nest trees by increasing the large tree and snag component near reservoirs. All of the alternatives would provide similar protection for raptor nests and would present low levels of risk to osprey populations in the Black Hills during the next two to five years.

Effects on Golden-crowned Kinglet

See also Appendix G. Appendix H of the FEIS for the 1997 Revised Forest Plan gives a complete overview of golden-crowned kinglet distribution and life history and is incorporated by reference.

Prime habitat for golden-crowned kinglets is mid- to late-seral spruce with large-diameter trees. These birds tend to nest high in the canopy of dominant trees, placing their nests out on a limb. They may use deciduous forests during winter (Expert Interview Summary, 2000).

Alternative 1 could negatively affect golden-crowned kinglets and could reduce the number of individuals through timber harvest activities (Expert Interview summary, 2000). While population viability would likely not be lost over the next two to five years, future management options could be lost under this alternative.

Alternatives 2 and 3 would probably have a neutral to slightly negative effect (Expert Interview summary, 2000). The additional direction on managing marten habitat (which includes spruce stands) reduces the level of risk and improves these alternatives as compared to Alternative 1.

Effects on Purple Martin

See also Appendix G. Appendix H of the FEIS for the 1997 Revised Forest Plan gives a complete overview of purple martin distribution and life history, and is incorporated by reference.

In South Dakota this species is considered a common summer resident in the east, with a few occurrences during spring migration west to the Black Hills (South Dakota Ornithologists' Union 1991). Suitable habitat is apparently available in the Black Hills as open, mature stands of ponderosa pine and in the ecotone between forests and grasslands or meadows (USDA Forest Service 1996).

Due to the limited occurrence of purple martin in the Black Hills, no effects are expected from any alternative. The risk to species viability is minimal.

Effects on Fox Sparrow

See also Appendix G. Appendix H of the FEIS for the 1997 Revised Forest Plan gives a complete overview of fox sparrow distribution and life history, and is incorporated by reference.

The fox sparrow is associated with riparian areas. It uses fairly dense, shrubby areas in middle to late seral stages. Good habitat is often found where streams leave forested habitats and enter meadows (Expert Interview summary, 2000). This species is sensitive to the effects of livestock grazing because removal of escape cover or nest camouflage increases its susceptibility to predation.

Alternative 1 would maintain the current management scheme on the Forest. Grazing guidelines for riparian areas would likely provide adequate residual stubble height and woody plants for this species (Expert Interview summary, 2000).

Alternative 2 would treat the 1997 Revised Forest Plan's environmentally protective Guidelines as Standards. This is expected to further improve riparian area management as compared to Alternative 1.

Alternative 3 would modify Guideline 3104 to protect habitat for sensitive plants and animals associated with moist soil conditions. This could further improve riparian condition as compared to Alternative 2, but any change in species viability risk would be negligible. Alternatives 2 and 3 would be expected to pose less risk to this species as compared to Alternative 1.

Effects on Merlin

See also Appendix G. Appendix H of the FEIS for the 1997 Revised Forest Plan gives a complete overview of merlin distribution and life history and is incorporated by reference.

Merlin habitat can be described as the locations where forest meets grassland, or where meadow/open pine forest complexes reach at least 100 acres (Expert Interview Summary, 2000). Merlins exhibit high fidelity to their nesting area, and will usually return to same nest year after year. Habitat in the Black Hills may occur on too small a scale, and if merlins breed on the Forest they probably occur in low numbers. The Black Hills may be periphery of the merlin's range (Expert Interview Summary, 2000).

Timber harvest activities could remove merlin nests that are not known. All alternatives would continue current management direction to treat tree

encroachment into meadows, which is probably sufficient to maintain merlin habitat (Expert Interview Summary, 2000). Protection of nest sites is important. Alternatives 1 and 2 contain direction to protect active raptor nests, but there is a risk that inactive nests could be lost. Alternative 3 modifies this direction to include protection for all known raptor nests, current or historic. This modification reduces the risk to merlin.

Effects on Olive-sided Flycatcher

See also Appendix G. Appendix H of the FEIS for the 1997 Revised Forest Plan gives a complete overview of olive-sided flycatcher distribution and life history, and is incorporated by reference.

Tall, prominent trees and snags or live trees with spike tops serve as singing and foraging perches for olive-sided flycatchers (Expert Interview Summary, 2000). In South Dakota, this species is an uncommon migrant and possible breeder in the Black Hills (South Dakota Ornithologists' Union 1991).

Activities currently taking place on the Forest (Alternative 1) are likely to benefit the flycatcher (Expert Interview Summary, 2000). Timber management activities produce edge habitat. Alternatives 2 and 3 would add snag and large tree requirements, increasing the chances that large trees, snags, and spike-top trees would occur near edges. Alternative 3 emphasizes distribution of all age and size classes across the Forest, which would probably provide sufficient edges along openings. None of the alternatives are likely to result in loss of population viability. Individual flycatchers may be impacted as some larger trees are harvested.

Alternatives 2 and 3 would be expected to provide additional habitat for olive-sided flycatchers since more snags and large diameter trees would be scattered across the landscape. These alternatives would pose slightly less risk than Alternative 1.

Effects on Upland Sandpiper

See also Appendix G. Appendix H of the FEIS for the 1997 Revised Forest Plan gives a complete overview of upland sandpiper distribution and life history and is incorporated by reference.

In the Black Hills, lower elevation prairies (both interior and at the edge of the Forest) are considered suitable habitat (USDA Forest Service 1996). This sandpiper nests in tall grass and feeds on insects in short grass (Expert Interview Summary, 2000). Because large expanses of grassland occur are limited on the Forest, breeding groups are small and isolated from other populations. This factor could put the species at risk (Expert Interview Summary, 2000).

Timber harvest activities that increase meadow acreage could benefit upland sandpipers (Expert Interview Summary, 2000). Two activities can have negative effects – off-highway vehicle use and livestock grazing. Off-highway vehicle use in meadows can be detrimental to individual upland sandpipers, particularly if wet areas are damaged. Grazing can be beneficial to upland sandpiper habitat if it provides a variety of vegetation heights (Expert Interview Summary, 2000), but heavy grazing can reduce nesting habitat.

Alternative 1 includes direction that addresses these concerns. Standard 1304 and Guideline 9108 are intended to minimize vehicle damage in riparian areas. Guideline 2502, which encourages rotational livestock grazing, could be applied to provide a mosaic of vegetation heights. These Guidelines would be treated as Standards under Alternatives 2 and 3 and would be expected to lessen the level of risk to this species. Under all alternatives, effects would be limited to individuals, and are not likely to cause a loss in population viability in the next two to five years.

Effects on Loggerhead Shrike

See also Appendix G. Appendix H of the FEIS for the 1997 Revised Forest Plan gives a complete overview of loggerhead shrike distribution and life history and is incorporated by reference.

Habitat is generally brushy savannah areas with a limited number of trees. It is not very abundant in forested habitats (Expert Interview Summary, 2000). The species is not common in the Black Hills, but suitable habitat may occur where pine trees are encroaching into the larger prairies and in some mixed-prairie areas in the southern Black Hills (Expert Interview Summary, 2000).

Removal of encroaching pine in meadows may make some habitat unsuitable, although not enough area would be treated over the next five years to affect the shrike (Expert Interview Summary, 2000).

None of the alternatives would affect loggerhead shrike habitat to any measurable degree. Grazing could affect habitat for prey species (insects and small mammals) but this is unlikely to be measurably detrimental. None of the alternatives would be expected to increase risks to population viability over the next five years.

Effects on Snails

See also Appendix G. Appendix H of the FEIS for the 1997 Revised Forest Plan gives a complete overview of Cooper's Rocky Mountain snail striate disc (snail) distribution and life history and is incorporated by reference.

These snails are found in mesic (moist) environments on calcareous soils and north-facing slopes, often next to riparian communities. They are associated with

these sites because they cannot effectively regulate body fluids and are susceptible to desiccation (Expert Interview Summary, 2000). The striate disc is has a fairly wide distribution in the western United States. Black Hills populations are at the northeast edge of its range (Expert Interview Summary, 2000). Black Hills populations are the only ones to overlap with the fossil record, indicating a westward shift in this species' occurrence over time. Since the Rocky Mountain snail is endemic to the Black Hills, forest management activities could have a substantial impact on this species (Expert Interview Summary, 2000).

Alternative 1 would continue to *conserve* habitat for colonies of seven snail "species of special concern" (Standard 3103). Frest and Johannes identified these colonies in their 1993 report. These include the two Region 2 Sensitive snail species and five other snail species. While habitat used by these colonies would not be lost or damaged over the next five years, there could be adverse effects on unknown colonies. This alternative would carry the highest level of risk of adversely affecting species viability.

Alternative 2. Standard 3103 would be modified to ensure that all known colonies of sensitive snails are *protected* from the adverse effects of livestock grazing and other management activities. It would also conserve habitat for the other five snail 'species of concern'. Under Alternative 2 the area occupied by a snail colony would be avoided, or excluded from livestock grazing, or other activities whenever necessary to prevent damage to the snails habitat. Unknown colonies may still be affected, but known colony populations would be maintained over the next five years. Alternative 2 would be expected to reduce the potential for adverse effects on snail population viability that could occur from grazing and other forest management activities in these colony areas.

Alternative 3 would protect *all* snail colonies identified in the Frest and Johannes 1993 report and those colonies identified in a subsequent report by Frest (publication expected in 2001) on the seven snail "species of special concern" (including the two Region 2 Sensitive species). Three of these seven snail species (*Vertigo arthuri*, *Vertigo paradoxa*, and *Catinella gelida*) were not addressed by the 1999 Appeal Decision but merit attention (Expert Interview Summary, 2000). Unknown colonies could still be affected, but since additional colonies would be protected the overall stability of the populations would be improved for the next five years (Expert Interview Summary, 2000). This alternative poses the least risk to snail species viability as compared to the other two alternatives.

Effects on Regal Fritillary Butterfly

See also Appendix G. Appendix H of the FEIS for the 1997 Revised Forest Plan gives a complete overview of regal fritillary butterfly distribution and life history and is incorporated by reference.

This species favors tallgrass prairies. In the Black Hills, habitat occurs in lower-elevation prairies along the outer Forest boundary and in some forest-interior prairies.

Activities that enhance prairie and meadow conditions would probably benefit the regal fritillary (Expert Interview Summary, 2000). The overall effect of timber harvest is expected to be neutral because of this butterfly's association with grassland communities. Adverse impacts from grazing are not expected unless extreme overgrazing occurs (Expert Interview Summary, 2000). Grazing management Standards and Guidelines are designed to prevent overgrazing on the Forest.

Properly timed prescribed burns can be very helpful in enhancing long-term prairie conditions by increasing grass/forb cover. Short-term negative effects could include burning of egg masses. Because of this potential effect, treating Alternative 1 Guideline 3105 ("consider…regal fritillary butterflies prior to burning on prairies or meadows") as a Standard under Alternatives 2 and 3 would lead to neutral effects rather than possible negative effects (Expert Interview Summary, 2000). Alternatives 2 and 3 would reduce the risk of adverse effects on species viability as compared to Alternative 1.

Effects on Tawny Crescent Butterfly

See also Appendix G. Appendix H of the FEIS for the 1997 Revised Forest Plan gives a complete overview of tawny crescent butterfly distribution and life history and is incorporated by reference.

The tawny crescent butterfly is associated with riparian areas. The Black Hills have a disjunct population of the Lakota subspecies, whose main range is in southern Canada. The tawny crescent's preferred habitat (montane, mesic meadows with a conifer component) has decreased in abundance since the Forest was established. The main causes of this are tree encroachment into meadows and the resultant decrease in available water (Expert Interview Summary, 2000).

Clearcut logging is not practiced within riparian areas nor are clearcuts of sufficient size to affect this species Forest-wide. Treatments that remove pine encroachment into wet meadows likely benefit the species (Expert Interview summary, 2000). Riparian Standards and Guidelines provide adequate protection if implemented properly. Grazing has the greatest potential to impact these butterflies. *Alternatives 2 and 3* would treat livestock utilization Guidelines as Standards, which would probably provide additional benefit to the butterfly (Expert Interview Summary, 2000). Alternatives 2 and 3 would reduce the risk of adverse effects on species viability as compared to Alternative 1.

Effects on Sensitive Reptile and Amphibian Species

See also Appendix G.

All alternatives would have similar effects on reptiles and amphibians. None of the Project Sample Group timber sales identified hibernation sites for Black Hills red-bellied snake or milk snake, or areas used for breeding or known activity of leopard frogs or tiger salamanders. The most recognized adverse effect on amphibians is from introduction of trout and other predatory fish into ponds and lakes that also serve as amphibian breeding areas (Corn et al., Expert Interview Summary 2000). Water catchments without predatory fish often have numerous frogs. These frogs may have historically occupied streams and associated ponds, but they do not reproduce well in moving water. The Forest is very likely to still have frogs in five years, but if water catchments and ponds are not adequately protected from unauthorized fish stocking, populations could decline (Expert Interview Summary 2000).

Alternative 1 would not afford habitat protection specifically to these reptile or amphibian species. Sensitive species associated with 'moist soil conditions' are to be protected under Guideline 3104, which encourages relocating or implementing mitigation measures for roads, trails, watering tanks, and similar facilities currently located within the Water Influence Zone. Negative effects are possible because water catchments are not normally included in riparian and wetland definitions. When intensive grazing in riparian areas occurs during periods of drought, negative effects are compounded (Expert Interview Summary, 2000). Prohibiting the degradation of ground cover, soil structure, water budgets, and flow patterns in wetlands is covered under Standard 1302.

Alternative 2 would treat environmentally protective Forest Plan Guidelines as Standards and would be expected to improve protection for species associated with moist soil conditions. Livestock utilization Guidelines would be treated as Standards. While no specific adverse effects from timber harvest were identified, livestock grazing was identified as "one of the most harmful management activities to amphibians" (Expert Interview Summary, 2000).

Some indirect benefits to reptile and amphibian habitat could be realized from increased snag size and density, as snags eventually become large down woody debris.

Timber harvest would still occur, and logging equipment could adversely affect unknown hibernation sites. Livestock can foul watering areas, exceeding amphibian tolerances for use as breeding sites. Off-highway vehicles can also have an adverse effect, primarily when they impact wet meadows and riparian areas (Expert Interview Summary, 2000). Alternative 2 would not prohibit off-highway vehicles in these areas unless resource damage occurs. This alternative would reduce the potential for adverse effects on amphibian and reptiles, and

would reduce the risks to populations from forest management actions as compared to Alternative 1.

Alternative 3 would build on aspects of Alternative 2 by including ponds and reservoirs (water catchments) in Standard 3104, regarding the development of future livestock watering facilities. New Standard 3116 is aimed at preventing creation of additional barriers between known hibernation sites and breeding habitats. This would reduce adverse impacts from these situations.

Alternative 3 could be expected to improve habitat for reptiles and amphibians by increasing vegetative structural diversity across the landscape. These actions would further reduce the risk of population declines over the next five years. Adverse effects previously mentioned would apply to this alternative since timber harvest, recreational travel, and livestock grazing would continue. Alternative 3 would, however, be the most protective of the three alternatives in regard to reptiles and amphibians and would further reduce risks to populations. Standard 3104 would protect sensitive amphibian species habitat during future water development, and new Standard 3116 would aim at restricting management activities that create migration barriers between breeding and hibernation sites.

None of the alternatives would be expected to have more than a slightly adverse effect on amphibian and reptile populations over the next five years (Expert Interview Summary 2000). There is also a need for the Forest to work more closely with State wildlife agencies to address authorized and unauthorized fish stocking in ponds where fish are not already present (Expert Interview Summary, 2000). Leopard frogs currently use these ponds as breeding habitat. Where fish are present, frog populations may be absent due to fish predation.

Effects on Townsend's Big-eared Bat and Fringed Myotis

See also Appendix G. Appendix H of the FEIS for the 1997 Revised Forest Plan gives a complete overview of distribution and life history for these bat species and is incorporated by reference.

The Townsend's big-eared bat almost exclusively uses caves and abandoned mines as roost sites. The fringed myotis uses caves and abandoned mines, but is also known to use snags, rock outcrops, stumps, and human structures as roost sites (Higgins et al. 2000; Expert Interview Summary 2000). Abandoned mines may provide a buffer against the loss of natural caves as private development and increased recreational caving put pressure on public land caves (Expert Interview Summary 2000).

Riparian habitat and water sources are also important features of bat habitat. Open water is important because bats obtain water while flying. Riparian habitats are important for insect production and provide foraging opportunities (Expert

Interview Summary 2000). Excessive livestock grazing and degradation of water catchments and ponds reduce the value of this habitat to bats (Pierson et al. 1999).

Habitat for the Townsend's big-eared bat is declining in the Black Hills. The use of caves for recreation and re-activation or permanent closing of abandoned mines is the primary cause of this habitat loss (Expert Interview Summary 2000). Since there is no reason to expect that these activities will decline in the foreseeable future, populations of the Townsend's big-eared and fringed myotis bats are likely to continue to decline (Expert Interview Summary 2000).

Alternative 1 would provide a 100-foot buffer around the openings of natural caves. This is inconsistent with Pierson et al. (1999), which recommends a 500-foot buffer. Guideline 3102 provides protection of caves that are important nurseries and hibernacula for Sensitive bat species but does not include abandoned mines. Standard 3207 protects known nursery roosts and hibernacula during these critical periods but does not specifically include protection for day or night roosts (Expert Interview Summary, 2000). Guideline 3208 and Standard 3209 provide guidance to design seasonal closures that protect bat habitat. Guidelines 3210 and 3211 are designed to improve riparian habitat.

Alternative 1 would provide at least 1.08 hard snags per acre across the planning unit, although this level is thought to be too low (Expert Interview Summary, 2000). Under Alternative 1, some decline in bat populations and habitat could occur over the next five years because there is insufficient protection of caves, abandoned mines, and day/night roost sites, and because of low snag numbers. The lack of these features, which often serve as maternity and/or hibernation sites, would increase the risks to species viability and may reduce future management option for these Sensitive bat species as well as other bat species not listed as Region 2 Sensitive. A loss of viability during the next five years is not expected.

Alternative 2 would treat all environmentally protective Guidelines as Standards. This could improve protection from management actions that have the potential to affect caves, mines, or other known roost sites. No ground disturbance would be allowed within 100 feet of an opening of a natural cave. Habitat needs of bats would be favored over recreational caving interests where the two conflict.

Standard 3209, which addresses closing of abandoned mines, would remain a Guideline to allow for site-specific determinations (some abandoned mines present an extreme risk to public safety due to rapidly deteriorating conditions). Livestock distribution, forage utilization, riparian condition, and water development maintenance would improve when environmentally protective Guidelines are treated as Standards. Alternative 2 would include new Standards regarding snag density and size and retention of live snag recruitment trees. This alternative contains most of the essential elements that would preserve management options over the next five years (Expert Interview Summary 2000). There may be some continued declines of Townsend's big-eared bat and fringed myotis due to continued recreational disturbance at ungated caves and mines and

the continued loss of snags in some areas, but these species are not likely to be lost over the next five years (Expert Interview Summary 2000). Alternative 2 has less potential for adverse effects and therefore poses less risk to bat species viability as compared to Alternative 1.

Alternative 3 is very similar to Alternative 2 except that it would increase the "avoid ground disturbance" zone around cave openings from 100 to 500 feet (consistent with Pierson et al. 1999). Alternative 3 would further reduce risk of adverse effects on cave roosting bats and would provide the most benefit of the three alternatives in regards to maintaining future management options and providing for species viability for these two bat species.

Effects on Swift Fox

See also Appendix G. Appendix H of the FEIS for the 1997 Revised Forest Plan gives a complete overview of swift fox distribution and life history and is incorporated by reference.

The swift fox is a constituent of the Great Plains, associated primarily with moderate to rolling terrain of the short- and mid-grass prairies (Uresk and Sharps 1986, Jones et al. 1983). Prairie dog towns provide the swift fox's primary food supply in the Northern Great Plains (Uresk and Sharps 1986). This species is not found in forested habitats.

The large expanses of open prairie needed by the swift fox occur to some degree in the southern Black Hills, but not to the extent needed to maintain a population (Expert Interview Summary, 2000). The southern Black Hills, and to some degree the northwest Black Hills, may be suitable transitory habitat for swift foxes moving from one location to another (Expert Interview Summary, 2000). Prairie dog towns exist on some Forest grazing allotments, but these towns are too small to support swift foxes populations.

None of the alternatives would be likely to have any direct effect on this species. All alternatives are considered neutral regarding potential impacts to population viability.

Effects on Black-tailed Prairie Dog

See also Appendix G.

The prairie dog is a diurnal burrowing rodent 13 to 16 inches in length, weighing up to three pounds (Higgins et al. 2000). It prefers short-grass or mixed-grass prairies (Higgins et al. 2000). While the black-tailed prairie dog currently remains designated as statewide pest in South Dakota, a recent state statute has created a new category for wildlife management (Species of Management Concern) and the process for reclassifying the prairie dog is in progress. Very few state prairie dog control actions are taking place. The South Dakota Game, Fish &

Parks Department, regulates hunting/shooting of this species. The species was added to the Region 2 Sensitive Species List on July 1, 2000.

The Black Hills National Forest currently has approximately 130 acres of black-tailed prairie dog 'towns'. There are 4 or 5 small towns, the largest being approximately 80 acres, located in small prairie communities of the southern Black Hills in the vicinity of Edgemont, SD. Wind Cave National Park, south of Custer, SD also has a small prairie dog complex. Current Forest prairie dog conservation activities focus on maintaining the current level of occupied habitat. Recreational shooting can occur at all of these town locations with the exception of Wind Cave National Park. These animals are subject to natural disease and predation. Poisoning of prairie dogs is not permitted on the Forest.

All of the prairie dog towns on the Black Hills National Forest occur within livestock grazing allotments. Livestock management may affect individuals but is not likely to decrease the population on the Forest. Black-tailed prairie dogs were found to be more abundant in heavily grazed areas than in ungrazed areas in southwestern South Dakota (Uresk et al. 1982).

None of the three alternatives would likely have any direct effect on this species. All alternatives would be considered neutral regarding potential impacts to population viability.

Effects on Dwarf Shrew

See also Appendix G. Appendix H of the FEIS for the 1997 Revised Forest Plan gives a complete overview of dwarf shrew distribution and life history and is incorporated by reference.

Insufficient data is available to determine whether the Black Hills have a population of dwarf shrews (Expert Interview Summary, 2000). Three specimens have been collected from prairie habitats around, but not within, the Black Hills (Turner 1974, Higgins et al. 2000). Management activities could impact individuals (if present) but the Forest's capability to support the species would not change over the next five years.

None of the three alternatives would be likely to have any direct effect on this species. All alternatives would be considered neutral regarding potential impacts to population viability.

Table 3-16. R2 Sensitive Species Viability Risk Assessment Summary

Species Name	Species Status*	Risk Assessment Summary		
		Alt. 1	Alt. 2	Alt. 3
American marten	R2 SS / MIS	Some risk	Less risk	
Northern goshawk	R2 SS / MIS	Some risk	Less risk	Least risk
Black-backed woodpecker	R2 SS / MIS	Some risk	Less risk	Least risk
Three-toed woodpecker	R2 SS / MIS	Some risk	Less risk	Least risk
Lewis's woodpecker	R2 SS	Some risk	Less risk	Least risk
Pygmy nuthatch	R2 SS / MIS	Some risk	Less risk	Least risk
Osprey	R2 SS / MIS	Little risk to species viability		
Golden-crowned kinglet	R2 SS	Some risk	Less risk	
Purple martin	R2 SS	Little risk to species viability		
Fox sparrow	R2 SS	Some risk	Less risk	
Merlin	R2 SS	Some risk to species		Less risk
Olive-sided flycatcher	R2 SS	Some risk	Less risk	
Upland sandpiper	R2 SS	Some risk	Less risk	
Loggerhead shrike	R2 SS	Little risk to species viability		
Cooper's Rocky Mountain snail	R2 SS / MIS	Some risk	Less risk	Least risk
Striate disc (snail)	R2 SS / MIS	Some risk	Less risk	Least risk
Regal fritillary butterfly	R2 SS / MIS	Some risk	Less risk	
Tawny crescent butterfly	R2 SS	Some risk	Less risk	
Northern leopard frog	R2 SS	Some risk	Less risk	Least risk
Tiger salamander	R2 SS	Some risk	Less risk	Least risk
Black Hills red-bellied snake	R2 SS	Some risk	Less risk	Least risk
Pale milk snake	R2 SS	Some risk	Less risk	Least risk
Townsend's big-eared bat	R2 SS / MIS	Some risk	Less risk	Least risk
Fringed myotis (bat)	R2 SS / MIS	Some risk	Less risk	Least risk
Swift fox	R2 SS	Little risk to species viability		
Black-tailed prairie dog	R2 SS	Little risk to species viability		
Dwarf shrew	R2 SS	Little risk to species viability		

*R2 SS = Region 2 Sensitive Species MIS = Management Indicator Species

Effects on Species of Special Interest and Management Indicator Species

Effects on White-tailed Deer and Mule Deer

See also Appendix G. Pages III-342 through 348 of the FEIS for the 1997 Revised Forest Plan give a complete overview of white-tailed and mule deer habitat needs and effects and are incorporated by reference.

Appendix H of the FEIS for the 1997 Revised Forest Plan gives a complete overview of dwarf shrew distribution and life history and is incorporated by reference.

The Jasper Fire of 2000 will probably affect seasonal movements of deer and elk herds that use the fire area. The burn will produce additional forage opportunities but removed thermal and security cover.

HABCAP model coefficients for deer are based on peer-reviewed literature. Habitat effectiveness values for winter and summer conditions are based on these coefficients in conjunction with cover/forage juxtaposition thresholds and open road density data. Model calculations for the 1997 Revised Forest Plan mistakenly omitted the cover/forage threshold values. Because of this error, the model showed an inflated amount of optimum deer habitat occurring on the Forest. The model has been corrected and now performs as it was intended. Current Management Area habitat effectiveness direction (Guideline 3201) is, however, for the most part unattainable. See Appendix E for corrections to habitat effectiveness values for deer by Management Area.

Alternative 1 would continue white-tailed and mule deer habitat management as outlined in the 1997 Revised Forest Plan (Guideline 3201). Timber harvest and prescribed burning would be the primary tools used to increase grass/forb and shrub production and improve deer habitat quality.

Livestock grazing removes vegetation that might be consumed by deer, thus increasing time deer spend foraging and reducing habitat effectiveness. The HABCAP model is not sensitive to this loss of vegetation since it assumes that no areas are over-utilized by livestock.

Recreational hunting and wildlife viewing would continue under any alternative.

Alternative 2 would treat grazing utilization Guidelines as Standards, adding stronger incentive not to allow excessive forage utilization in livestock grazing allotments. American marten habitat direction would provide additional dense spruce areas for use as cover by wintering deer. In pine forests, timber harvest and prescribed burning could be used to improve deer habitat. Alternative 2 would slightly increase available forage and would adjust habitat effectiveness values in Guideline 3201 for deer in the various management emphasis areas. These revised habitat effectiveness values would be treated as a Standard.

Alternative 3 focuses on diversifying forest structure. This would provide additional diversity in forage close to cover in the ponderosa pine forest community. This additional forage would be available to white-tailed deer and/or mule deer, depending on the areas treated. Alternative 3 would increase available forage more than Alternative 2. Habitat effectiveness values would be corrected as described under Alternative 2.

Big game thermal and hiding cover would be addressed during project-level analysis. All alternatives would continue to manage for big game cover objectives listed in the 1997 Revised Forest Plan.

None of the alternatives are expected to adversely affect deer populations in the Black Hills during the next two to five years.

Effects on Rocky Mountain Elk

Pages III-348 through 352 of the FEIS for the 1997 Revised Forest Plan give a complete overview of elk habitat needs and effects and are incorporated by reference.

The Jasper Fire of 2000 will probably affect seasonal movements of deer and elk herds that use the fire area. The burn will produce additional forage opportunities but removed thermal and security cover.

HABCAP model coefficients for elk are based on peer-reviewed literature. Habitat effectiveness values for winter and summer conditions are based on these coefficients in conjunction with cover/forage juxtaposition thresholds and open road density data. Model calculations for the 1997 Revised Forest Plan mistakenly omitted the cover/forage threshold values. Because of this error, the model showed an inflated amount of optimum deer habitat occurring on the Forest. The model has been corrected and now performs as it was intended. Current Management Area habitat effectiveness direction (Guideline 3201) is, however, for the most part unattainable. See Appendix E for corrections to habitat effectiveness values for elk by Management Area.

Alternative 1 would continue elk habitat management as outlined by Guideline 3201 in the 1997 Revised Forest Plan. Timber harvest and prescribed burning are the primary tools used to increase grass/forb and shrub production and improve the quality of elk habitat.

Livestock grazing removes vegetation that might be consumed by deer, thus increasing time deer spend foraging and reducing habitat effectiveness. The HABCAP model is not sensitive to this loss of vegetation since it assumes that no areas are over-utilized by livestock.

Recreational hunting and wildlife viewing would continue under any alternative.

Alternative 2 would treat grazing utilization Guidelines as Standards. Timber harvest and prescribed burning would continue to be used as tools to improve elk habitat. Alternative 2 would slightly increase available forage in some goshawk PFAs where there is currently a lack of early seral stages. This alternative would slightly increase available forage and would adjust habitat effectiveness values in Guideline 3201 for deer in the various management emphasis areas. These revised habitat effectiveness values would be treated as a Standard.

Alternative 3 focuses on diversifying forest structure. This would provide additional diversity in forage close to cover in the ponderosa pine forest community. This additional forage would be available to elk. Alternative 3 would increase available forage more than Alternative 2. Habitat effectiveness values would be corrected as described under Alternative 2.

Big game thermal and hiding cover would be addressed during project-level analysis. All alternatives would continue to manage for big game cover objectives listed in the 1997 Revised Forest Plan.

None of the alternatives are expected to adversely affect elk populations in the Black Hills during the next two to five years.

Effects on Merriam's Turkey

Pages III-340 through 341 of the FEIS for the 1997 Revised Forest Plan give a complete overview of turkey habitat needs and effects and are incorporated by reference.

A popular game species, Merriam's turkey depends on open forest stands with herbaceous cover for summer foraging, mature trees for roosting, and areas of dense timber for winter (thermal) cover.

Alternative 1 would use 1997 Revised Forest Plan Guideline 3205 to maintain adequate turkey roost trees across the landscape. Winter cover and foraging habitat are analyzed at the project level using the HABCAP model and Forest Plan Guideline 3201.

Alternative 2 would treat environmentally protective Guidelines as Standards. Treating livestock utilization Guidelines as Standards could improve turkey summer foraging and nesting habitat. The HABCAP model cannot be used to measure this increase in herbaceous stubble since the model assumes that grass/forb vegetation in meadows and forest openings is not over-utilized. Forest Plan Guideline 3201 would continue to be treated as a Guideline. Measures to protect the northern goshawk would result in additional large diameter 'roost trees' being available within goshawk PFAs. Because of this, Alternative 2 would be slightly more favorable to the turkey population as compared to Alternative 1.

Alternative 3 would also treat environmentally protective Guidelines as Standards. Because this alternative focuses on providing habitat for northern goshawks across the landscape, it would also be likely to provide additional large-diameter trees, which turkeys use as roosts, and increased vegetative structural diversity, which would improve turkey foraging habitat. This would be favorable to turkeys despite the fact that goshawks prey on turkeys. Alternative 3 is expected to be slightly more favorable for turkeys as compared to Alternative 2.

All alternatives are expected to maintain viable turkey populations over the life of the Phase I Amendment.

Effects on Mountain Goat

Mountain goats are stocky, compact animals with hooves specially adapted for life in rugged terrain such as ledges, cliffs, talus slopes, and rock faces. The

mountain goat sometimes uses forested areas during periods of severe weather. It feeds on many species of plants including grasses, sedges, forbs, ferns, and tree and shrub leaves and twigs.

This species has inhabited the Black Hills since it was first introduced in 1924 from Canada. Kept captive in Custer State Park until escaping in 1929, the herd currently consists of about 300 individuals and occurs in limited habitat around the Needles, Mount Rushmore National Monument, and Harney Peak (Higgins et al. 2000). A few have also been sighted in the Spearfish Canyon area. Suitable foraging habitat has been deemed a limiting factor for this species.

There would be no difference in effects on this species among the three alternatives. Mountain goats are naturally confined to small geographic areas in the Black Hills, and Mount Rushmore National Monument or Custer State Park manages much of their habitat. Timber management activity within the mountain goat's 'range' is usually accomplished specifically to benefit this species, using treatments such as small patch clearcuts and prescribed fire. This animal is susceptible to environmental factors and disturbance from human activities such as helicopters and recreational mountain climbing. Fire suppression in mountain goat habitat would be considered an adverse effect.

Effects on Brown Creeper

The FEIS for the 1997 Revised Forest Plan (pages III-326 through 329) gives a complete overview of the brown creeper distribution and life history and is incorporated by reference.

This species nests and forages in dense, mature pine forests. Timber harvest is known to cause adverse effects on the brown creeper.

Alternative 1 could affect brown creeper populations to a greater degree than the other alternatives since optimum habitat could be lost at a greater rate.

To protect marten habitat, *Alternative 2* would not harvest mature spruce. Mature pine stands located in goshawk nest PFAs would also be retained if they were needed to achieve structural diversity (see revised Guideline 3114a). Both of these actions would increase habitat for this species. Standards for protection of snag habitat would benefit cavity-nesting birds and mammals, including the brown creeper. This alternative could be expected to provide more habitat for this species as compared to Alternative 1.

Alternative 3 would treat environmentally protective Guidelines as Standards, as well as not harvesting in mature spruce stands. The management of pine forest communities would be focused on providing large-diameter trees with moderate to dense forest canopy and a structurally diverse landscape (see revised Guideline 3114b). This would increase habitat for brown creeper over time in many areas of

the forest. However, in watersheds where there is an abundance of large diameter trees with moderate to dense canopy, Guideline 3114b could potentially reduce habitat for the brown creeper. The prohibition on cutting standing dead trees for firewood would improve habitat options for this species. Overall, Alternative 3 is expected to pose the least risk to this species during the five-year period forestwide.

There is no data suggesting that recreation (other that fuelwood cutting) and range management activities have adverse effects on this species.

Effects on Mountain Lion

Page III-338 of the FEIS for the 1997 Revised Forest Plan gives a complete overview of mountain lion habitat needs and effects and is incorporated by reference.

Biologists with the South Dakota Department of Game, Fish and Parks estimate that 30 to 40 mountain lions live in the Black Hills at this time.

Alternative 1. Mountain lions need a food source (usually deer) and unroaded habitat so that human conflicts can be kept to a minimum. This alternative would continue to provide both of these items.

Alternatives 2 and 3 would improve deer habitat, which could improve mountain lion success. Providing that there is not an increase in the miles of roads open to public travel, these alternatives would slightly improve mountain lion habitat.

None of the alternatives is expected to have adverse effects on mountain lions.

MIS Species List Changes

Black Bear

The black bear is listed as a Management Indicator Species in the 1997 Revised Forest Plan. The FEIS for the 1997 Revised Forest Plan FEIS gives a complete overview of distribution and life history of the black bear and is incorporated by reference.

The black bear was listed as an MIS mainly because of its status as a State of South Dakota threatened species. Though known to have occurred in the Black Hills as recently as 1968, there is no evidence that a wild breeding population exists at this time (personal communication Benson, SDGF&P 2000). A confounding factor in determining whether black bears still inhabit the Black Hills is the occasional escape of animals from a local facility that breed, houses, and exhibits black bears (Higgins et al. 2000).

Regulations state: "Certain vertebrate and/or invertebrate species present in the area shall be identified and selected as management indicator species" (36 CFR 219.19(a)(1)). Due to lack of evidence of black bear populations existing on the Forest, the species would be removed from the MIS list under Alternatives 2 and 3. This is the only species that would be removed from the Forest MIS list. All other MIS listed in the 1997 Revised Forest Plan appear to meet criteria set forth in regulations.

Alternative 1 would not remove the black bear from the 1997 Revised Forest Plan MIS list.

Alternatives 2 and 3 would remove the black bear from the MIS list.

Effects on Other Wildlife Species

These species were selected for analysis because they are associated with specific habitat components. They are not MIS, Region 2 Sensitive, or thought to have any species viability concerns at this time.

Effects on Northern (Common) Flicker

The northern flicker is discussed in the FEIS for the 1997 Revised Forest Plan and is incorporated here by reference. The flickers is a primary cavity-nesting species that prefers mature, open-canopy forests. Flickers forage on the ground for insects.

Alternative 1 would continue to provide suitable habitat for this species. Mature, open-canopy pine stands are considered to be optimum nesting habitat and early seral stage conditions are used as foraging habitat. This alternative's use of silvicultural methods that focus on even-aged management of pine forests would continue to provide open-forest conditions to a greater extent than the other alternatives. This would benefit this species, providing that suitable nest trees remain available. The overstory removal step after the stand has regenerated would eliminate some potential nest trees.

Alternative 2 would change the scale and distribution of overstory removals in goshawk PFAs. In the PFAs, silvicultural methods that enhance forest structural diversity would be emphasized (see Guideline 3114a)). Snag standards would be increased to provide additional snags per acre and larger-diameter trees. While it is possible that optimal flicker habitat could be slightly reduced as compared to Alternative 1, it would not be enough to make a clear distinction of benefit by alternative.

Alternative 3 would retain more large-diameter trees across the ponderosa pine landscape (see Guideline 3114b). Additional snag density requirements and areas

of open-canopy forest would provide suitable nesting and foraging habitat across the landscape.

There would probably not be any appreciable difference among the three alternatives regarding this species. The flicker thrives in open forest conditions, which would continue to be represented across the forest landscape. Recreation and range management activities are not expected to present any appreciable differences between alternatives during the next five years.

Effects on Mountain Bluebird

Mountain bluebirds are summer residents of the Black Hills. This species is a secondary cavity-nester that forages for flying insects in open meadows and uses trees, fences, poles, and wires as perches. It nests in snags greater than eight inches in diameter and human-made nest structures. This species is not found in dense forest conditions but prefers forest/meadow edge habitat. It uses young, open forests for cover and forages in meadows, shrubby areas, and forest openings.

Timber, recreation, and range activities are not expected to differ substantially by alternative and would not adversely affect this species. Meadow restoration activities would be the same under any alternative. Alternatives 2 and 3 could be expected to provide additional positive effects; treating Guidelines on herbaceous vegetation and riparian habitat as Standards may increase insect production, and increased snag density would provide additional habitat for primary cavity-nesters. This would in turn benefit bluebirds and other species that use these abandoned nest cavities.

Effects on Red-breasted Nuthatch

The FEIS for the 1997 Revised Forest Plan describes the red-breasted nuthatch on pages III-330 through 331 and is incorporated here by reference.

The red-breasted nuthatch nests in tree cavities and forages for insects. Its habitat is generally found in conifer stands, especially ponderosa pine.

Alternative comparison. Alternative 3 would emphasize large-diameter pine trees and a diverse forest structure across the landscape. Alternatives 2 and 3 would both provide marten habitat by maintaining late-succession spruce habitats; this would also benefit the red-breasted nuthatch. Alternative 3 would provide the most habitat for the red-breasted nuthatch in pine forests since it would manage for large-diameter trees with moderate to dense forest canopies at the landscape scale (Guideline 3114b). Alternative 2 would manage specifically for this structural diversity only in the vicinity of goshawk nests (Guideline 3114a). As compared to Alternative 1, Alternative 2 is expected to provide more suitable habitat. Alternative 3 would provide the most red-breasted nuthatch habitat

across the Black Hills landscape. No adverse effects are expected from recreation or range management activities.

Effects on Ruby-crowned Kinglet

This bird is a fairly common summer resident in the higher elevations of the Black Hills (South Dakota Ornithologist's Union 1991). It nests and forages in mature spruce habitats, especially along riparian areas.

Alternative comparison. Alternatives 2 and 3 would provide more favorable habitat for the ruby-crowned kinglet as compared to Alternative 1. This would be a result of treating Guidelines as Standards, protecting late-succession spruce for marten habitat, and increased emphasis on maintaining areas of large-diameter, dense forest as part of the goshawk management strategy. Since Alternative 3 would seek to increase vegetative structural diversity on a landscape level (Guideline 3114b), it would provide slightly more habitat for this species. Alternative 2 would use this approach only in the PFAs around goshawk nests (Guideline 3114a). Recreation and range management activities would not have a measurable effect on this species.

Effects on Ruffed Grouse

The FEIS for the 1997 Revised Forest Plan describes ruffed grouse on pages III-338 through 339 and is incorporated here by reference. This species uses aspen communities for food and cover.

Alternative comparison. There would be no appreciable difference in aspen management among alternatives. Under Alternative 1, Objective 201 would continue to direct conservation and management of hardwood communities. Alternatives 2 and 3 could retain mature or over-mature hardwood stands that are part of potential marten habitat or marten travel corridors. These isolated areas may not receive aspen regeneration treatments over the interim period, but this should not reduce aspen clone survival.

Livestock tend to graze aspen habitat heavily if not routinely herded from the stands. Alternatives 2 and 3 would treat Guidelines as Standards, which would help improve aspen regeneration and prevent aspen clone deterioration due to excessive livestock use. Alternatives 2 and 3 would more effectively protect ruffed grouse habitat during the next five years as compared to Alternative 1.

Effects on Ovenbird

The FEIS for the 1997 Revised Forest Plan discusses ovenbird on pages III-335 through 336 and is incorporated by reference. This species is associated with hardwood communities and dense, mixed-forest stands.

Alternative comparison. None of the alternatives would markedly affect mature aspen stands. Alternative 1 would continue using Objective 201 to direct conservation and management of existing hardwood communities. Some small areas of hardwoods that exist within marten habitat may not be regenerated under Alternatives 2 and 3 during the Phase I period. Long-term survival of these hardwood communities would require periodic regeneration actions (cutting and/or burning) to stimulate the clones. There would, however, be no appreciable difference among alternatives regarding this species anticipated in the next five years.

Effects on Red-naped Sapsucker

The FEIS for the 1997 Revised Forest Plan discusses the red-naped sapsucker on pages III-334 through 335 and is incorporated by reference.

The red-naped sapsucker is a primary cavity-nester. It forages and nests in mature aspen communities.

Alternative comparison. Alternatives 2 and 3 would not significantly change the way hardwoods are managed. These alternatives would, however, treat Guidelines as Standards. This would probably improve aspen clone regeneration and vigor, since excessive livestock use of aspen sites for shade and feed would be expected to decrease. There would be no appreciable difference among alternatives regarding this species over the next five years.

Effects on Flying Squirrel

The FEIS for the 1997 Revised Forest Plan discusses the flying squirrel on pages III-331 through 332 and is incorporated by reference.

Optimal habitat for flying squirrels consists of mature aspen, pine, and spruce stands with moderate to dense canopy. This species forages on nuts, seeds, mushrooms, and lichens, but will consume other items such as bird eggs and insects.

Alternative comparison. Snags and hollow logs are important habitat components for flying squirrels. Alternatives 2 and 3 would increase snag size and density requirements and would probably improve habitat options for this species.

Proposed goshawk management recommendations are designed to improve goshawk nesting and foraging habitat. This includes improving habitat for prey species such as squirrels. Alternatives 2 and 3 would both improve flying squirrel habitat though on different scales. Alternative 2 would work to achieve structural diversity and retain large-diameter trees in the PFAs that surround goshawk nests. Alternative 3 would do this on a landscape scale and would probably produce a more effective ‘network’ of flying squirrel habitat across the Black Hills.

Recreation and livestock grazing would not present appreciable differences among alternatives. These activities do not generally affect nest site availability , foraging habitat, tree size, or canopy density. As compared to Alternative 1, Alternative 3 would provide the most flying squirrel habitat, followed by Alternative 2.

Table 3-17 summarizes anticipated effects by alternative. These effects are explained in the species-specific discussions above.

Table 3-17 Anticipated Effects on Species of Special Interest and MIS (full sensitive species list in Table 3-16)

Species	Status	Effects Assessment by Alternative		
		Alternative 1	Alternative 2	Alternative 3
Deer	MIS, Special Interest	Least favorable	Slightly more favorable	Most favorable
Elk	MIS, Special Interest	Least favorable	Slightly more favorable	Most favorable
Merriam's turkey	MIS, Special Interest	Least favorable	Slightly more favorable	Most favorable
Mountain goat	MIS, Special Interest	No appreciable difference in effects among alternatives		
Brown creeper	MIS, Special Interest	Least favorable	More favorable	Most favorable
Mountain lion	MIS, Special Interest	Least favorable	Slightly more favorable	Most favorable
Northern flicker		No appreciable difference in effects among alternatives		
Mountain bluebird		No appreciable difference in effects among alternatives		
Red-breasted nuthatch		Least favorable	More favorable	Most favorable
Ruby-crowned kinglet		Least favorable	More favorable	Most favorable
Ruffed grouse	Game species	Least favorable	Slightly more favorable	
Ovenbird		No appreciable difference in effects among alternatives		
Red-naped sapsucker		No appreciable difference in effects among alternatives		
Flying squirrel		Least favorable	More Favorable	Most favorable

Summary of Effects

The additional marten management direction in Alternatives 2 and 3 regarding not decreasing patch size in high potential marten habitat and providing for adequate down woody material in white spruce stands (standards # 3215, 3117 and 2308) would benefit the marten, marten prey species as well as the following species also associated with spruce or down woody material: American marten, golden-crowned kinglet, ruby kinglet, brown creeper, three-toed woodpecker, red-breasted nuthatch, northern flying squirrel, Merriam's turkey(cover), white-tailed deer(cover), elk(summer cover), as well as other bird and mammal species.

The additional goshawk management direction regarding providing for a balance of structural stages within post-fledging family areas and across the pine landscape (Alternatives 2 and 3) would benefit a wide range of species associated with ponderosa pine cover type: northern goshawk, pygmy nuthatch, brown creeper, mule deer, white-tailed deer, elk, Merriam's turkey, mountain bluebird, bighorn sheep, cottontail rabbit, northern flicker, black-backed woodpecker, red

squirrel, northern flying squirrel, white-crowned sparrow, white-breasted and red-breasted nuthatches, hairy woodpecker, dark-eyed junco, as well as other bird and mammal species.

Providing for a balance of structural stages, either in the post-fledging family areas or across the ponderosa pine forest, includes providing stands of dense, large diameter trees. Some of the species that would specifically benefit from these conditions are: northern goshawk, brown creeper, black-backed woodpecker, red-breasted nuthatch, northern flying squirrel, cooper's hawk, yellow-rumped warbler, northern saw-whet owl, and elk, to name a few.

Effects on Wildlife From Travel Management

Roads can have adverse effects on some wildlife species. The majority of scientific research has addressed effects on big game, but other wildlife can be affected. Adverse effects come from increased human activity during critical periods such as breeding, nesting, or hibernation, and from creation of physical barriers to travel. The condition in which the road is maintained is also a consideration.

Open road density was evaluated for the Project Sample Group timber sales. There is only a slight difference among the alternatives in the amount of road construction or reconstruction necessary to accomplish the proposed vegetative treatments.

Road density is also addressed at the project level. If project-level analyses show the possibility of adverse effects on wildlife or wildlife habitat, decisions could be made at that time to close existing or newly constructed roads. This action would occur under any of the Phase I alternatives.

Alternative 1 would continue current direction from the 1997 Revised Forest Plan. Closure or obliteration of roads not needed for management activities would be reviewed at the project level.

Alternative 2 would not substantially change road miles or placement. Change in effects as compared to Alternative 1 would be minimal.

Alternative 3 could slightly increase road activity since additional acres would be treated to achieve the desired forest structural diversity. Project Sample Group data demonstrated that any increase in road construction, reconstruction, and maintenance is not expected to be substantial. Adverse effects on wildlife would likely be minimal and could be addressed at the project level.

Effects on Wildlife From Forest Fragmentation

The FEIS for the Revised Forest Plan discusses forest fragmentation on pages III-247 through 250 and is incorporated by reference.

Historical records show that the Black Hills is naturally fragmented. Forest fragmentation can be measured on different scales, and the effect of fragmentation on wildlife depends on the species and scale being discussed. It is generally agreed that fragmentation is a concern when it 1) prevents a particular species from securing basic needs required for survival or 2) allows one species to detrimentally exploit another species. The adverse effects of fragmentation, as it relates to the Black Hills condition, have not been demonstrated to be a cause for species viability concern. However, loss of habitat, or specific habitat attributes (i.e. snags, caves, ponds, etc.) is of concern.

Alternative 1 would continue forest management practices as previously described.

Alternative 2 would treat all environmentally protective Guidelines as Standards. This would improve herbaceous residual cover in livestock grazing areas, reducing fragmentation at this scale. Late-succession spruce habitats would not be harvested during this amendment period in order to maintain future management options for the American marten. This would reduce the possibility for fragmentation of spruce habitats that could occur under Alternative 1. In northern goshawk post-fledging family areas that are short of large diameter trees in dense to moderately dense stands, forest fragmentation would be expected to decrease as these stands are left untreated during next five years. Alternative 2 is generally expected to reduce forest fragmentation around goshawk nest stands (Guideline 3114) and provide additional mature forest in these PFAs when compared to Alternative 1. There would be differences depending on existing conditions within individual watersheds.

Alternative 3 has all of the environmentally protective measures of Alternative 2. Management of spruce habitats would be restricted to ensure marten habitat protection. Alternative 3 would manage ponderosa pine forests for increased structural diversity at the landscape scale (Guideline 3114b). This alternative would allow timber management activities to replicate natural vegetative patterns and patch size. Depending on project-level existing conditions, this could slightly increase or decrease small-scale forest fragmentation. Areas that contain few large-diameter trees or acres of dense forest would be deferred during the next five years and would continue to mature. Other areas with an abundance of these mature, dense forests could be harvested in ways that may ‘fragment’ the area, but on a relatively small scale. The objective of Alternative 3 is to provide a wide variety of forest structural and understory diversity in order to best accommodate a wide array of wildlife species, many of which are prey species for the goshawk.

Alternative 3 would result in the least overall forest fragmentation because of the added emphasis on forest structural diversity and maintaining large-diameter trees with moderate to dense forest canopies, and within stands vertical diversity across the landscape.

Effects On Snags From Timber Management

Existing snags are protected from cutting during timber sales unless deemed a safety hazard. At the time of this writing, a temporary Forest Order that prohibits the cutting of standing dead trees for fuelwood is in effect in an effort to protect existing snags.

Alternative 1 follows the direction of Standard 2301 to protect and maintain existing standing dead trees. Hard snags are to be maintained at an average density of 1.08 per acre across the planning area. This standard is primarily based on work completed by Jack Ward Thomas in the Blue Mountains of Washington and Oregon (Thomas et al. 1979). See also the FEIS for the 1997 Revised Forest Plan, pages III-277 through 292.

Alternative 2 would use interim direction language regarding 'snag-dependent species'. Specifically this would increase standards for project planning to maintain from two to four snags greater than 10 inches in diameter per acre, 25 percent of which must to be greater than 20 inches in diameter and 25 feet tall (or from the largest diameter and height classes available). Snags may be clustered or individual but must be well distributed. Vegetation management activities in ponderosa pine would retain a sufficient number of green trees at least 20 inches in diameter or from the largest diameter class available to move towards or maintain an average minimum density of one large green tree per acre within the associated watershed for the purpose of snag recruitment. Retention trees can be clustered or individual (1999 Appeal Decision). This alternative would increase average snag density, size, and diameter standards, and would provide large-diameter green trees to be left as future snags. Identification of green tree snag replacements would be addressed at the project level.

Alternative 3 – Comments from the expert interviews (Expert Interview Summary, 2000, pages 83-92) supported maintaining fuelwood cutting restrictions currently in place on the Forest for the remainder of the Phase I Amendment period in addition to the standards outlined under Alternative 2. This alternative would have the fewest adverse effects on woodpecker species (Expert Interview Summary, 2000). Also discussed in these interviews was the need to maintain mature forest conditions and provide habitats created by fire and insects. Proposed marten and goshawk habitat recommendations would ensure that an adequate number of large-diameter live snag recruitment trees would be left, and this would also have positive effects on woodpeckers (Expert Interview Summary, 2000).

Snags are critical to other species of wildlife. Most of the eleven species of bats known to occur in the Black Hills use snags (Expert Interview Summary 2000; Barclay et al. 1996). Large-diameter snags are preferred, especially as maternity roost sites. The American marten uses snags as denning sites (Ruggiero et al. 1994; Hargis 1999). Pygmy nuthatches may require snags over 19 inches in diameter (Expert Interview Summary 2000). Alternative 3 would benefit snag-dependent species the most of the three alternatives. It has the least potential for adverse

cumulative effects since it maintains the fuelwood cutting restriction for the Phase I Amendment timeframe and implements snag standards described for Alternative 2.

Closing roads where snag densities are below the minimum average is specifically recommended under Alternative 2 to reduce loss of snags to fuelwood cutting. Under Alternatives 1 and 3, closing roads to protect snags as mitigation could be considered at the project level.

Direct and Indirect Effects on Wildlife from Forest Vegetation Management under Alternatives 2 and 3

See composition discussion under Section 3-2, and

Within stand understory (grass/forb/shrub) diversity may increase in Alternatives 2 and 3 in post-fledging family areas, and in Alternative 3 across the landscape due to providing a balance of structural stages for the northern goshawk in ponderosa pine. This balance of structural stages would provide habitat for those species with divergent feeding and cover habitats (FEIS for the 1997 Revised Forest Plan, page III-159 through III-160). It will occur to the greatest extent in Alternative 3 and to the least extent in Alternative 1. Depending on the landscape area, a balance of structural stages whether focused on the post-fledging family areas or across the ponderosa pine landscape may display adverse effects on species that use large diameter pine trees with moderate to dense canopies for both feeding and cover habitat. Within stand understory diversity may decline in white spruce in Alternatives 2 and 3, but the effect should be minimal over the next five years.

3-6.4. Cumulative Effects on Wildlife

Existing forest conditions are a result of timber management, livestock grazing, wildfire, insect outbreaks, and increased development of private land within and adjacent to the Forest. These actions have altered and will continue to alter wildlife habitats and affect distribution and movement of some species. See also Section 3-2.3, Cumulative Effects on Forested Ecosystems for additional discussions of the Jasper Fire effects, and planned activities. The discussions below focus on effects on wildlife.

Monitoring activities will continue to obtain trend information regarding Sensitive and Management Indicator Species (see Section 2-7, Chapter 2 and Appendix F).

Timber harvesting has occurred since the preparation of the FEIS for the 1997 Revised Forest Plan. The effects of these management actions are evaluated in site-specific analyses. Cumulatively, these projects represent changes in forest structure that are detrimental to some species and potentially beneficial to others. Habitat needs for wildlife species are determined in site-specific analyses based on existing conditions, modeling, Management Area emphasis, and Standards and Guidelines.

The Jasper Fire of 2000 affected over 83,500 acres of National Forest and adjacent private lands. High and moderate intensity burning occurred on approximately 71 percent of the fire area. While this area is now abundant in standing dead trees, over the next five years some of these fire-killed trees will decay and fall. In addition, within the next year activities such as road hazard tree removal and timber economic recovery operations will also remove a percentage of these dead trees. The remaining standing dead trees would still produce a snag density in the fire area far in excess of those proposed across the Forest under Alternatives 2 and 3. In 10 to 20 years, the Jasper Fire area could see snag deficiencies since few large-diameter green recruitment trees will be available. The Jasper Fire Rapid Assessment Report (2000) and the Jasper Fire Value Recovery EIS (2001) contain additional information regarding the fire impacts and are incorporated by reference.

Wildlife responses to this sudden change in forest structure will be mixed. Species requiring large diameter moderately dense to dense ponderosa pine forest will lose some habitat. However, the majority of the Jasper Fire area had been intensively managed and was dominated by smaller diameter trees. Species that prefer grass/shrub, open forest conditions, and standing dead tress would be expected to find additional foraging and or nesting habitat within a few growing seasons as the grass and shrub components return and increase.

There are 144 known goshawk nests distributed across the Black Hills National Forest. Known nest densities are higher in the northern and central Hills and become sparse in the southern Hills. This distribution is expected since forest growing site condition varies across the forest, with the northern and central Hills having more productive growing sites than the southern Hills. The distribution of known goshawk nests also correlates to the information in the FEIS for the 1997 Revised Forest Plan, Appendix H figures H-16 and H-17 depicting Northern goshawk habitat capability. In spring-summer 2000, District biologists completed goshawk nest surveys that included all the nests located within the area that would later burn in the Jasper Fire. No activity was detected at the nine nests that were later destroyed by the Jasper Fire.

The FEIS for the 1997 Revised Forest Plan estimated 30 active pairs on the Forest; this is likely a minimum. This would indicate about 21% of the known nests on the Forest are active in any given year. Using this percentage, this would indicate that 2 of the nests lost in 2000 were probably active in any given year. Potentially active nesting pairs could have been reduced from 30 to 28 for any given year. Active nesting pairs fluctuate annually due to environmental fluctuations and other stochastic events. The loss of nine nests represents a six percent reduction in known nests on the Forest. A substantial portion of the total burn area has been set back to an early succession condition. Many years will be required to grow mature trees that could replace the goshawk habitat that was lost. Another nest was lost in the April 2000 snowstorm. This brings the reduction in known nests to about seven percent.

Under Alternative 2 assuming presence and providing for presumed, as well as known, goshawk nesting habitat across the Forest would benefit goshawks. For the nests lost in

the Jasper Fire, assuming presence in other areas of the Forest would benefit goshawks by providing, or maintaining, suitable nesting habitat where it exists. Under Alternative 3 suitable goshawk nesting habitat would be provided, or maintained, through striving for a balance of structural stages across the ponderosa pine landscape.

Timber management projects will be proposed during the Phase I Amendment period. Depending on the alternative selected, these projects will emphasize slightly different goals and objectives. Alternatives 2 and 3 would increase protective measures for selected wildlife species and sensitive plants species as compared to Alternative 1.

Livestock grazing Allotment Management Plans could be revised during the Phase I Amendment period and would include additional protection measures for riparian areas, Region 2 Sensitive species, and snail 'species of concern' where necessary.

There would not likely be any change in the recreation, mining, or special uses programs on the Forest; however, treating Guidelines as Standards under Alternatives 2 and 3 could result in minor modifications to specific projects.

3-7. WATERSHED AND WATER RESOURCES

3-7.1. Affected Environment

Soil Resource

Refer to pages III-20 through 23 of the FEIS for the 1997 Revised Forest Plan for a detailed discussion of the affected environment for soils.

There are 66 major soil types on the Black Hills National Forest. Soil resource inventories have been completed for all Black Hills counties. Soils across the Forest are varied but generally are stable. Some soils that can be unstable exist in the northern, eastern, and Bearlodge Mountains portions of the Forest.

The soil resource is subject to several effects, including:

- Soil erosion – the detachment and transport of soil particles by wind, water and gravity.
- Soil displacement – the movement of soil from one place to another by mechanical forces.
- Soil compaction – a rearrangement of soil porosity that may result in an overall decrease of soil porosity.
- Loss of soil nutrients – this loss lowers site productivity.

Natural rates of soil erosion are often increased by human activities such as road, trail and facility construction; timber harvest; mining; recreational use; and prescribed

burning. Many of these activities may also increase soil displacement and intensify compaction.

Groundwater Recharge, Water Yield and Streamflow Regimes

Surface Flow

Many small streams drain the Black Hills and the Bearlodge Mountains. These streams empty into two encircling rivers, the Belle Fourche and Cheyenne. The Belle Fourche River, rising in Wyoming, first flows northeastward and then swings abruptly around the Bearlodge Mountains in a southeasterly direction. The Cheyenne River, also rising in Wyoming, flows toward the southeast, and then turns northeastward along the southern foothills to receive the Belle Fourche some 50 miles east of the Black Hills. About 60 miles further downstream, the Cheyenne empties into Lake Oahe on the Missouri River. Several of the major creeks draining the Black Hills have cut deep valleys extending back into the western Limestone Plateau.

Streams in the southern Black Hills are generally intermittent or ephemeral while many of the northern Black Hills streams have perennial flow. Rains generally contribute to streamflow, while snow is important for soil-mantle recharge.

Groundwater

Refer to pages III-39 through 43 of the FEIS for the 1997 Revised Forest Plan for a detailed discussion of the affected environment for groundwater recharge, water yield, and streamflow regimes.

Surface water and groundwater are closely related in the Black Hills. Flowing streams in the Black Hills generally originate in or flow across the central Precambrian core. Surrounding the central core is a limestone belt; where streams cross sedimentary formations, streamflow tends to diminish or disappear for a portion of the year. Water may reappear in these channels further downstream. Perennial streams can contain intermittent reaches.

Major aquifers of the northern and eastern Black Hills include the Inyan Kara, Minnelusa, and Madison Aquifers. Communities throughout the Black Hills depend on groundwater for their water needs. Many of the communities depend on immediate recharge and cannot drill to deep groundwater as they do not have the major aquifers to rely on.

Flooding and Floodplains

Refer to pages III-62 through 65 of the FEIS for the 1997 Revised Forest Plan for a detailed discussion of the affected environment for flooding and floodplains.

Most of the damaging floods in the Black Hills are caused by severe spring and summer thunderstorms, rain-on-snow events, and long-lasting intense storms. Although floods have occurred in each month from March through August, most occur during May and June. Snowmelt is not, by itself, usually a significant factor affecting runoff. The severe and intense thunderstorms usually occur when soils are already moist or saturated from previous storms.

Water Quality

Groundwater Quality

Groundwater quality depends primarily on geology, but surface water quality can be an important influence where streams lose flow to groundwater recharge. Groundwater quality varies within and among aquifers.

Surface Water Quality

Refer to pages III-76 through 85 of the FEIS for the 1997 Revised Forest Plan for a detailed discussion of the affected environment for water quality.

Surface water quality in the Black Hills is generally good. Influences on surface water quality include those that occur naturally as well as those caused by management activities. Black Hills streams can encounter naturally occurring obstacles that cause the water not to meet State water-quality standards. Mining operations have created conditions that continue to influence water quality in certain areas.

Riparian Areas and Wetlands

Refer to pages III-294 through 295 of the FEIS for the 1997 Revised Forest Plan for a detailed discussion of the affected environment for riparian areas and wetlands.

Riparian areas and associated wetlands and floodplains are the most productive and biologically diverse lands on the Forest. They are also some of the most sensitive to disturbance. The riparian vegetation type is an association of plants occurring in areas of continually high water tables. These areas are typically located adjacent to streams and around natural springs, seeps, fens, or reservoirs. While not extensive on the Forest, riparian areas and wetlands represent a unique habitat for certain wildlife and plant species and serve as sediment traps that purify overland water runoff.

3-7.2. Direct and Indirect Effects on Watershed and Water Resources

The analyses presented in the following sections are based on the information derived from the Project Sample Group and/or landscape level analyses.

Effects on the Soil Resource

Effects on Soils from Timber Management

Soil Displacement (Erosion). Timber management can result in various degrees of soil displacement. Skid trails can lead to erosion and gullying if not properly located, if drainage systems are not adequately installed and functioning, and if inadequate amounts of slash are left on the skid surface. Disposal of logging slash by broadcast burning usually requires the construction of firelines, which can cause erosion if they are not adequately cross-drained or if slash is not brought back onto the line following the burn. This can decrease soil productivity for decades.

In comparing the alternatives for the Phase I Amendment, Alternative 2 would probably affect a smaller area and Alternative 3 would probably affect a greater area as compared to Alternative 1. As a result, Alternative 3 would have more of an impact on soil displacement, followed by Alternative 1. Alternative 2 would have the least effect. See pages III-25 through 27 of the FEIS for the 1997 Revised Forest Plan for further discussion, including applicable laws, regulations, policy, and mitigation measures.

Soil Compaction. Timber management can result in various degrees of soil compaction. Log landings can become severely compacted. On certain soils, the weight of skidding equipment can cause soil compaction, especially when soils are wet (almost all soils may be susceptible to compaction when completely saturated). This can decrease soil productivity for decades.

In comparing the alternatives for the Phase I Amendment, Alternative 2 would probably affect a smaller area and Alternative 3 would probably affect a larger area as compared to Alternative 1. Therefore, Alternative 3 would have more impact on soil compaction, followed by Alternatives 1 and 2. See pages III-25 through 27 of the FEIS for the 1997 Revised Forest Plan for further discussion.

Soil Nutrients. Timber management in forested portions of the Black Hills, especially whole-tree skidding, has the greatest potential for impact to a soil's organic matter over a large area. This activity tends to disturb a large area of the forest floor and removes nutrients and organic sources from the site. The result may be increased soil erosion and a decrease in a soil's organic matter. This can lead to a possible decrease in long-term soil productivity. Whole-tree harvest is accompanied by larger increases in the removal of nutrients then would occur

with conventional bole-only harvest. Lack of nutrient cycling may have negative effects on future rotations. This is especially true of areas that have shallow soils.

In comparing the alternatives for the Phase I Amendment, Alternative 2 would probably affect a smaller area and Alternative 3 would probably affect a greater area as compared to Alternative 1. Alternative 3 would therefore have more impact on soil nutrients, followed by Alternatives 1 and 2. See pages III-25 through 27 of the FEIS for the 1997 Revised Forest Plan for further discussion.

Soil Stability. Logging activity and road construction in old landslide areas can result in mass movement. The shelterwood method of timber management used on the Forest does not remove the entire timber canopy at once. The remaining trees use soil moisture, reducing the probability of soils becoming wet and unstable. Tree roots in the soil and in fractured bedrock also reduce the mass-movement potential on steep slopes.

In comparing the alternatives for the Phase I Amendment, Alternatives 1 and 2 are similar. Alternative 3 has the potential to disturb fewer acres of soils with mass-wasting potential. Alternative 3 would have less impact on soil stability than Alternatives 1 and 2. See pages III-25 through 27 of the FEIS for the 1997 Revised Forest Plan for further discussion.

Effects on Soils from Range Management, Recreation Management, Minerals Exploration and Extraction, Fire Management, Other Activities, and Special Area Designation

No change to effects on soils from range management, recreation management, minerals exploration and extraction, fire/fuels management, other activities, and special area designation is expected as compared to Alternative 1. In comparing the alternatives for the Phase I Amendment, Alternatives 1, 2, and 3 are similar because these activities are not different between alternatives and would be conducted to meet 1997 Revised Forest Plan resource protection direction. See the FEIS for the 1997 Revised Forest Plan for further discussion, pages III-27 through 34.

Effects on Soils from Roads

Soil Displacement (Erosion). Soil displacement occurs on all roads. On paved highways, erosion is the greatest during construction or reconstruction and will occur until the disturbed areas are sloped, scarified, seeded, and mulched, and vegetation is established. Once pavement is in place and the sideslopes have revegetated, few adverse effects on soils occur. All National Forest System roads contribute to soil displacement, although graveled roads generally do so to a lesser extent than native-surface roads. Once all disturbed areas are adequately revegetated, on-site soil loss, water movement, and sediment movement will decrease. Wheel-track roads not counted as part of the National Forest Road

System can displace soil. Obliteration of roads is identified at the project level to address erosion problems. During road obliteration, there may be a short-term increase of on-site soil loss immediately after the work. Once the road is revegetated, there should be a net reduction in erosion.

In comparing the alternatives for the Phase I Amendment, Alternatives 1, 2, and 3 are similar in total amount of roads used in association with timber activities. Alternatives 1 and 2 would have similar road construction and reconstruction mileages, while Alternative 3 would produce an increase over the existing situation. An increase in road construction would disturb additional areas, while an increase of road reconstruction could have a short-term negative effect by disturbing areas and a long-term positive effect on soil displacement by correcting ongoing erosion problems. Alternative 3 would have more impact on soil displacement than Alternative 1 or 2. See pages III-30 through 31 of the FEIS for the 1997 Revised Forest Plan for further discussion.

Soil Compaction. Soil compaction occurs in association with roads. Most roads are a permanent part of the landscape and the soil compaction is not a concern, since the site is not expected to return to production. Wheel-track roads can, however, cause soil compaction and unplanned reductions in site productivity. Obliteration of wheel-track roads has a positive effect on long-term site productivity. Obliteration of other roads reduces soil compaction over time.

In comparing the alternatives for the Phase I Amendment, Alternatives 1, 2, and 3 would have similar effects regarding the total amount of roads used for timber activities, permanent or temporary. There is no difference between the alternatives in soil compaction effects. See pages III-30 through 31 of the FEIS for the 1997 Revised Forest Plan for further discussion.

Soil Stability. Roads may cause slumping or slope failure (mass movement) if road alignment crosses unstable slopes.

In comparing the alternatives for the Phase I Amendment, Alternatives 1 and 2 are similar with regard to soil stability. Alternative 3 has the potential to disturb more soils with mass-wasting potential. Alternative 3 would have more impact on soil stability than Alternative 1 or 2. See pages III-30 through 31 of the FEIS for the 1997 Revised Forest Plan for further discussion.

Effects on Groundwater Recharge, Water Yield, and Streamflow Regimes

Effects on Groundwater Recharge and Water Yield from Timber Management

Timber harvest increases water yield due to a reduction in interception and evapotranspiration. Increases in water yield are not sustainable unless measures are taken to prevent tree regeneration. While timber harvest can lead to increased

water yield in small watersheds, this is generally a small, almost immeasurable, percentage of total water yield in associated larger watersheds.

In comparing the alternatives for the Phase I Amendment, Alternatives 2 and 3 have less potential to produce temporary increases in water yield because harvest levels would be lower as compared to Alternative 1. See pages III-45 through 53 of the FEIS for the 1997 Revised Forest Plan for further discussion.

Effects on Groundwater Recharge and Water Yield from Roads, Fire Management, and Other Activities

No changes to effects on groundwater recharge and water yield from roads, fire management, other activities are expected because the differences in activity levels are not expected to produce measurable effects. In comparing the alternatives for the Phase I Amendment, Alternatives 1, 2, and 3 are similar. See the FEIS for the 1997 Revised Forest Plan for further discussions, pages III-54 though 57.

Effects on Flooding and Floodplains

Effects on Flooding and Floodplains from Timber Management, Roads, Fire Management, and Other Activities

No change to effects on flooding and floodplains from timber management, roads, fire management and other activities is expected because the differences in harvest levels are not expected to produce measurable effects. In comparing the alternatives for the Phase I Amendment, Alternatives 1, 2, and 3 are similar because most activities do not differ among alternatives. Timber management is unlikely to affect the peak flow resulting form heavy storms or the effect of rain-on-snow events. No change in the level of roads in floodplains is anticipated. See the FEIS for the 1997 Revised Forest Plan for further discussions, pages III-66 through 70.

Effects on Water Quality

Effects on Water Quality from Roads, Skid Trails, and Landings

Roads have often been cited as the major source of sediment addition to streams. In general, as the proximity of unpaved roads to streams and water bodies increases, the potential for degrading water quality also increases. Forest-wide standards and guidelines and the standards and design criteria of the Watershed Conservation Practices handbook are designed to reduce or eliminate these adverse effects. Road reconstruction provides an opportunity to reduce sedimentation by improving water bars and other drainage structures and by relocating roads that are currently located in or closely paralleling channels to side hills or ridges.

In comparing the alternatives' effects on roads adjacent to streams and within riparian areas for the Phase I Amendment, Alternatives 1, 2, and 3 would have similar total amounts of roads used for timber activities. All alternatives would also have similar levels of road construction. Alternative 3 would have the most road reconstruction, followed by Alternative 1. Alternative 2 would have the least. Alternative 3 has the least potential to have the negative effects on water quality over the long term since road reconstruction could potentially correct problem areas next to streams. Alternative 2 has the most potential for negative effects on water quality since fewer problem areas would be repaired. See pages III-87 through 89 of the FEIS for the 1997 Revised Forest Plan for further discussion.

Effects on Water Quality from Timber Management, Fire Management, Range Management, Noxious Weeds Management, Recreation and Wilderness Management, Minerals Exploration and Extraction, and Other Activities

No change in effects on water quality from timber management, fire management, range management, noxious weeds management, recreation and wilderness management, minerals exploration and extraction, and other activities is expected since these activities would continue to incorporate resource protection measures identified in the 1997 Revised Forest Plan. In comparing the alternatives for the Phase I Amendment, Alternatives 1, 2 and 3 are similar because most of these activities are not different between alternatives. Current direction for timber management requires undisturbed buffer strips, which prevent soil compaction and soil disturbance adjacent to streams, and also catches sediment moving down slope. See the FEIS for further discussions, pages III-89-96.

Riparian Areas and Wetlands

Effects on Riparian Areas and Wetlands from Recreation Management, Wilderness Management, Wild and Scenic River Management, Wildlife Management, and Fisheries Management

No change to effects on riparian areas and wetlands from recreation management, wilderness management, wild and scenic river management, wildlife habitat management, and fisheries management, is expected because the differences in activity levels are not expected to produce measurable effects. In comparing the alternatives for the Phase I Amendment, Alternatives 1, 2, and 3 are similar because most of these activities do not differ among alternatives. No wild and scenic rivers are proposed for designation under any alternative. See the FEIS for the 1997 Revised Forest Plan for further discussion, pages III-296 through 299.

Effects on Riparian Areas and Wetlands from Threatened, Endangered, and Sensitive Species Management

Many of the Sensitive species are associated with riparian areas and wetlands. Conserving habitat for these riparian-associated species would result in positive benefits for these areas. Treating protective guidelines pertaining to riparian areas as standards would benefit riparian areas (Guidelines 1208, 1303, 1506. 1507).

In comparing the alternatives for the Phase I Amendment, Alternatives 2 and 3 are similar. Alternatives 2 and 3 may provide more protection to riparian areas than Alternative 1 due to treating environmentally protective guidelines as standards along with additional protective measures for sensitive species. See page III-299 of the FEIS for the 1997 Revised Forest Plan for further discussion.

Effects on Riparian Areas and Wetlands from Range Management

No change in effects on riparian areas and wetlands from range management is expected since this activity will continue to follow the management direction in the 1997 Revised Forest Plan. Livestock may be temporarily removed from localized areas to avoid affecting some Sensitive species (Standard 3103 for snail protection, Guideline 2207 related to hardwood communities; Guideline 3104 for sensitive plant protection near springs/seeps). Some measures could benefit riparian areas. In comparing the alternatives for the Phase I Amendment, Alternatives 1, 2, and 3 are similar because range management would not differ greatly among alternatives. See pages III-299 to 300 of the FEIS for the 1997 Revised Forest Plan for further discussion.

Effects on Riparian Areas and Wetlands from Timber Management

Timber harvest can have both positive and negative effects on the riparian resource by increasing soil disturbed, which could increase sedimentation loads to riparian areas and waterways. The forested riparian zone can benefit from timber management that is designed to perpetuate the health of trees, remove encroaching conifers, and enhance vegetative diversity through restoration or retention of hardwoods. This in turn improves streambank stability, shade, and organic input to the stream, and may improve habitat for beaver if the hardwood restoration is adjacent to riparian areas. The direct effects of harvesting timber on riparian ecosystems are expected to be minimal due to adhering to the Best Management Practices designed to reduce potential impacts to soil and water resources.

In comparing the alternatives for the Phase I Amendment, Alternatives 2 and 3 are similar. Both Alternatives 2 and 3 would harvest fewer acres in riparian areas than Alternative 1, resulting is less potential for direct impact but fewer opportunities for riparian habitat improvements for Sensitive species. Effects are expected to be minimal. See pages III-300 through 301 of the FEIS for the 1997 Revised Forest Plan for further discussion.

Effects on Riparian Areas and Wetlands from Mineral Exploration and Extraction, Soil and Water, Pest Management, Utilities Development, Roads, and Fire Management

No change in effects on riparian areas and wetlands from mineral exploration and extraction, soil and water management, pest management, utilities development, lands and special uses, roads, and fire management is expected. In comparing the alternatives for the Phase I Amendment, Alternatives 1, 2, and 3 are similar. See the FEIS for the 1997 Revised Forest Plan for further discussions, pages III-301 through 305.

3-7.3. Cumulative Effects on Watershed and Water Resources

Cumulative Effects on Soils

Refer to pages III-34 through 35 of the FEIS for the 1997 Revised Forest Plan for a discussion of cumulative effects on soils. The discussion remains unchanged for the Phase I Amendment except for the area pertaining to the Jasper Fire.

The 83,500-acre Jasper Fire of 2000 affected soils. The fire consumed the organic layer in the areas burned at moderate to high intensity. Since the fire moved through the area quickly, soils were not damaged severely. The fire's effects on soils will last until the organic duff layer is rebuilt.

Cumulative Effects on Groundwater Recharge, Water Yield, and Streamflow Regimes

Refer to pages III-57 through 59 of the FEIS for the 1997 Revised Forest Plan for a discussion of cumulative effects on groundwater recharge, water yield, and streamflow regimes. The discussion remains unchanged for the Phase I Amendment except for the Jasper Fire area. Water yield will increase in the fire area, along with peak-flows, erosion, sediment, and also the potential for localized flooding, depending on precipitation events.

Cumulative Effects on Flooding and Floodplains

Refer to page III-70 of the FEIS for the 1997 Revised Forest Plan for a discussion of cumulative effects on flooding and floodplains. The discussion remains unchanged for the Phase I Amendment except for the Jasper Fire area. The area that was within the fire perimeter and areas downstream could be subject to localized flooding because of the fire. The ground surface no longer has enough litter and vegetation cover to retain water and allow infiltration. The actual capacity of the soil has not

changed unless significant erosion or compaction occurred after the fire and related activities.

Cumulative Effects on Water Quality

Refer to page III-96 of the FEIS for the 1997 Revised Forest Plan for a discussion of cumulative effects on water quality. The discussion remains unchanged for the Phase I Amendment except for the Jasper Fire area. Streams within the Jasper Fire area are primarily ephemeral with some intermittent stretches. Water quality has not been a problem in the past because there has been no water in stream channels. There is a potential, however, to increase sedimentation downstream of the fire area.

Riparian Areas and Wetlands

Refer to pages III-305 through 306 of the FEIS for the 1997 Revised Forest Plan for a discussion of cumulative effects on water quality. The discussion remains unchanged for the Phase I Amendment.

3-8. FISHERIES RESOURCES

3-8.1. Affected Environment

The Black Hills experience cold winters and warm summers, with average annual precipitation ranging from 16 inches at lower elevations to about 28 inches at higher elevations. About two-thirds of this precipitation falls as rain during the frost-free season.

There are no naturally occurring lakes in the Black Hills or Bearlodge Mountains, although several dams exist in major drainages. There are about 2,000 surface acres of reservoirs on the Forest. Four large reservoirs each cover more than 100 surface acres. These reservoirs provide excellent fishing along with boating, swimming, camping, and other water-related activities. There are also a number of smaller reservoirs. Examples include Cook, Roubaix, Horsethief, and Bismarck Lakes. Many of these smaller reservoirs have silted in and are in need of restoration.

Many small streams drain the Black Hills. Intermittent streams are common, and many streams disappear underground. Spearfish and Boulder Creek, for example, become dry creek beds for some distance before emerging again as surface streams. See also the watershed discussion in Section 3-8.

There are about 800 miles of cold-water fisheries streams on the Forest. The South Dakota Department of Game, Fish and Parks (SDGFP) has developed a plan for trout management in the Black Hills (SDGFP 1993) designed to establish a systematic

approach to fisheries management on the watershed level. The SDGFP is in the process of updating this stream management plan, with a target completion date of summer 2001.

Historically, fish species diversity was limited in the Black Hills. Unlike many other western montane forests, salmonids are not native to the Black Hills. Fish native to the Black Hills, all of which are still present, include:

- Creek chub (*Semotilus atromaculatus*)
- Fathead minnow (*Pimephales promelas*)
- Finescale dace (*Phoxinus neogaeus*)
- Lake chub (*Couesius plumbeus*)
- Longnosed dace (*Rhinichthys cataractae*)
- Longnosed sucker (*Catostomus catostomus*)
- Mountain sucker (*Catostomus platyrhynchus*)
- White sucker (*Catostomus commersoni*)

Many non-native fish species have been introduced. Trout were first introduced from Colorado in the 1880s. Following introduction, fish were further distributed by fishing enthusiasts, and many streams became populated with trout from reproduction and movement within watersheds. The effects of these non-natives on the native fisheries are unclear, although it is known that trout compete for food and space and prey on small fishes. All native fish species still occur in the Black Hills at varying population levels.

Non-native fishes that occur in Black Hills streams and reservoirs, or just off the Forest, include:

- Black bullhead (*Ictalurus melas*)
- Black crappie (*Pomoxis nigromaculatus*)
- Bluegill (*Lepomis macrochirus*)
- Brook stickleback (*Culaea inconstans*)
- Brook trout (*Salvelinus fontinalis*)
- Brown trout (*Salmo trutta*)
- Channel catfish (*Ictalurus punctatus*)
- Common carp (*Cyprinus carpio*)
- Cutthroat trout (*Oncorhynchus clarki*)
- Emerald shiner (*Notropis atherinoides*)
- European rudd (*Scardinius erythrophthalmus*)
- Golden shiner (*Notemigonus crysoleucas*)
- Goldfish (*Carassius auratus*)
- Green sunfish (*Lepomis cyanellus*)
- Kokanee salmon (*Oncorhynchus nerka*)
- Lake trout (*Salvelinus namaycush*)
- Largemouth bass (*Micropterus salmoides*)
- Northern pike (*Esox lucius*)
- Plains killifish (*Fundulus zebrinus*)
- Plains minnow (*Hybognathus placitus*)
- Plains topminnow (*Fundulus sciadicus*)
- Rainbow smelt (*Osmerus mordax*)
- Rainbow trout (*Oncorhynchus mykiss*)
- Rock bass (*Ambloplites rupestris*)
- Sand shiner (*Notropis stramineus*)
- Shorthead redhorse (*Moxostoma macrolepidotum*)
- Smallmouth bass (*Lepomis dolomieu*)
- Splake (*Salvelinus fontinalis x namaycush*)
- Spottail shiner (*Notropis hudsonius*)
- Stonecat (*Noturus flavus*)
- Tiger trout (*Salmo x Salverlinus trutta x fontinalis*)
- Yellow perch (*Perca flavescens*)

The FEIS for the 1997 Revised Forest Plan further discusses the affected environment on page III-390. This information would remain unchanged under the Phase I Amendment and is incorporated by reference.

Specific fish-related guidance in the 1997 Revised Forest Plan includes maintenance or improvement of in-steam fisheries habitat. In addition, the 1997 Revised Forest Plan includes in-stream fisheries habitat as a management indicator. The 1999 Appeal Decision requires designation of one or more aquatic Management Indicator Species for analysis during the interim period. The Selection Report: Aquatic Management Indicator Species for the Black Hills National Forest (2000) describes the selection process and rationale and identifies species selected. This report is hereby incorporated by reference. Aquatic species designated as MIS, their habitat requirements, distribution/population, and selection criteria are shown in **Table 3-18.**

Table 3-18. Aquatic Management Indicator Species Selected for Project Level Analysis

Species	Habitat Attributes	Distribution/Population	Selection Criteria
Brook trout	Require cold, clean headwater streams and lakes; will not thrive in warm, turbid water.	Most populations are self-sustaining, but some stocking occurs.	Commonly fished; ecological indicator for decadal variable flow streams.
Brown trout	Prefer cold, clean head-water streams, but can survive in deeper, warmer, slower water than other trout species	Widely stocked in the Black Hills.	Commonly fished; ecological indicator for large lakes and perennial flow streams.
Finescale dace	Cool spring-fed bogs, lakes and creeks; small, weedy, sluggish streams and small lakes.	Occurs only in a few small creeks (mainly beaver ponds), one small reservoir, and a river outside the Forest.	Non-game species of special interest; ecological indicator for decadal variable flow streams.
Lake chub	Cool streams and lakes but will inhabit any large or small, flowing or still, body of water.	Occurs only in Deerfield Lake; previously common in Black Hills streams.	Non-game species of special interest; ecological indicator for large lakes.
Mountain sucker	Associated with clear, cold streams with aquatic vegetation and undercut banks.	Found in many creeks over last 40 years, but in mid- to late-1990s found to be missing from many locations.	Non-game species of special interest.

3-8.2. Direct and Indirect Effects on Fisheries

Alternatives 2 and 3 would treat all environmentally protective guidelines related to species conservation as standards during the interim period (see Appendix E). Those Standards and Guidelines with the most potential to affect the fishery resource are identified and summarized in the Fisheries Report, found in the project file.

The Interim Direction identified in the 1999 Appeal Decision applies primarily to Sensitive wildlife and plant species. The only provision that directly relates to the fishery resource is the requirement to designate at least one aquatic MIS, as discussed above. Alternative 2 contains several Standards relating to wildlife or plant species that either clarify or replace existing standards or guidelines in Alternative 1. Many of these Standards will not directly affect the fishery resource. Indirect effects are not expected to be substantially different from those of Alternative 1, although several could have a slight

indirect positive effect in some isolated places. Some examples are listed below. Overall, there would be no change in effects as compared to Alternative 1.

- Snag retention and recruitment may potentially increase woody debris near streams;
- Down woody debris (for marten) may supply potential woody material near streams;
- Protect microclimate in high potential marten habitat may maintain moist conditions in riparian areas;
- Maintenance of canopy closure and density in marten corridors may help maintain moist riparian conditions; and
- Timber harvest where it occurs may increase stream flow.

Alternative 3 further builds upon Alternative 2 by incorporating information from scientific experts interviewed as a part of the Phase I analysis process. Additional Standards that are included in Alternative 3 address the following:

- Retention of down woody material in sites adjacent to potential marten habitat, which will increase the potential downed woody material near some streams;
- Relocation or mitigation of construction of improvements in the Water Influence Zone, which will prevent encouraging livestock to frequent streams; and
- Location of new water developments outside of hardwood communities, which should maintain moist hardwood areas near streams.

The above Standards could indirectly affect the fishery resource slightly under Alternatives 2 and/or 3 in some isolated places. In addition, treating environmentally protective guidelines that have the potential to affect the fishery resource under Alternative 1 (see Appendix E) as standards under Alternatives 2 and 3 may also result in a positive effect on fish habitat in some isolated places. However, the overall effects on fishery resource would not change from the current management (Alternative 1).

Effects on the fishery resource were analyzed at both the Project Sample Group scale and the landscape scale. There was no appreciable difference in effects between the two scales of analysis.

Effects on Aquatic Management Indicator Species

Effects on Brook Trout

This species is sensitive to increases in water temperature for extended periods, changes in pH, low dissolved oxygen, and sedimentation. Brook trout are likely to be affected by various management activities, and could be affected by forest management that causes sedimentation of spawning habitat (eggs are susceptible to mortality) and increases in water temperature. In general, this species is not very tolerant of effects of timber management activities.

Management practices that can affect the brook trout include livestock grazing in riparian zones and sedimentation from roads or other ground-disturbing activities. Activities that cause channelization (such as increased runoff) may also adversely affect this species. Treating environmentally protective guidelines as standards under Alternatives 2 and 3 would benefit this species, particularly those measures related to livestock grazing, riparian habitats, and road construction. Since Alternative 3 has the potential to treat the most acres with timber harvest and Alternative 2 the fewest, Alternative 3 has the greatest potential for adverse impact on this species and Alternative the least.

Effects on Brown Trout

This species is sensitive to increased water temperatures and turbidity. Spawning success can be negatively affected by turbidity. Brown trout can be affected by forest management, mainly through sedimentation of spawning habitat and increases in water temperature, which may be caused by loss of riparian vegetation. This species is more tolerant and resilient, however, than other trout and less likely to show effects from habitat changes.

Management practices that could adversely affect the brown trout include those activities that cause a reduction of shade over water (such as livestock grazing), activities that cause channelization, and sedimentation from roads, and other ground-disturbing activities. Treating environmentally protective guidelines as standards under Alternatives 2 and 3 would be expected to benefit this species, particularly those measures related to livestock grazing, riparian habitats, and road construction. Since Alternative 3 has the potential to treat the most acres with timber harvest and Alternative 2 the fewest, Alternative 3 has the greatest potential for adverse impacts on this species and Alternative 2 has the least.

Effects on Finescale Dace

This species appear to be negatively affected by habitat changes such as increases in water temperature, reduced oxygen, and sedimentation of ponds and pools. Finescale dace appear intolerant of effects of management activities, although there is no data to indicate what types of management activities affect the species. Due to this lack of information, it is difficult to assess the potential effects of any of the alternatives on the finescale dace. However, treating environmentally protective guidelines as standards under Alternatives 2 and 3 would be expected to benefit this species and fisheries habitat in general.

Effects on Lake Chub

Little is known about this species' response to management activities, although it is thought to be intolerant to effects of management activities. It is believed to be sensitive to decline of streams, which may be caused by reduction in water yield due to increased forest vegetation, and to decline in streamside vegetation caused by loss of riparian vegetation and widening of streams from livestock grazing.

Management practices believed to adversely affect the lake chub include overgrazing by livestock and possibly fire suppression due to the resultant decline in water yield. Treating environmentally protective guidelines as standards under Alternatives 2 and 3 would be expected to benefit this species, particularly those measures related to livestock grazing and riparian habitats. There is no difference among the alternatives regarding fire suppression.

Effects on Mountain Sucker

Little is known about this species' response to management activities, so it is unknown whether the mountain sucker is tolerant of effects of management activities. There is no data to indicate what types of habitat changes to which the species may be sensitive, or to indicate what types of management activities may adversely affect the mountain sucker. Treating environmentally protective guidelines as standards under Alternatives 2 and 3 would be expected to benefit this species and fisheries habitat in general.

Effects on Fisheries from Timber Management

Timber harvest can have numerous adverse effects on fish habitat. Effects can be short-term or long-term and include increase in water yield due to reduced evapotranspiration by overstory vegetation; increased runoff from roads with associated sediment delivery into watercourses; increases in erosion rates from soils on steep slopes; possible increases in amounts of slash in streams; possible decreases in the amount of shade and large woody debris available in watercourses; soil compaction; and scarification of soils, which can increase spread of noxious weeds.

A description of the effects of Alternative 1 on the fishery resource from timber harvest and associated activities (road construction, skidding, etc.) can be found in the FEIS for the 1997 Revised Forest Plan, page III-392. Since Alternative 2 would treat fewer acres relative to Alternative 1, effects would be less than those described for Alternative 1. Since Alternative 3 may treat more acres, effects would be greater than those described for Alternative 1. Conformance to BMPs would mitigate many adverse effects of timber harvest, regardless of alternative.

Effects on Fisheries from Roads

Road construction and reconstruction can accelerate erosion and sediment loading, alter stream channel morphology, and change runoff characteristics. Erosion can be produced by washout of road fills, accelerated scouring at culvert outlets, etc. Increased sedimentation into streams following road construction can have a dramatic and long-lasting effect of fish habitat.

A description of effects of Alternative 1 on the fishery resource from road construction and reconstruction can be found on pages III-391 through 392 of the FEIS for the 1997 Revised Forest Plan. Total amount of roads used for timber activities would be similar under Alternatives 1, 2, and 3. All alternatives would also be similar in road construction. In the matter of road reconstruction, Alternative 3 would have the most, followed by Alternative 1; Alternative 2 would have the least. Alternative 3 has the least potential to negatively affect fisheries resources over the long term, with Alternative 1 in the middle and Alternative 2 the most, since road reconstruction could potentially correct problem areas next to streams.

Implementation of BMPs would reduce potential impacts from road construction and reconstruction, regardless of alternative.

Effects on Fisheries from Range Management

Improper livestock grazing can have adverse effects on fish habitat. Grazing can result in altered vegetation composition and soil compaction in uplands, which in turn increases runoff and erosion. Livestock concentration in riparian zones causes decline in streambank vegetation and bank stability. Continued heavy grazing pressure can result in wider and shallower streams, which are warmer in summer and colder in winter. This in turn can produce lower water tables, degradation of in-stream fish habitat structure, increased nutrient loads, and larger bacterial populations. All these factors can function to reduce populations of benthic invertebrates and fish.

A description of the effects of Alternative 1 on the fisheries resource from livestock grazing can be found in the FEIS for the 1997 Revised Forest Plan, page III-392. No change in effects on fisheries resources is expected from range management. There may be localized areas in which livestock grazing is temporarily removed to avoid affecting Sensitive species, which could benefit riparian areas and the fisheries resource. Effects of the three alternatives would be similar because activities are similar under all alternatives.

Effects on Fisheries from Fire Management

Other than treating environmentally protective guidelines as standards, there would be no changes to the fire management program under Alternative 2 or 3. There would be little or no change expected in the effects on the fishery resource as described in the FEIS for the Revised Forest Plan, pages III-392 through 393.

Effects on Fisheries from Minerals Exploration and Extraction

Other than treating environmentally protective guidelines as standards, there would be no changes to the minerals management program under Alternative 2 or 3. There

would be little or no change expected in the effects on the fisheries resource as described in the FEIS for the Revised Forest Plan, page III-393.

Effects on Fisheries from Chemical Applications

Pesticides and fire retardant are the main chemicals used in management activities on the Forest. Other than treating environmentally protective guidelines as standards, there would be no change in the direction provided for use of these chemicals under Alternative 2 or 3. There would be no change in the effects on the fishery resource as described in the FEIS for the Revised Forest Plan, pages III-393 through 394.

Effects on Fisheries from Recreation Management

Other than treating environmentally protective guidelines as standards, there would be no changes to recreation management under Alternative 2 or 3. There would be few changes in the effects on the fishery resource as described in the FEIS for the Revised Forest Plan, page III-394. The only change in these effects under Alternatives 2 and 3 may be a slight decrease in negative effects as a result of treating environmentally protective guidelines as standards. Under Alternative 3 there would be one new restriction on new developments, including road and trail construction, in the Cascade Spring/Creek area. This would benefit local fisheries.

3-8.3. Cumulative Effects on Fisheries

Cumulative effects of the alternatives on the fishery resource would parallel those described in the Watershed section (3-7) above. Because that discussion covers the important aspects of cumulative effects to fish habitat, those effects will not be repeated here.

3-9. BOTANICAL RESOURCES

At the time of the 1999 Appeal Decision there were 18 Region 2 Sensitive plant species listed for Black Hills National Forest. Five of these species have been recommended for removal from the Sensitive species list by state and regional authorities (Black Hills Sensitive Plant Task Team 2000). As shown in **Table 3-19** on the following page, Black Hills Sensitive plant species are primarily associated with spruce/hardwood and riparian/wetland habitat types (Ode & Marriott 1990; Fertig 1993).

Eight Botanical Areas (Management Area 3.1) have been designated within the Forest as directed by FSM 2372.05: Bear/Beaver Gulches, Black Fox Valley, Dugout Gulch, Englewood Springs, Higgins Gulch, McIntosh Fen, North Fork Castle Creek, and Upper Sand Creek. These collectively make up less than one percent of the Forest's land base (FEIS for the 1997 Revised Forest Plan, pp. III-307 to 317).

Alternative 1 would pose the highest risk for the Botanical Areas and most of the Sensitive plant species, while Alternative 3 would have the lowest risk of adverse effects. Several Sensitive plant species' distributions and habitat preferences are not well understood. In particular, currently available information on prairie moonwort (*Botrychium campestre*) and autumn coralroot (*Corallorhiza odontorhiza*) is insufficient to predict the effects of the management alternatives on these species (Ode and Marriott in Expert Interview Summary, p. 24).

Table 3-19. Anticipated Effects of Alternatives on Black Hills Sensitive Plant Species

Common Name (*Scientific Name*)	Habitat(s)	Alternative 1	Alternative 2	Alternative 3
Southern maidenhair fern (*Adiantum capillus-veneris*)	Warm spring associated riparian	Highest risk	~Reduced risk	Likely provides lowest risk
Prairie moonwort (*Botrychium campestre*)	Sandy grasslands (Bearlodge)	Current information is insufficient to evaluate the effects of the management alternatives on this species.		
Fox-tail sedge (*Carex alopecoidea*)	Riparian shrub communities	Highest risk	Reduced risk	Lowest risk
Autumn coralroot (*Corallorhiza odontorhiza*)	Habitat not defined for the Black Hills	Current information is insufficient to evaluate the effects of the management alternatives on this species.		
Giant helleborine (*Epipactis gigantea*)	Warm spring associated riparian	Highest risk	~Reduced risk	Likely provides lowest risk
Dwarf scouring rush (*Equisetum scirpoides*)	Riparian habitats, spruce/birch	Highest risk	Reduced risk	Likely provides lowest risk
Trailing clubmoss (*Lycopodium complanatum*)	Spruce/birch forest	Highest risk	Reduced risk	Lowest risk
*Marsh muhly (*Muhlenbergia glomerata*)	Open woodlands, fens, beaver ponds, riparian areas	Highest risk	Reduced risk	Likely provides lowest risk
Large round-leaf orchid (*Platanthera orbiculata*)	Spruce/birch/ hazelnut	Alternatives 2 and 3 provide additional protective direction, but the effect of wildlife management on the species requires further evaluation.		
Autumn willow (*Salix serissima*)	Fens, meadows, riparian areas	Highest risk	Reduced risk	Lowest risk
*Bloodroot (*Sanguinaria canadensis*)	Mixed conifer/hardwoods, flood plain terraces	Highest risk	Reduced risk	Likely provides lowest risk
Woolgrass *(Scirpus cyperinus)*	Beaver ponds, seeps, riparian	Highest risk	Reduced risk	Likely provides lowest risk
Great-spurred violet (*Viola selkirkii*)	*High elevation cool, moist*	Highest risk	Reduced risk	May provide lowest risk
**American trailplant (*Adenocaulon bicolor*)	Birch/hazelnut woods	Species has been recommended for removal from Forest Sensitive Species list. Effects of alternatives not evaluated.		
**Northern arnica (*Arnica lonchophylla*)	Open, dry woodlands	Species has been recommended for removal from Forest Sensitive Species list. Effects of alternatives not evaluated.		
**Greater bladder sedge (*Carex intumescens*)	Riparian and spruce/birch	Species has been recommended for removal from Forest Sensitive Species list. Effects of alternatives not evaluated.		
**Long-stalk sedge (*Carex pedunculata*)	Birch/hazelnut hardwoods	Species has been recommended for removal from Forest Sensitive Species list. Effects of alternatives not evaluated.		
**Tree-like clubmoss (*Lycopodium dendroideum*)	Spruce/birch/ hazelnut woods	Species has been recommended for removal from Forest Sensitive Species list. Effects of alternatives not evaluated.		

* Species sensitive rank recommended for further evaluation
** Species recommended for removal from sensitive species list

3-9.1. Affected Environment

The affected environment includes the eight Botanical Areas listed above, all areas where Sensitive plants are known to occur, and potential habitats both extant and yet to be restored. As indicated in Table 3-19 above, a large proportion of Black Hills Sensitive plant populations are in riparian, hardwood (birch/aspen/hazelnut), and boreal (spruce/birch) habitats. In general, the ecology and biology of these Sensitive plant species are not well understood. In addition, most Black Hills Sensitive plant species are disjunct remnant populations more commonly found in eastern deciduous or northern boreal plant communities. As a result, these plant populations have unique, isolated distributions that further confound our understanding of the species' preferred habitats, biology, physiology, population demography, and metapopulation dynamics from which to determine population viability.

Riparian, hardwood, and boreal Sensitive plant habitats occupy a limited portion of the Forest. Spruce comprises less than two percent and paper birch only one-tenth of one percent of the Forest (FEIS for the 1997 Revised Forest Plan, pp. III-129, 143). These areas are subject to a variety of management activities such as timber, grazing, and recreation. Similarly, management activities such as grazing, recreation and transportation are often concentrated in riparian areas. While some management activities may serve to improve habitats for Sensitive species by mimicking natural disturbance and succession regimes, others may be detrimental to individuals or populations. Refer to the FEIS for the 1997 Revised Forest Plan, pp. II-28, 30; III-307 to 310, 399 to 400; and FEIS Appendix H pp. 29 to 34, 113 to 117, and 153 to 154 for additional discussion of the affected environment.

3-9.2. Direct and Indirect Effects on Botanical Resources

Refer to the FEIS for the 1997 Revised Forest Plan, pp. III-25, III-30 to 31, 91, 150, 160, 165 to 167, 189, and 313; and FEIS Appendix H, pp. 70 to 73, 78, 139, and 166 for discussion of environmental consequences of vegetation, range, minerals, recreation, and travel management activities on Sensitive plants.

The effects analyses presented here are based upon what is currently known about Black Hills National Forest Sensitive plant species' ecological requirements, with additional scientific insight from the 2000 Expert Interviews. Because the ecology of Black Hills Sensitive plant species is generally not well understood, the effects of management activities may require further evaluation in Phase II (see Monitoring section and Appendix F).

Although beneficial to some species, hardwood restoration and wildlife habitat management activities may be potentially harmful to Sensitive species habitats through alternation of the canopy cover, hydrology, species composition of the site, desiccation of the understory, or direct mechanical damage. Neither the short-term nor the long-term effects of these activities are currently known. Exclusion of natural disturbance might be

detrimental to species that depend upon periodic disturbance for the maintenance or creation of their habitats. Until better information is obtained, management practices that provide well-distributed habitat types across the forest will likely present the lowest risk to Sensitive plant populations. In addition, management that minimizes habitat fragmentation and "edge effects" due to road construction and other ground disturbing activities would reduce risks to Sensitive plant populations by reducing both direct impacts and the indirect effects of noxious weed invasions, erosion, soil compaction, and other negative impacts, and by limiting the accessibility of sites by humans, livestock, and off-highway vehicles.

With the possible exception of plant poaching (no known impacts to date), there are no known direct negative effects from special forest products use on the Forest's Sensitive plant species. Local medicinal and food plant collection lists do not include any Sensitive species. There is, however, potential for indirect negative effects from collection of neighboring species, including mushrooms. Bloodroot *(Sanguinaria canadensis)*, an eastern deciduous-forest species with an unusual and disjunct occurrence in the Black Hills, is commonly collected and often poached elsewhere in its range. Illegal collection of orchids is also widespread. Because bloodroot is uncommon here it is unlikely to be exploited, but it and all orchid species should be considered vulnerable to collection due to their commercial value.

Alternative 1. Under the No Action alternative, management objectives and management area emphases for Sensitive plants and their habitats would be conducted according to the Standards and Guidelines currently described in the 1997 Revised Forest Plan. Alternative 1 would provide the lowest level of protection of the three alternatives for Sensitive plant species and botanical areas.

Alternative 2 incorporates interim direction requirements for additional monitoring and protection of Sensitive plant populations and botanical areas. Environmentally protective Guidelines would be treated as Standards (see Appendix E). Alternative 2 direction would provide increased levels of protection for botanical areas and Sensitive plants and their habitats through:

1. Restrictions on livestock grazing and related range activities in sensitive plant populations in designated botanical areas;
2. Added protection for Sensitive plants from noxious weed treatments;
3. Fewer miles of road work than Alternatives 1 or 3;
4. Restrictions on timber harvest activities and road construction within occupied American marten habitat (areas with high potential for marten occupancy or connectivity areas, as defined in Chapter 2, Table 2-2, page 18); and
5. General protection of mature forest habitats as a result of northern goshawk habitat management.

Specific management direction and the species most likely to be affected are addressed in the effects sections below.

Alternative 3 incorporates interim direction measures from Alternative 2 with refinements for the conditions found on the Black Hills, as identified in the 2000 Expert Interviews. This alternative would further reduce risks to species viability by adding specific standards to address Sensitive species concerns. New and revised Standards and Guidelines under Alternative 3 are designed to further reduce risks to Sensitive plant species viability, including:

1. Restrictions on livestock use of riparian areas and hardwood communities;
2. Added protection of Sensitive plants associated with moist soil conditions;
3. Added protection of Sensitive plant populations or their habitats during road, trail, and highway construction;
4. Potentially beneficial effects from management for a "balance of structural stages" to create a more historic distribution of forest structural types across the forest for northern goshawk; and
5. Mitigation of the effects of timber harvest on micro-habitat in and adjacent to potential marten habitat.

Overall, it appears that Alternative 3 would present the least risk to Botanical Areas, Sensitive plant species, and plant habitats in general. Specific management direction and the species most likely to be affected are addressed in the effects sections below.

Effects on Botanical Resources from Vegetation Management

The direct and indirect effects of timber harvest, firewood gathering, hardwood restoration, and riparian restoration activities on the Sensitive plant species addressed here have not been evaluated in the field. Project Sample Group analyses identified differing levels of protection among the alternatives for Botanical Areas and Sensitive plants; only one of the timber sale project areas examined in the Project Sample Group analyses, however, contains a known Sensitive plant population (Table 2-5, page 25). Landscape-level analysis was also performed to estimate effects of the Phase I Amendment alternatives (Table 2-6, page 27). Timber harvest is not a direct threat to most of the Black Hills Sensitive plant species, as they are generally not associated with pine forest habitats where most timber harvest occurs. Where *Botrychium campestre* and *Corallorhiza odontorhiza* occur in pine forest, activities associated with timber harvest (such as ground disturbance from skidding, decking and roads, desiccation, and noxious weed introduction) are likely to be detrimental (Ode and Marriott in 2000 Expert Interview Summary). Because the distribution, ecology, and population dynamics of Black Hills Sensitive plant species are not sufficiently understood, the effects of vegetation management activities addressed here may need to be refined during the Phase II amendment process.

All Alternatives. The quantity of hardwood restoration activities would be the same for all alternatives and is expected to result in an increase in hardwood, shrub, and meadow acreage over the next ten years. Where birch regeneration results, it would likely benefit Sensitive plant species associated with early- and mid-succession boreal habitats; these could include *Platanthera orbiculata, Equisetum scirpoides* and

Sanguinaria canadensis. There would be no difference in designated late-succession landscape areas between the three alternatives. Under any of the alternatives, vegetation management could be conducted in designated Botanical Areas. Refer to the FEIS for the 1997 Revised Forest Plan, pp. II-25, 48, and III-315; and FEIS Appendix H pp. 49 to 63, 124 to 132, and 160 to 162 for additional discussion of effects.

Alternative 1. The range of timber outputs would remain at the levels identified in the 1997 Revised Forest Plan (Table 2-6).

Alternative 2. Alternative 2 would provide increased protection for plant species through reduced annual timber harvest and treatment of fewer acres (see Table 2-6) and by treating environmentally protective Guidelines as Standards. For both Alternatives 2 and 3, the density of white spruce stands is expected to increase over the long term due to protection of American marten habitat and resulting natural succession. Spruce densities would, however, likely remain at current levels during the interim period. Also due to protective direction for marten habitat, activities that would promote hardwood regeneration in place of spruce may be limited to hardwood or meadow enhancement along spruce edges. This could have negative impacts on birch obligate species such as *Platanthera orbiculata* and *Sanguinaria canadensis*.

Under both Alternatives 2 and 3, restrictions on timber harvest in dense-mature and old-growth forest (structural stages 4C and 5; see Table 3-2, page 51) and on timber harvest activities in marten habitat would probably result in a reduction in immature age classes and an increase in larger-diameter, mature trees. These activities are not expected to directly benefit Sensitive plant species (Marriott in 2000 Expert Interview Summary; see "Wildlife Management Effects" section, p. 151), but may have indirect beneficial effects by preventing the impacts associated with timber harvest.

Alternative 3. This alternative would result in harvest of more timber than Alternative 1. Timber harvest levels could be either higher or lower than under Alternative 2 (see Table 2-6, page 27, and Wildlife Management Effects and Timber Production sections, below). In addition to the protective direction provided under Alternative 2, the following direction likely would provide added protection for *Carex alopecoidea, Equisetum scirpoides, Muhlenbergia glomerata, Sanguinaria canadensis*, and *Scirpus cyperinus*: Revised Standard 1304, which would restrict management activities in the Water Influence Zone; and revised Standard 3104, which would require protection of Sensitive plants associated with moist soil conditions from negative effects of management activities.

Effects on Botanical Resources from Wildlife Management

Refer to the Wildlife Resources section (page 85) for further discussion of wildlife habitat management under the three alternatives.

Alternative 1 would maintain 180 acres of goshawk nesting habitat around each goshawk nest. Management of this habitat would be designed to conserve or enhance site conditions. Human-caused disturbances not present at nest initiation in active goshawk nest areas would be minimized from March 1 through September 30. Due to the limited area and habitat type, this is not likely to either positively or negatively affect Sensitive plant species.

Several Sensitive plant species may be found in American marten habitats in the northern and central Black Hills, including *Carex alopecoidea, Equisetum scirpoides, Lycopodium complanatum, Platanthera orbiculata*, and *Sanguinaria canadensis.* Marten habitat, including spruce areas, would not be protectively managed under Alternative 1.

Alternative 2. Vegetation management activities would be designed to create structurally diverse stands within goshawk post-fledging family areas (approximately 420 acres around nest stands) and trend towards mature structural stages and retention of green trees for snag recruitment. These activities are not likely to negatively effect Sensitive plant populations; they may be beneficial if they mimic natural disturbance and succession regimes, provided that natural succession patterns are allowed to take place (Marriott in Expert Interview Summary 2000). Based on known habitat information, goshawk habitat management direction could increase protection for *Botrychium campestre* and *Corallorhiza odontorhiza* by creating or enhancing ponderosa pine habitats.

Management of habitat for American marten would maintain larger patches of late-succession white spruce forest than would Alternative 1. A decrease in treatments in white spruce would allow natural growth of occupied marten habitat, high potential habitats, and connectivity areas. New Standard 3215 would require the maintenance of patch size of late-succession marten habitat, restrict road-building in high potential habitat, and restrict thinning in connectivity corridors. Revised Standard 2308 would increase the amount of down woody material left on site in spruce and pine harvest areas to maintain micro-climate sites and prey habitat.

The long-term effects of management for high-quality marten habitat could be either positive or negative for *Carex alopecoidea, Equisetum scirpoides, Lycopodium complanatum, Platanthera orbiculat*a and/or *Sanguinaria canadensis*. While these activities may provide additional protection for existing plant populations in the short term, the resulting trend toward closed-canopy structural stages and exclusion of disturbances that create new habitats for these species (for example, hardwood restoration and fire-induced birch regeneration) could have short- and/or long-term adverse affects on birch-associated Sensitive plant species. Further evaluation is recommended (Ode in Expert Interview Summary 2000). The density of spruce would probably remain at or near current levels during the interim period.

Alternative 3. Goshawk management direction would target a balanced distribution of forest structural stages across analysis areas (refer to Table 2-4, page 20). Cutting

of snags for fuelwood would not be permitted. These activities are not likely to benefit most Sensitive plant species directly, but they may enhance habitats for *Botrychium campestre* and *Corallorhiza odontorhiza* where they occur in goshawk habitats. Effects of marten habitat management on Sensitive plants would be the same as under Alternative 2 except for the addition of new Standard 3117, which would require that woody material be retained in timber harvest areas adjacent to potential marten habitat. This could have positive or negative effects on Sensitive plants.

Effects on Botanical Resources from Range Management

Alternative 1. The 1999 Appeal Decision (pp. 54 to 56) states that the level of monitoring required for Sensitive plants by the 1997 Revised Forest Plan is inadequate to establish whether the implementation of the plan maintains the diversity of plant communities or the viability of Sensitive plant species. In addition, the 1999 Appeal Decision found that, for the 1997 Revised Forest Plan, disclosure of effects of livestock grazing on Sensitive plant species is inadequate; existing monitoring requirements are insufficient to quantify the impacts of grazing on these species to ensure that Standard 3.1-2501 is met; and current Standards and Guidelines are insufficient to identify the effects of range activities on the viability of Sensitive plant populations. The 1999 Appeal Decision further states that neither the indirect nor the cumulative effects of livestock grazing were adequately considered with respect to Sensitive plants. Refer to the FEIS for the 1997 Revised Forest Plan, page III-313; FEIS Appendix H, pages 67 to 70, 132 to 135, and 162 to 163; and the Range section in this document (page 160) for additional discussion of range management effects on botanical resources.

Alternative 2. Under Alternatives 2 and 3, livestock grazing will be managed to protect sensitive plant species from adverse impacts in designated Botanical Areas in compliance with existing Standard 3.1-2501 and new Standard 3.1-2503 ("Protect sensitive plant populations in designated Botanical Areas from adverse impacts of domestic livestock grazing"). This will continue to provide protection for *Carex alopecoidea, Equisetum scirpoides, Lycopodium complantum, Muhlenbergia glomerata, Platanthera orbiculata, Salix serissima* and *Sanguinaria canadensis*.

Livestock levels would not be increased in other Sensitive plant species areas, and exclusion may be required on a site specific basis until adequate surveys have been performed in compliance with FSM 2670 and the Black Hills Supplement. The latter direction reinforces that, where existing data is inadequate, projects must be designed with the assumption that the species is present.

Under Alternatives 2 and 3, implementation of revised Standards 1301 and 1302 and treatment of Guidelines 2207 and 3104 as Standards would increase the level of protection for Sensitive plant populations that occur in riparian areas and associated habitats. Affected species include *Carex alopecoidea, Equisetum scirpoides, Muhlenbergia glomerata*, and *Sanguinaria canadensis*.

Alternative 3. This alternative includes direction as stated above for Alternative 2, along with the following measures to provide additional protection for Sensitive plant species. Revised Standard 1304 would provide additional protection for species associated with water influence zones; revised Guideline 2207 would strengthen direction restricting livestock and wildlife water structures from construction in hardwood communities; and revised Guideline 3104 would require that the habitats of Sensitive plants associated with moist soil conditions are protected and that Sensitive species' habitats in springs or seeps are not developed.

Effects on Botanical Resources from Noxious Weeds

The 1999 Appeal Decision states that the 1997 Revised Forest Plan includes no weed management Objectives, Standards, or Guidelines for noxious weeds that specifically address their impacts on Sensitive plants or their habitats or the effects of noxious weed control measures on Sensitive plant species.

Under **Alternative 1**, the rate of noxious weed spread related to timber harvest, range management, travel management, and other management activities would not change from the current situation. Refer to the FEIS for the 1997 Revised Forest Plan, page III-196; and FEIS Appendix H, pages 70, 135 to 136, and 163 for additional discussion of noxious weed effects on botanical resources. See also the Noxious Weed section in this document (page 172).

Alternative 2. Due to projected reductions in timber harvest and road construction, a slight decrease in noxious weed introduction would be expected under Alternative 2. Treatment of Guidelines 3106, 3107, and 4302 through 4305 as Standards under Alternatives 2 and 3 would provide increased protection for all Sensitive plant species by identifying and mitigating noxious weed introduction and spread and by minimizing the effects of weed treatments on non-target species. Treatment of Guideline 1.1A-4301 as a Standard under Alternatives 2 and 3 may provide additional protection for populations of *Platanthera orbiculata* and *Viola selkirkii* in the Black Elk Wilderness.

Alternative 3. Direction for noxious weeds would be the same as under Alternative 2. Due to the potential for an increase in timber harvest and road construction as compared to Alternative 2, Alternative 3 may have a greater risk of spreading noxious weeds.

Effects on Botanical Resources from Travel Management

Although plant populations are not necessarily isolated or fragmented by roads and highways, ecosystem integrity and population viability may be affected. Both the direct and indirect effects of construction and maintenance of roads can have serious, long-term effects on the structure and function of adjacent plant communities. Road

edges affect surrounding plant and animal populations by altering microclimates and facilitating the introduction of exotic species (Reed et al. 1996). In addition to negative effects on composition within and among species, forest edges alter soil-nutrient levels, limit seed-disperser movement, and increase the accessibility of the site by livestock, off-highway vehicles, and dispersed recreation. Refer to the FEIS for the 1997 Revised Forest Plan, page III-314; and FEIS Appendix H, pages 73 to 75, 137 to 138, and 165 to 166 for additional discussion.

Alternative 1. This alternative follows the plan of action outlined in the 1997 Revised Forest Plan for road construction, reconstruction and obliteration. Botanical Area direction would limit off-highway vehicle use and restrict travel to designated trails and roads. At the project level, roads could be closed to protect snags from firewood cutting under any of the three alternatives. Because travel management is addressed at the project level, adverse effects on Sensitive plant species not identified in the Project Sample Group of landscape-level analysis could affect the quantity of roadwork and/or road closures.

Alternative 2. There appear to be only slight differences between the alternatives in the quantity of new road construction and re-construction. Project Sample Group analysis indicated, however, that Alternative 2 could result in the fewest miles of road work and the least disturbance near streams. Treatment of Guidelines 3106, 3107, 9107, 9108, 9201, 9202, and 1.1A-9103 as Standards under Alternatives 2 and 3 would provide more protection for all Sensitive plant populations from trail and road construction and off-road travel. In Botanical Areas, treatment of Guidelines 3.1-9101 and 3.1-9102 as Standards would provide additional protection for Sensitive plants from adverse effects of snowmobiles and off-highway vehicles.

Alternative 3. This alternative could result in a slight increase in road work and potentially fewer road closures than under Alternative 2. Revised Guideline 3107(a) would strengthen direction requiring the use of one or more mitigation measures to protect Sensitive plants or their habitat during and after road, trail, or highway construction activities. New Standard 8.2-9106 ("No new developments, including road and trail construction, in the Cascade Creek/Spring area…") would provide additional protection for *Adiantum capillus-veneris* and *Epipactis gigantea* at Cascade Springs.

Effects on Botanical Resources from Recreation Management

Alternative 1. Cave management and rock climbing would have very limited or no effects on Black Hills Sensitive plant species and are not addressed further. Dispersed recreation could threaten species that are known to occur adjacent to trails, lakes, and streams, including *Equisetum scirpoides, Platanthera orbiculata, Scirpus cyperinus* and *Viola selkirkii*. Heavy recreational use at Cascade Springs and Cascade Falls is a threat to *Adiantum capillus-veneris* and/or *Epipactis gigantea* populations (Ode in Expert Interview Summary 2000). Refer to the FEIS for the

1997 Revised Forest Plan, Appendix H, pages 136 to 137 and 163 to 165 for additional discussion.

Alternative 2. Treatment of Guidelines as Standards under Alternatives 2 and 3 would provide more protection for Sensitive plant species and their habitats from adverse impacts of recreational activities. Treatment of Botanical Area Guidelines 3.1-9102 and 3.1-9103 as Standards would provide more protection for *Salix serissima* at McIntosh Fen (Ode in Expert Interview Summary 2000).

Alternative 3. In addition to the direction included under Alternative 2, new Standard 8.2-9106 would restrict road or trail development in the Cascade Spring/Cascade Creek area in order to reduce threats to *Adiantum capillus-veneris* and/or *Epipactis gigantea* populations.

Effects on Botanical Resources from Fire Management

Although fire is a natural component of the Black Hills ecosystem (Parrish et al. 1996), the effects of fire on rare and Sensitive plant communities are uncertain. Fire suppression may have altered the composition of plant communities. Several Black Hills Sensitive plant species (for example, northern arnica, American trailplant, and autumn coralroot) may depend on fire to act as a natural disturbance mechanism that maintains the character of their habitats. Other species may be negatively affected by fire. Refer to the FEIS for the 1997 Revised Forest Plan, page III-312; and FEIS Appendix H, pages 76 to 77, 138 to 139, and 166 for additional discussion.

All Alternatives. Both fire suppression and prescribed fire activities would be permitted in Botanical Areas under all alternatives. There would be little difference among the three alternatives regarding fire and fuels management. Site-specific measures would be adopted to protect habitat elements in goshawk and spruce habitats. The effects of fire suppression or prescribed burning on Black Hills Sensitive plant species have not been evaluated.

Effects on Botanical Resources from Minerals Exploration and Extraction

As previously described for other management activities, site disturbance related to mineral extraction and related activities can potentially benefit some Sensitive plant species by mimicking natural disturbance patterns. These activities also can be detrimental by destroying habitat structure, altering the soil chemistry, or introducing noxious weeds. Minerals exploration and extraction activities should be considered detrimental to Black Hills' sensitive plant species, with the possible exception of *Carex alopecoidea*, which may colonize disturbed habitats. Refer to the FEIS for the 1997 Revised Forest Plan, pages III-165 to 166, III-301 to 302, and III-313; and FEIS Appendix H, pages 78, 139, and 166 for additional discussion.

Alternative 1. Minerals exploration and extraction would be conducted according to the direction in the 1997 Revised Forest Plan and could potentially affect all Sensitive plant species, except for those located in developed recreation sites (where minerals exploration and extraction would not occur). No change would be anticipated in locatable and leasable minerals management for any of the three management alternatives.

Alternatives 2 and 3. Treatment of Guideline 1516 as a Standard would provide added protection for the only population of *Lycopodium complanatum* on lands administered by the Black Hills National Forest (Ode and Marriott in Expert Interview Summary 2000). Where Guidelines are treated as Standards there may be a reduced risk for noxious weed introduction due to localized disturbance, and a reduction of risks to Sensitive plants in Botanical Areas from mining activities.

3-9.3. Cumulative Effects on Botanical Resources

Cumulative Effects of Alternatives on Sensitive Plants and Botanical Areas

Historic land-use activities such as timber extraction, livestock grazing, mining, recreation, and fire suppression have dramatically altered the plant communities of the Black Hills, resulting in higher tree densities and lower structural diversity than in the past. These activities have directly and indirectly affected the diversity and distribution of plant populations through habitat fragmentation, altered forest structure and disturbance regimes, altered trophic interactions, soil compaction, exotic species invasions, and altered hydrology due to denser woody vegetation in uplands and riparian areas, and will likely continue to do so. Refer to the FEIS for the 1997 Revised Forest Plan, pages III-316 and III-317; and FEIS Appendix H, pages 79 to 85, 139 to 142, and 167 to 168 for additional discussion of cumulative effects on Sensitive plant species and Botanical Areas.

In addition to the effects listed above, the Jasper Fire burned approximately 83,500 acres, including approximately 79,404 acres of National Forest System lands. No Sensitive plant species have been documented within the burn area to date. Northern arnica (*Arnica lonchophylla*) may occur within the fire boundary, but this species probably depends on fire to maintain its habitat.

Southern maidenhair fern (*Adiantum capillus-veneris*): This species occurs at Cascade Springs and Cascade Falls developed recreation areas (Management Area 8.2). Negative effects are primarily from recreational use and development of the site, threats from noxious weed invasion, and activities on surrounding private lands. Acquisition of private lands adjacent to species' locations at Cascade Springs and Cascade Falls by The Nature Conservancy will likely provide additional or improved habitats for this species; however, continued monitoring is needed to identify and prevent negative effects (Ode in Expert Interview Summary 2000). Treatment of Guidelines as Standards under Alternatives 2 and 3 would be more protective of the

species' habitats (Ode in Expert Interview Summary 2000). With additional protective direction, Alternative 3 likely presents the lowest level of risk to this species.

Prairie moonwort (*Botrychium campestre*): The cumulative effects of current and historic management activities on this species are unknown due to a lack of information on its habitats and distribution. The species may occur in pine habitats, where it would be highly affected by management activities (Marriott in Expert Interview Summary 2000). Protective direction for goshawk habitat under Alternatives 2 and 3 may indirectly reduce the level of risk to this species.

Fox-tail sedge (*Carex alopecoidea*): This species' occurrences are in the Upper Sand Creek and Spotted Tail Gulch drainages and Dugout Gulch Botanical Area, where potential negative effects could be caused by livestock grazing, minerals extraction, noxious weed invasion, and travel. Treatment of Botanical Area guidelines as standards under Alternatives 2 and 3 and additional protective direction under Alternative 3 would reduce the level of risk to this species.

Autumn coralroot (*Corallorhiza odontorhiza*): The cumulative effects of current and historic management activities on this species are unknown due to a lack of information on its habitats and distribution. The species may occur in pine habitats, where it would be highly affected by management activities, and may be extirpated or dormant; intensive surveys are recommended (Ode in Expert Interview Summary 2000). Protective direction for goshawk habitat under Alternatives 2 and 3 may indirectly reduce the level of risk to this species.

Giant helleborine (*Epipactis gigantea*): The single population of this species on lands administered by the Forest occurs at J. H. Keith Cascade Springs Memorial Park, a developed recreation area. Negative effects are primarily from recreational use and development of the site, threats from noxious weed invasion, and activities on surrounding private lands. Acquisition of private lands adjacent to Cascade Springs by The Nature Conservancy will likely provide additional or improved habitats for this species; however, continued monitoring is needed to identify and prevent negative effects (Ode in Expert Interview Summary 2000). Treatment of Guidelines as Standards under Alternatives 2 and 3 would be more protective of the species' habitats (Ode in Expert Interview Summary 2000). With additional protective direction, Alternative 3 likely presents the lowest level of risk to the species.

Dwarf scouring rush (*Equisetum scirpoides*): This species occurs in riparian and mesic boreal habitats in the central and northern Black Hills and Bearlodge Mountains. It is most likely to be negatively affected by the direct and indirect effects of ground-disturbing activities and noxious weed invasion. Treatment of Botanical Area guidelines as standards under Alternatives 2 and 3 would reduce the level of risk. Additional protective direction for riparian areas, wetlands, and the Water Influence Zone under Alternative 3 would present the lowest level of risk to the species.

Trailing clubmoss (*Lycopodium complantum*): The single population on lands administered by the Forest occurs in spruce habitat in the Upper Sand Creek Botanical Area. Effects on the species are expected to be minimal during the interim period. Treatment of Botanical Area guidelines as standards under Alternatives 2 and 3 and additional protective direction under Alternative 3 would provide lower levels of risk to this species.

Marsh muhly (*Muhlenbergia glomerata*): This species occurs in a wider range of habitats than previously believed but is most commonly found in association with riparian meadows. In these areas, livestock grazing and noxious weed invasion could have a negative impact. Additional protective direction for riparian areas, wetlands, and the Water Influence Zone and more restrictive livestock grazing direction for Botanical Areas under Alternative 3 would likely present the lowest level of risk to this species.

Large round-leaf orchid (*Platanthera orbiculata*): This species is closely associated with mid-succession birch/spruce boreal habitats in the northern Black Hills and Bearlodge Mountains. Treatment of Botanical Area guidelines as standards under Alternatives 2 and 3 and additional protection from livestock impacts under Alternative 3 would reduce the level of risk to this species. The effects of marten habitat management require further evaluation (Marriott in Expert Interview Summary 2000).

Autumn willow (*Salix serissima*): A single population occurs in association with a rare fen habitat in the central Black Hills. Treatment of Botanical Area guidelines as standards in Alternatives 2 and 3, additional protective direction for riparian areas, wetlands, and the Water Influence Zone, and more restrictive livestock grazing and travel direction in Botanical Areas under Alternative 3 would reduce the level of risk to this species .

Bloodroot (*Sanguinaria canadensis*): This species is distributed over a limited portion of the Black Hills in large, concentrated populations. There is not expected to be a loss of options for management of this species during the interim period, but continued survey and protection is recommended (Ode and Marriott in Expert Interview Summary 2000). Additional protective direction for riparian areas, wetlands, and the Water Influence Zone under Alternative 3 would likely provide the lowest level of risk to this species.

Woolgrass (*Scirpus cyperinus*): Populations in the Bearlodge Mountains are closely associated with habitats created by beavers. Alternatives 2 and 3 would likely provide reduced levels of risk to this species through more protection of riparian areas, wetlands, and the Water Influence Zone from the effects of livestock grazing, and more protective travel management.

Great-spurred violet (*Viola selkirkii*): The effects of recreation on this species need to be monitored (Ode in Expert Interview Summary 2000). Treatment of Black Elk Wilderness travel management, livestock grazing, and recreation guidelines as standards under Alternatives 2 and 3 would likely provide reduced levels of risk to this species.

Cumulative Effects of Alternatives on Montane Grasslands

In addition to the cumulative effects listed above, the Jasper Fire burned through several globally and state-imperiled Black Hills montane grassland locations (Marriott et al. 1999; Marriott 2000; Jasper Fire Rapid Assessment 2000). However, the montane grasslands are likely dependent upon fire to prevent encroachment of woody species (J-RAT Botanical Specialist Report 2000). Negative effects from noxious weed invasions, fire suppression activities, and vehicle damage to soils or root crowns are the primary concern for vegetation recovery. The removal of vegetation by fire, mechanical soil damage, suppression vehicle traffic, and post-fire vehicle activity likely opened up extensive areas to noxious weed invasion (J-RAT and BAER Team Botanical Specialist Reports 2000).

3-10. RANGE

3-10.1. Affected Environment

Rangeland Condition and Trend

Refer to the FEIS for the 1997 Revised Forest Plan, pages III-174 through III-177, for a discussion of the affected rangeland environment. In summary, rangelands produce forage for grazing and browsing animals and may consist of upland meadows, riparian sites, open-canopy forests, and closed-canopy forests that produce low-growing vegetation available to grazing animals. Range forage consists of several kinds of low-growing plants such as grasses, grass-like plants, forbs, and shrubs.

The Black Hills National Forest currently provides approximately 466 million pounds of forage per year. Approximately 50 percent, or 233 million pounds of forage, is available for grazing animals. Livestock are allocated 127 million pounds, or 128,000 animal unit months (AUMs), and deer and elk 106 million pounds (FEIS for the 1997 Revised Forest Plan, p. III-174). The remaining 50 percent of forage is reserved for plant health and vigor, regrowth, and soil and watershed needs. Currently there is adequate forage production on the Forest for all livestock and wildlife use that could occur, based on the State of South Dakota's proposed wildlife population levels.

Rangeland conditions on the Forest are constantly changing due to factors such as yearly weather patterns, wildlife grazing patterns, management practices, natural

succession, and insect infestations. Rangeland condition is determined by combining vegetation management ratings and desired conditions for various physical resources with trend determinations (Rangeland Analysis and Management Training Guide 1996). A plant community with an acceptable vegetation management status or physical resource condition and a trend "away from" management objectives would be considered to be in unsatisfactory condition. Likewise, an unacceptable vegetation management status or physical resource condition with a trend "toward" objectives might be considered in satisfactory condition.

Trend is basically a measure of management's effectiveness in meeting allotment objectives, or the desired conditions at a particular site. Trend is described as "toward", "static", or "away from" objectives. Trend determinations are key to rangeland project planning in the Allotment Management Plan development process. Rangeland conditions are monitored and analyzed and the condition is reported annually. Currently, 80 percent of the Forest's range is in satisfactory condition, 16 percent is at undetermined status, and four percent does not meet and is not moving toward objectives (Summary of NFS DFC Acres within Grazing Allotments with Range Vegetation Management Objectives 2000). Sixty-three percent of Forest riparian acres are in satisfactory range condition, 26 percent are at undetermined status, and 11 percent does not meet and is not moving toward objectives.

Standards and Guidelines have been designed to maintain and improve rangeland conditions on the Forest and in fenced riparian areas. Forage utilization levels can be specified within management documents on a site-specific basis.

Livestock Grazing on the Forest

Refer to the FEIS for the 1997 Revised Forest Plan, pages III- 453 through III- 454, for a discussion of livestock grazing on the Forest. In summary, there are 1,037,598 acres on the Forest considered suitable for livestock grazing and browsing. There are 205,115 acres designated as unsuitable for livestock use due to management area decisions, capability concerns, and site-specific management decisions. Approximately 169,428 acres are designated as non-capable for livestock use, meaning they are barren of vegetation, exceed 40 percent slope, contain unstable or low productivity soils, or separated by physical barriers from capable lands. Lands capable of livestock grazing and browsing comprise 1,073,285 acres.

The livestock industry began as early as 1876 in the northern Black Hills. Hundreds of thousands of cattle and thousands of sheep and horses grazed in the Black Hills area in the late 1800s and early 1900s. Regulation of livestock grazing on the Black Hills Forest Reserve began in the early part of the last century. Livestock numbers and allowable use seasons slowly decreased to the numbers and time periods now permitted. Livestock grazing is now allocated up for to 128,000 AUMs per year.

The affected environment would not change under the Phase I Amendment.

3-10.2. Direct and Indirect Effects on Range

Refer to the FEIS for the 1997 Revised Forest Plan, pages III-177 through III-187, for a discussion of direct and indirect effects of Alternative 1.

Current Forest-wide livestock grazing levels (permitted AUMs) and Proper Use or Residual Levels for Riparian and Uplands would not change under any of the alternatives. Proper allowable-use Guidelines (See 1997 Revised Forest Plan page II-36) exist for both satisfactory and unsatisfactory rangeland conditions under all types of management (FEIS for the 1997 Revised Forest Plan, p. III-181). It is common knowledge and well-documented that improper grazing can result in adverse effects on water quality, soils, plants, and wildlife and fish and their habitats, especially if improper grazing occurs repeatedly and consistently over time. Proper use grazing, on the other hand, may not result in these negative impacts and may have neutral or positive impacts. In some site-specific situations it may be desirable to use heavy or intensive grazing as a tool to meet specific management objectives (for example, to maintain habitat for the swift fox; Expert Interview Summary 2000).

Where proper grazing occurs and there is a stable or upward trend, grazing management should not need to change unless management objectives are changed. Allotments are stocked to maintain or improve the range condition. If a downward trend occurs, management of livestock is adjusted either through an Allotment Management Plan or the Annual Operating Instructions.

All alternatives would manage rangelands to maintain range condition or move individual allotments toward satisfactory conditions. "Satisfact
an acceptable vegetative and physical management status: 65 to 100 percent similar to the desired plant community for the allotment or making steady progress towards the desired plant community; moving towards stable bank conditions along streams, acceptable levels of soil erosion and compaction, and providing for the needs of wildlife and plants species, all to be determined for key areas in the Allotment Management Plan or Annual Operating Instructions.

Allotment management planning and project-level analysis and planning are used to determine specific effects from grazing management on each allotment. Effects can vary depending on site-specific needs and species presence, abundance, or absence. Allotment and project-level assessments to determine need for mitigation to conserve or protect Sensitive species can result in mitigation and/or grazing management adjustments (fencing or other types of management strategies). Range management objectives are determined at the project level and documented in Allotment Management Plans and/or Annual Operating Instructions. The Record of Decision for the 1997 Revised Forest Plan clarifies that the allotment planning process will be used to resolve site-specific conflicts with water quality, plant species, wildlife habitat, etc.

Until Allotment Management Plans are updated as appropriate, Annual Operating Instructions can be amended as needed to comply with interim and/or new management direction for ongoing grazing activities.

Effects on Rangeland from Recreation Management, Wilderness Management, Wild and Scenic Rivers Management, Soil, Water and Air-quality Management, Heritage Resource Management, Pest Management, and Fire Management

No measurable changes in effects on rangeland from recreation management, wilderness management, wild and scenic rivers, soil, water and air-quality management, heritage resource management, pest management, or fire management are expected. All alternatives are similar in this respect. Wilderness and wild and scenic management would not changed under any alternative. The allotment planning process will be used to resolve site-specific conflicts with recreation water quality and heritage management. Pest control would continue as needed while providing protection for Sensitive species.

Although Alternatives 2 and 3 would be slightly more protective due to treating existing environmentally protective Guideline 4107 as a standard, fuel treatments would continue and effects on rangeland are expected to be similar to those of Alternative 1.

See FEIS for the 1997 Revised Forest Plan for further information (pp. III-182 through 187, Record of Decision pp. ROD-51, ROD-52).

Effects on Rangeland from Wildlife Habitat Management

See also “Effects on Rangeland from Threatened, Endangered & Sensitive Species

Effects on rangeland from wildlife species that are not Threatened, Endangered, or Sensitive are expected to remain the same as for Alternative 1 (See the FEIS for the 1997 Revised Forest Plan, pp. III-184 to 185).

Under **Alternative 1**, Range Management Guidelines 2501, 2502, 2504, 2505, 2506, 2507, 2508, 1.1A-2502, 3.2A-2502, 5.2A-2501, 5.4-2501, 5.4-2502, 5.4A-2503 and General Wildlife and Fish Guidelines 3210, 3211, and 3212 would remain Guidelines. Under **Alternatives 2 and 3**, these Guidelines would be treated as Standards. All three alternatives would result in range management that either maintains conditions or moves individual allotments towards satisfactory conditions, which can benefit both livestock and wildlife. It is not expected that there would be any measurable differences among the three alternatives since the goal under all three is to maintain or move towards satisfactory range condition.

Effects on Rangeland from Threatened, Endangered & Sensitive Species Management

As compared to Alternative 1, effects at the programmatic analysis level would not change under Alternatives 2 and 3. As stated in the FEIS for the 1997 Revised Forest Plan (p. III-185), "Under all alternatives, range management objectives will be formulated to protect or enhance threatened, endangered, and sensitive species."

The discussion below under Reptiles and Amphibians concerning Guideline 3104 for Sensitive species associated with moist soil conditions is applicable to other Sensitive species.

Conservation or protective measures would be applied as needed on a site-specific basis as discussed above under "Direct and Indirect Effects" to reduce impacts from livestock grazing.

Effects on Rangeland from Management of Snail Colonies

Under **Alternative 1**, conservation of habitat is required at colonies of snail "species of special concern" identified in Frest 1993. Under Alternative 1, livestock grazing management would remain unchanged.

The 1999 Appeal Decision specifically directed the Forest to "Ensure that all known colonies of sensitive snail species (Cockerell's striate disc and Cooper's Rocky Mountain snail) are protected from adverse effects of livestock use and other management activities." **Alternative 2** would require protection of all the known colonies of these species identified in Frest 1993 and conservation of habitat at colonies of the other five snail "species of special concern" identified in Frest 1993. Field reviews of the known Sensitive snail sites determined that the majority of colonies are located in areas that are unsuitable for grazing and therefore are not used by livestock or are totally inaccessible to livestock. Alternative 2 would have no effect on grazing management for most of the allotments on the Forest. After field validation for site-specific needs, only one of the 129 grazing allotments on the Forest was found to require additional mitigation to ensure protection of the two Sensitive snail species for the interim period (Range Summary Report 2001).

Alternative 3 would protect of all known colonies of the seven snail species (including the two Sensitive species) identified in Frest 1993 and an upcoming 2001 Frest report. Alternative 3 effects have not yet been field-validated and will probably vary from allotment to allotment; effects are expected to be very similar to Alternative 2, as the majority of known snail colonies have been found to be in locations that are unsuitable for grazing and/or inaccessible to livestock. Under Alternative 3, site-specific mitigation would occur as needed at the project level to ensure protection of these species during the interim period.

Few project-level changes would be required under any alternative to ensure protection of these snail species. The Forest-wide grazing program would see only minor effects under any alternative.

There appears to be only minor differences between the three alternatives in regard to changes in project level grazing management needed to ensure the protection of these snail species for the interim period and only minor effects to the grazing program on a Forest wide level.

Effects on Rangeland from Management of Sensitive Plant Species Locations

The 1999 Appeal Decision states, at page 66, that the Forest "does not address the impact of livestock grazing on sensitive plants or their habitat in the Rangeland section" of the FEIS for the 1997 Revised Forest Plan.

For general forest areas, the 1999 Appeal Decision states: "specific conservation measures must be provided for sensitive species". It is not possible at this time to fully determine effects on rangelands from Sensitive species conservation, since monitoring and evaluation/research needs to be completed to determine the actual effects of proper livestock grazing on the various Sensitive plant species located on the Forest. On a Forest-wide basis, overall effects are expected to be minimal.

A Forest-wide review was conducted by allotment to determine if any additional mitigation measures (fencing or other types of management strategies) were needed to ensure the conservation of known Sensitive plant sites for the interim period. While many allotments were not affected, a few did require additional mitigation measures at specific sites. After field validation for site-specific needs, 8 of 129 Allotments were found to need minor grazing management changes. Through field validation it has been found that there is, for the most part, very little overlap of locations of hardwood-associated Sensitive plants and primary or even secondary range. There is more overlap with plant community types that are more accessible to livestock, especially where water is available. While these habitats comprise a good portion of the suitable Forest grazing acreage, known Sensitive plants populations comprise only a minor portion of these habitats.

Under **Alternative 1**, Range Management Guidelines 2501, 2502, 2504, 2505, 2506, 2507, 2508, 1.1A-2502, 3.2A-2502, 5.2A-2501, 5.4-2501, 5.4-2502, and 5.4A-2503 and General Wildlife and Fish Guidelines 3210, 3211, and 3212 would remain Guidelines. Under **Alternatives 2 and 3** these guidelines would be treated as standards. All three alternatives would result in range management that either maintains or moves individual allotments towards satisfactory conditions, which can benefit livestock and sensitive plants. It is expected that there would be few measurable differences among the three alternatives, since the overall goal is to maintain or move towards satisfactory range condition. Under all of the alternatives, grazing would be managed to ensure the conservation of Sensitive plant species on the Forest for the interim period.

Guideline 2207, which states: "Locate new livestock/wildlife water sites (i.e. drinking structures) outside of hardwood communities when feasible", would be treated as a standard under Alternatives 2 and 3. Alternative 3 would modify this direction by dropping "when feasible". Alternatives 2 and 3 would cause only a minimal change in effects as compared to Alternative 1, though the wording change to Guideline 2207 under Alternative 3 could prevent grazing management improvements.

See also the discussion below for Guideline 3104 under "Reptiles and Amphibians".

Effects on Rangeland from Management of Botanical Areas and Sensitive Plant Species

The 1999 Appeal Decision instructs the Forest to "protect sensitive plant populations in designated Botanical Areas from adverse impacts of domestic livestock grazing". Botanical Areas comprise approximately .8 percent of the suitable livestock grazing and browsing lands on the Forest. Grazing affects about 25 percent of Botanical Area total acres. Sensitive plant sites are known to cover a small fraction of this area. Under current direction, livestock grazing is allowed in Botanical Areas "if it does not conflict with the values for which the botanical area was designated" (Standard 3.1-2501). Currently, livestock grazing occurs in all eight Botanical Areas.

Records indicate that grazing utilization levels have varied from light to heavy within Botanical Areas. Where heavier use was noted, changes in grazing systems, fencing, or other mitigation measures were taken at the project level to eliminate conflicts. Large portions of the Botanical Areas are unsuitable for grazing and are inaccessible to livestock due to topographic or vegetative barriers.

Generally, proper grazing use within Botanical Areas has been noted to be a compatible use. The *Suitability Investigation Report for a Proposed Upper Sand Creek Special Botanical Area, Black Hills National Forest* (Marriott 1991) states that "livestock use within the proposed SBA is very light" and that "grazing appears to have little impact within the proposed SBA, and no change in management is recommended". The *Suitability Investigation Report for a Proposed Bear/Beaver Gulches Special Botanical Area, Black Hills National Forest* (Marriott 1991) states that "grazing appears to have very little impact on the areas of concern within the proposed SBA, and no change in management is recommended". The *Suitability Investigation Report For A Proposed Dugout Gulch Special Botanical Area, Black Hills National Forest* (Marriott 1989) states that "even in August, after the season's grazing was well underway, the herbaceous vegetation was not cropped to near ground level". Although Dugout Gulch was not chosen as a sampling site in a recent riparian study on the Forest, it was considered to be in good condition (Girard 1989).

The relationship of grazing history and other disturbance to present vegetation condition is not known. The *McIntosh Fen Botanical Area Site Summary* (author unknown; undated) states that "the fen was once much larger than it is today. It has been reduced in size over the past 50 years by the elimination of beavers, the destruction of their dams and attempts at ditching. In addition, grazing and trampling by livestock have all but eliminated the Bebb Willow zone along Castle Creek". (This fen is now fenced to exclude grazing.) Also, the *Sensitive Plant Surveys in the Northwestern Black Hills: A Report to BHNF, Spearfish and Bearlodge Ranger Districts*" (Ode 1990) reports on Upper Sand Creek, Bear Gulch, and Beaver Creek sites. The only comments made in this report relative to grazing were: "area was ungrazed", and "area is ungrazed".

Standard 3.1-2501 would be retained as a Standard under **Alternatives 2 and 3** without modification ("Allow livestock grazing if it does not conflict with the values for which the botanical area was designated"). Effects on range would be the same under all alternatives.

New Standard 3.1-2503 would be included in Alternatives 2 and 3 to continue to protect sensitive plant habitat. This new standard reads: "Protect sensitive plant populations in designated Botanical Areas from adverse impacts of domestic livestock grazing." Alternatives 2 and 3 are anticipated to provide more protection for Sensitive plants in Botanical Areas as compared to Alternative 1.

Prior to the 2000 grazing season a Forest-wide review was conducted to determine if any additional mitigation measures were needed to ensure protection of known Sensitive plant sites, including those within Botanical Areas. This review considered mitigation rather than total exclusion of grazing from Sensitive plant sites within Botanical Areas. While most allotments were not affected, one allotment did require additional mitigation measures for site-specific reasons. After field validation of site-specific needs, one out of 129 allotments required minor grazing management changes at the project level.

Guideline 3.1-2502 would be treated as a Standard under Alternatives 2 and 3 ("Allow new improvements only when they are necessary to maintain, restore, or enhance the values for which the botanical area was designated"). This could be considered more environmentally protective for Sensitive plants, but it is not expected that there would be any discernable difference in practice among the three alternatives; new improvements would only be built if needed to maintain, restore, or enhance the values for which the Botanical Area was designated under any alternative.

See the discussion for Guideline 2207 under "General Forest Areas and Sensitive Plant Species", above, and the discussion for Guideline 3104 below under "Reptiles and Amphibians".

Effects on Rangeland from Management of Reptiles and Amphibians

The following measures could potentially benefit reptile and amphibian species found in the Black Hills.

Guideline 3104. Under Alternative 1, Guideline 3104 would state: "Conserve habitat for sensitive plants and animals associated with moist soil conditions during development of springs or seeps as water facilities." This Guideline would be treated as a Standard under Alternatives 2 and 3, and would be modified under Alternative 3 to read: "Protect habitat for sensitive plants and animals associated with moist soil conditions. Do not develop springs or seeps as water facilities where sensitive species exist or have the potential to exist."

Standard 1304. Under Alternative 1, Standard 1304 would read: "As opportunities arise, and need dictates, relocate or implement mitigation measures for roads, trails, watering tanks, and similar facilities currently located within the Water Influence Zone". Under Alternative 3, this Standard would be modified to include "ponds and catchments".

Standard 3116. Under Alternative 3, new Standard 3116 would protect the Black Hills red-bellied snake by ensuring that management activities that create barriers between hibernacula and wetlands would be restricted during periods when migration occurs.

Under Alternatives 2 and 3, the change in Forest-wide effects as compared to Alternative 1 due to the above direction would be minimal over the next two to five years. On a site-specific basis, Standard 3104 under Alternative 3 could prevent improvement of grazing management. Standard 1304 under Alternative 3 could result in some site-specific changes that would need to be determined at the project level. The impression is that grazing is generally damaging to the Black Hills red-bellied snake's habitat (Backlund in Expert Interview Summary 2000). Livestock can overgraze areas, trample streamside vegetation, and reduce the diversity of plants, which in turn reduces the diversity of insects and snails that this species feeds on. Grazing may not present problems for milk snakes or red-bellied snakes as long as overgrazing or lowered water tables do not result (Corn in Expert Inteview Summary 2000). Severe overgrazing is a problem for most species, but neither of these snake species occurs often in rangelands. Some level of grazing may be beneficial to frogs, as increased vegetation height might quickly reduce habitat for leopard frogs. Range Management Guidelines 2501, 2502, 2504, 2505, 2506, 2507, 2508, 1.1A-2502, 3.2A-2502, 5.2A-2501, 5.4-2501, 5.4-2502, and 5.4A-2503 and Guidelines 1208, 1303, 3210, 3211, 3212, and 5.4A-2503 would also be treated as Standards under Alternatives 2 and 3, but should have minimal effects on range.

Effects on Rangeland from Management of Regal Fritillary Butterfly, Townsend's Big-eared Bat, Fringed Myotis Bat

See the discussion on satisfactory range condition, utilization, and residual levels under "Direct and Indirect Effects", above. Grazing management under all alternatives would be designed to avoid "excessive" or "extreme" overgrazing. Effects on grazing should be negligible.

Effects on Rangeland from Management of Black-tailed Prairie Dog

There are no Guidelines or Standards under Alternative 1 or 2 for this species. Under Alternative 3, new Standard 3118 would read: "Maintain existing black-tailed prairie dog populations on the forest". No effect on grazing from black-tailed prairie dog management is expected.

Effects on Rangeland from Management of Goshawk and Marten

Refer to the discussion of alternatives and "Effects from Timber Management", below. Also, see the discussion of satisfactory range condition and proper allowable use above, under "Direct and Indirect Effects". If utilization levels are not exceeded, there should be no negative impacts to the prey bases for these two Sensitive species. Effects on grazing from management of goshawk, marten, and snag-associated species are expected to be minimal.

Effects on Rangeland from Timber Management

Alternative 2 would treat fewer total acres and produce less total volume than Alternative 1. Alternative 3 is predicted to produce less timber than Alternative 1, but its relationship to Alternative 2 is not certain. For more details see Table 2-6 (page 27) and Forested Ecosystems (page 37).

Open pine forest conditions produce forage for grazing animals. Distribution and sizes of openings created by vegetative management practices would change under Alternatives 2 and 3 as compared to Alternative 1. Under both Alternatives 2 and 3, the openings would be fairly small in size and scattered throughout the PFA; under Alternative 3 the openings would be distributed across the landscape. Although it appears that there could be a decrease in available forage under **Alternative 2** due to the decrease in total acres treated, this may be offset somewhat by an increase in transitory forage due to increases in structural stages 1 and 2. **Alternative 3** appears to reflect an increase in transitory forage due to increases in structural stages 1 and 2 and a shift towards retaining larger trees with an open understory. Actual livestock use of transitory forage would depend on its location and accessibility at the project level.

Under Alternatives 2 and 3, a decrease in treatments in white spruce due to marten habitat protection could possibly result in a minimal increase in canopy cover and slightly less understory vegetation. Generally, very little grazing occurs in spruce-

dominated areas due to the lack of forage. This should cause very little impact on rangeland. Alternative 3 would have more overall potential for affecting rangelands than Alternative 2, but it is expected that over the next two to five years the changes in effects on rangelands will be minimal as compared to Alternative 1.

Effects on Rangeland from Riparian and Wetland Management

During the interim period, livestock grazing levels (permitted AUMs) and Proper Use or Residual Levels for Riparian and Uplands on the Forest will not change. Under Alternatives 2 and 3, Range Management Guidelines 2501, 2502, 2504, 2505, 2506, 2507, 2508, 1.1A-2502, 3.2A-2502, 5.2A-2501, 5.4-2501, 5.4-2502, and 5.4A-2503 and Guidelines 1208, 1303, 3210, 3211, 3212, and 5.4A-2503 would be treated as standards, but this should have minimal effects on range (see discussion on satisfactory range condition above under "Direct and Indirect Effects" and "Effects on Rangeland from Wildlife Habitat Management").

Under Alternatives 1 and 2, Guideline 3104 reads: "Conserve habitat for sensitive plants and animals associated with moist soil conditions during development of springs or seeps as water facilities." This guideline would be treated as a standard under Alternatives 2 and 3, and was revised in Alternative 3 to read: "Protect habitat for sensitive plants and animals associated with moist soil conditions. Do not develop springs or seeps as water facilities where sensitive species exist or have the potential to exist." Also, existing standard 1304 (Alternatives 1 and 2) reads: "As opportunities arise, and need dictates, relocate or implement mitigation measures for roads, trails, watering tanks, and similar facilities currently located within the Water Influence Zone" was revised in Alternative 3 to include "ponds and catchments". te livestock/wildlife water sites (i.e. drinking structures) outside of hardwood communities when feasible." is also to be treated as a standard under Alternatives 2 and 3 and under Alternative 3 was revised by dropping the wording "when feasible". Effects to range would not change under Alternative 1. Under Alternatives 2 and 3 it is expected that change in effects due to guidelines 2207, 3104, and standard 1304 would be minimal overall for the interim period. However, on a site-specific basis for guidelines 2207 and 3104 under Alternative 3, potential to improve grazing management in a specific area may be deferred or alternative watering sources would need to be considered if spring development could not occur at specific sites. Likewise standard 1304 in Alternative 3 may result in some site-specific changes that would need to be determined at the project level.

Alternatives 2 and 3 both include new standards for Management Indicator Species species. Alternative 2 varies only slightly from Alternative 1, due mostly to the Management Indicator Species designations. Alternative 3 provides additional protection for riparian and wetlands when compared to Alternative 1 and 2.

Under all alternatives criteria will be designed at the project level for ongoing grazing activities, and project level decisions will address site specific concerns for riparian and wetland areas including Management Indicator Species, sensitive species and/or

other issues. The *Region 2 Rangeland Analysis and Management Training Guide* methods and other approved methods will be used to assess, evaluate and monitor the ecological conditions in riparian areas as needed for the interim period. The effects described in the FEIS on page III-186, adequately covers impacts expected from riparian and wetland management on rangeland.

Effects on Rangeland from Soil, Water and Air-quality Management

Alternatives 2 and 3 would be similar to Alternative 1 in this area and the effects would remain the same as stated in the FEIS for the 1997 Revised Forest Plan (p. III-186). The allotment planning process will be used to resolve site-specific conflicts (see the Record of Decision for the 1997 Revised Forest Plan, pp. 51, 52).

Effects on Rangeland from Roads

Project Sample Group results indicate that there is no substantial change in the total miles of road needed for timber harvest or in the miles of open road among the three alternatives. Neither Alternative 2 nor 3 showed any substantial change in road closures for snag protection. This need will be determined during project-level analysis. The slight changes among the three alternatives are not expected to have any substantial impact on access for range administration purposes. Refer to pages III-186 and III-187 of the FEIS for the 1997 Revised Forest Plan for further discussion.

Effects on Livestock Grazing

Alternatives 2 and 3 would be similar to Alternative 1. See pages III- 454 and III-455 of the FEIS for the 1997 Revised Forest Plan. The basic formula and processes from which results were obtained would remain the same.

3-10.3. Cumulative Effects on Range

Refer to page III-188 of the FEIS for the 1997 Revised Forest Plan for a cumulative effects discussion for rangeland. The discussion remains unchanged by the Phase I Amendment.

The Jasper Fire of 2000 will have both short- and long-term effects on rangelands. Eleven grazing allotments were either partly or wholly affected. A total of 82,234 acres of National Forest System and private lands were burned in these grazing allotments. About 39 percent of the fire area burned at high intensity, 32 percent at moderate intensity, and 24 percent at low intensity. Range vegetation was affected to varying degrees depending on fire intensity. There will be a major impact on the holders of the 24 grazing permits affected by the fire. This impact is due to the need for replacement of structural range improvements that were damaged or destroyed, including approximately

150 miles of fence, 65 stock tanks, 6 wells, and nearly 20 miles of water pipeline, and grazing allotments which will not be available for grazing use in the short term because of the loss of forage. Deferment of grazing use could last for a year or more depending on forage recovery rates and reconstruction of structural range improvements. It is expected that in the long term an abundance of forage will be available due to the high tree mortality rate. Loss of the trees will result in conversion of these areas into structural stage class 1, grass/forb/shrub. (Jasper Fire Rapid Assessment 2000, pages 21 and 58)

3-11. NOXIOUS WEEDS

Refer to the FEIS for the 1997 Revised Forest Plan, pages III-189 through 190, for an introductory discussion of noxious weeds.

Determination of change in effects due to Alternatives 2 and 3 is based on the Project Sample Group analysis, landscape analysis as well as available range review information.

3-11.1. Affected Environment

Refer to pages III-190 through III-191 for the FEIS for the 1997 Revised Forest Plan for a discussion of the affected environment. In summary, noxious weeds invade disturbed areas where mineral soil is exposed. Timber sale activities disturb the most area on the Forest, but just as important are activities such as trail construction and use, other construction activities, livestock grazing, recreation use and occupation, activities that occur on private lands, and other uses of the Forest. Approximately 3,000 acres of noxious weeds are treated on the Forest each year; budget limitations prevent treatment of all known weed infestations. The primary objectives in treatment are prevention and control. The total acres affected Forest-wide by weeds is anticipated to continue to rise.

The affected environment discussion does not change under the alternatives considered.

3-11.2. Direct and Indirect Effects on Noxious Weeds

Alternative 1. Refer to the FEIS for the 1997 Revised Forest Plan, pages III-191 through III-198, for a discussion of direct and indirect effects of Alternative 1.

Effects on Noxious Weeds from Timber Management

Under Alternative 1, the rate of noxious weed spread would remain basically unchanged from the current rates of spread. Alternative 2 would conduct timber management on fewer acres than would Alternative 1. Although Alternative 3 may treat more acres than Alternative 1 or 2, the shift in type of harvest methods should actually result in fewer acres of ground disturbance and therefore a slight decrease in potential for noxious weed infestations to occur. Both Alternatives 2 and 3 may

result in a very slight decreases in noxious weed infestations from timber harvest, based on the Project Sample Group analysis. The locations of the infestations, however, may be more widely scattered under both Alternatives 2 and 3 due to the different distribution patterns of timber harvesting for goshawk habitat. There appear to be only slight differences among the three alternatives in regard to changes in amount of noxious weed infestation potential due to timber management, however the infestations may be more widely scattered. Refer to the FEIS for the 1997 Revised Forest Plan, pages III-192 through III-194, for discussion of effects on noxious weeds from timber management. The Project Sample Group data was showed that Alternative 2 treats fewer total acres of timber than Alternatives 1 or 3, and the landscape analysis data showed trends similar to the Project Sample Group results for noxious weeds and the effects would be similar, resulting in only a slight difference between the alternatives in regard to changes in amount of noxious weed infestation potential.

Effects on Noxious Weeds from Roads

As indicated by the Project Sample Group analysis, there would be no substantial change in the total miles of road needed for timber harvest or in the number of open roads among the three alternatives. The amount of road work would not vary substantially between Alternatives 1 and 2, so negligible changes in noxious weed spread from road work would be expected. Under Alternative 3 there would be a very slight increase in new road construction, and a slight increase in both road reconstruction and maintenance, as compared to Alternative 1. Both road reconstruction and maintenance activities would occur under routine road maintenance schedules under all alternatives. Under Alternative 3 there would be some potential for weed spread to increase slightly due to the slight increase in road work associated with timber harvest and regular road maintenance work. Travel management would not change substantially under the Phase I Amendment, so the rate of spread of noxious weeds due to travel management is expected to be similar to Alternative 1. There appears to be only a slight difference among the three alternatives in regard to changes in amount of noxious weed infestation potential due to roads. Effects on noxious weeds are not expected to change substantially. See pages III-194 and III-195 of the FEIS for the 1997 Revised Forest Plan for discussion of effects.

Effects on Noxious Weeds from Recreation Management, Wilderness Management, Wildlife and Fisheries Habitat Management, Range Management, Soil, Water and Air-quality Management, Utilities Development, Lands and Special Uses, Fire, and Other Activities

No change in effects on noxious weeds from recreation management, wilderness management, wildlife and fisheries management, range management, soil, water and air-quality management, utilities development, lands and special uses, fire, and other activities are expected due to little or no changes in management of these resources

that would effect noxious weeds. Effects of Alternatives 1, 2, and 3 would be similar. See the FEIS for the 1997 Revised Forest Plan for further discussion (pages III-195 through III-198).

Effects on Noxious Weeds from Threatened, Endangered & Sensitive Species Management

Alternatives 2 and 3 are slightly more protective than Alternative 1 due to guidelines 4302, 4304, 4305 and 1.1A-4301 being treated as standards. No change in effects to noxious weeds is expected. Treatment of noxious weeds to prevent spread is generally considered beneficial for sensitive species. Refer to page III-196 of the FEIS for the 1997 Revised Forest Plan.

Effects on Noxious Weeds from Riparian and Wetland Management

Alternatives 2 and 3 would be more protective than Alternative 1 due to treatment of Guidelines 1506, 1507, 1508, 1115, 3107, 4102, 9108, and 9109 as standards and modification of Standard 3107 under Alternative 3. This may result in slightly fewer noxious weed infestations, but it is not expected to change the effects as compared to Alternative 1. Refer to page III-197 of the FEIS for the 1997 Revised Forest Plan for a full effects discussion.

Effects on Noxious Weeds from Minerals Exploration and Extraction

Alternatives 2 and 3 would be slightly more protective than Alternative 1 due to treatment of Guidelines 1506, 1507, and 1508 as standards. The environmentally protective mineral and energy resources guidelines (treated as standards) could decrease the likelihood of noxious weeds becoming established in areas disturbed by such activities. Overall effects are not expected to change as compared to Alternative 1. Refer to page III-197 of the FEIS for the 1997 Revised Forest Plan for a full effects discussion.

3-11.3. Cumulative Effects on Noxious Weeds

Refer to pages III-198 through III-199 of the FEIS for the 1997 Revised Forest Plan for a full cumulative effects discussion for noxious weeds. The discussion remains unchanged by the Phase I Amendment.

The Jasper Fire may have both short- and long-term effects on noxious weeds. Approximately 39 percent of the Jasper Fire area burned at high intensity, 32 percent at moderate intensity and 24 percent at low intensity levels. Rangeland vegetation was affected to varying degrees related to fire intensity. Because of the loss of the vegetation, litter layer, and the tree overstory and ground disturbance from fire suppression activities, the invasion and spread of noxious weeds is a concern within the fire area. Noxious

weeds are already present in the burn area and are likely to spread rapidly. Approximately 1,634 acres of noxious weeds were inventoried within the fire area before the burn. Areas where the fire burned at moderate to high intensity are of primary concern as the soil wss exposed, leaving a vast amount of land vulnerable to new infestations. A 30 percent increase in noxious weeds is expected to occur in the areas burned at high intensity, a 20 percent increase in the areas burned at moderate intensity, and a 10 percent increase in the areas burned at low intensity. Salvage operations occurring within the areas of existing weed infestations would be of concern if operation takes place when the noxious weeds are in the seed stage. Only a 15 percent increase in noxious weeds is expected to occur on sites where salvage takes place because of seeding that will be done on landings and skid trails. Salvage and road clearing accomplished on frozen ground should result in minimal disturbance to the soil, which will be beneficial in decreasing weed spread. An Integrated Weed Management program and monitoring are planned in the burn area (Jasper Fire Rapid Assessment 2000).

3-12. RECREATION

3-12.1. Affected Environment

The impacts on recreation resources for each alternative are predicted to be the same, both at the Project Sample Group scale and the landscape scale.

Further discussion can be found on the following pages of the FEIS for the 1997 Revised Forest Plan at page III-5 to 14 (general overview discussion of the Affected Environment re recreation, wilderness, roadless, and wild and scenic rivers); III-417 to 424 (recreation); III-401 to 410 (wilderness and roadless); III-411 to 415 (wild and scenic rivers); and III-97 to 102 (cave resources).

3-12.2. Direct and Indirect Effects on Recreation

Alternative 1 is the basis for the analysis of direct and indirect effects on recreation, wilderness, roadless areas, and wild and scenic rivers resources.

Existing trail corridors, both summer and winter use, will have no substantial impact from either Alternative 2 or 3. No substantial amount of trail relocation or seasonal restrictions are anticipated directly or indirectly related to selection of any alternative.

Effects on Recreation from Wilderness Management, Travel Management, Wildlife and Fisheries Management, Range Management, Timber Management, Minerals Exploration and Extraction, Utilities Development, Insects and Diseases, and Fire Management

No change in effects on recreation from wilderness management, travel management, wildlife and fisheries management, range management, timber management, minerals exploration and extraction, utilities development, insects and diseases, or fire management is expected as compared to Alternative 1. Alternatives 1, 2, and 3 would have similar effects. See the FEIS for the 1997 Revised Forest Plan for further discussion (pages III-419 through III-422).

Recreation effects from wildlife and plant Sensitive species management may have limited negative impacts on recreation and trail uses, but these possible project-level restrictions are not expected to have a Forest-wide impact.

Alternatives 2 and 3 would cause no changes in effects on developed site hardening, construction, reconstruction, or removal requirements to protect Sensitive species and resources. Some general dispersed recreation activities may be affected related to project-specific direction arising from selection of Alternative 2 or 3, but none of the impacts are expected to have be Forest-wide in terms of overall dispersed recreation opportunities.

Alternatives 2 and 3 would cause no major differences in impact on dispersed recreation, rock climbing, or caving opportunities based on management direction for goshawks, martens, or any other species of viability. Some site-specific management restrictions related to cave management may have limited impact on recreational use of specific caves, but these project-level decisions are not expected to have a Forest-wide impact on recreational use of caves.

Alternatives 2 and 3 would cause no major differences in effects on current outfitter-guide special use activities. Some site-specific management restrictions may have limited impact on specific outfitter-guide activities. These project-level decisions are not expected to have any impact other than minor shifting of use or minor seasonal restrictions on select areas of operation. It is not expected to affect the economic viability of these actions nor preclude their continued authorization.

Effects on Wilderness from Recreation Management, Travel Management, Timber Management, Wildlife Habitat Management, Range Management, Mineral Exploration and Extraction, and Fire, Insects, and Diseases

No change in effects on wilderness from recreation management, travel management, timber management, wildlife habitat management, range management, mineral exploration and extraction, or fire, insects, and diseases are expected. Effects of

alternatives 1, 2, and 3 would be similar. See the FEIS for the 1997 Revised Forest Plan for further discussion (Pages III-406 through III-408).

Neither action alternative would have any major effect, either positive or negative, on the recreational qualities or values for the inventoried roadless areas on the Forest.

Implementation of prescribed fire plans for the Black Elk Wilderness would not be affected by new marten habitat management direction.

Management direction under any alternative would not have any effect on wilderness management. The alternatives are not expected to have any impact that would affect the possible future designation of wild, scenic, or recreational rivers on the Black Hills National Forest.

3-12.3. Cumulative Effects on Recreation

Cumulatively, it is expected there would be no difference in effect on or from recreation, wilderness, roadless, and wild and scenic rivers resources related to selection of either Alternative 2 or 3. Site-specific project analysis would determine any constraints or mitigation required, but neither alternative would preclude project implementation.

Short-term cumulative effects from the Jasper Fire have occurred, affecting dispersed recreation use such as summer and winter trail use, some outfitter-guide use, hunting, camping, and driving for pleasure. The area closure and its recreational impacts are expected to be short-term. Travel management for the Jasper Fire area will be analyzed at the project level in a separate site-specific NEPA analysis. Increased management activities related to all of these alternatives would have the same cumulative impacts on the recreation resource for several years in and around the Jasper Fire area. The ability to mitigate these impacts is not restricted under any one of the three alternatives.

3-13. TRANSPORTATION AND TRAVEL

3-13.1. Affected Environment

The National Forest road system provides most of the Forest travel opportunities for resource management and recreational activities. Development and management of the Forest Road System is subject to direction set in the Forest Plan Management Area Direction.

There are approximately 5,204 miles of road in the system, as depicted below (FEIS for the 1997 Revised Forest Plan, page III-426):

Forest Road System

County Roads	553 miles
Forest Development Roads (FDR)	4,651 miles
Total Forest Service System Roads	5,204 miles

Motorized Travel Opportunities

High-clearance vehicle use only	3,510 miles
High-or low-clearance vehicles	1,206 miles
Closed level 1 roads	488 miles
Total Forest Service System Roads	5,204 miles

In addition to the National Forest System roads (previously termed Forest Development Roads, or FDRs), there are approximately 3,430 miles of wheel-track roads on the forest. These wheel-track roads generally were not constructed but were formed by forest users driving cross-country. More wheel-track roads are formed every year. The density of National Forest System roads where timber will be harvested generally ranges between two and five miles per square miles, with the average density around 2.6 miles per square mile. The combined National Forest System road and wheel-track density is 4.4 miles per square mile.

The following direction is indicated in the Objectives in the Forest Plan (1997 Revised Forest Plan, pages I-19, 27):

309. Provide for the following changes to the Forest Development Road System in support of long-term sustainable production of commodities.

Road Construction	280 miles/decade
Road Reconstruction	870 miles/decade
Road Obliteration	140 miles/decade
Two-track obliteration	270 miles/decade

421. Provide the following road system:

ROADS (By End of the First Decade)		
Suitable for Public Use		4700 miles
Passenger Car	1200 miles	
High Clearance Vehicles	3500 miles	
Roads Closed to Vehicles		500 miles
TOTAL		5200 miles

422. Provide the following off-road travel opportunities.

Category	Percentage of Forest
All Motorized Travel Allowed Yearlong	59.1%
Seasonal Restrictions Apply	22.8%
Seasonal Restrictions – No Off-road Travel	3.2%
Backcountry Motorized Recreation on Designated Trails	1.0%
Only Off-Highway Vehicle Travel Prohibited	11.4%
Motorized Travel Prohibited Except Snowmobiles	1.2%
All Motorized Travel Prohibited	1.3%

See pages III-425 through 426 of the FEIS for the 1997 Revised Forest Plan for further discussion.

3-13.2. Direct and Indirect Effects on Transportation and Travel

Road Operations

Reconstruction and maintenance work on haul roads is needed to stabilize the roads and prevent resource damage. In areas where these repairs would not be accomplished with timber sales, other means would be used to perform some of the work. Routine and deferred maintenance would accomplish the same types of work, but on a different schedule. An increase or decrease of the amount of road work as indicated by the Project Sample Group analysis for Alternatives 2 and 3 does not mean this work would or would not occur. This work is needed to meet standards and guidelines in the 1997 Revised Forest Plan and to provide for access for other forest users.

The majority of the standards and guidelines for road work are already considered and implemented in site-specific projects.

A review of the standards and guidelines as they would be implemented under Alternative 2 or 3 indicates there would be little change in operations for roads. Some increased analysis would be required, as well as increased protection and mitigation measures for certain species of concern. Additional considerations for certain species would result in increased mitigations, including relocation of road segments to avoid sensitive sites.

In general, the measures are currently covered under Best Management Practices and Engineering Design Guidelines and are already treated as Standards. Very few additional mitigation measures were indicated in the Project Sample Group analysis, and the effects are expected to be minimal.

Alternative 2 would cause a decrease in miles of road work required to support timber haul. This change occurred in only one sale as analyzed in the Project Sample Group. The other sales were unchanged. At the landscape level, this change would be seen only in areas where there would be a significant decrease in timber cut, such as watersheds with few large-diameter trees. In most areas of the forest, however, the existing transportation system provides access to multiple units. Total miles of road work would be similar to Alternative 1 with only slight increases or decreases in cutting areas. Miles of new construction identified in the Project Sample Group analysis would remain unchanged.

Alternative 3 could cause an increase in road work needed to accommodate timber haul. Additional reconstruction and maintenance to the existing transportation system would be needed to access treatment areas. Some additional new construction would be needed to access new areas.

Changes caused by Alternative 2 or 3 are not anticipated to be outside the miles projected in the 1997 Revised Forest Plan for road work.

See page III-426 of the FEIS for the 1997 Revised Forest Plan for further discussion.

Travel Opportunities

Travel Management is incorporated into the management area direction for all management areas identified in the 1997 Revised Forest Plan. In order to meet the overall goals and objectives in each area, motorized travel is allowed, restricted, or prohibited. Site-specific travel management decisions to change the travel management will be made during project level analysis. (See page 41 of the ROD for the 1997 Revised Forest Plan for further discussion.) This direction would remain unchanged under all alternatives.

Neither action alternative would change travel management from the original 1997 Revised Forest Plan direction. Changes occurred in only one of the Project Sample Group areas, and those additional road closures are still well within the objectives for travel and access management in the 1997 Revised Forest Plan. One project area (Bullock) would restrict off-road travel within a management area that currently allows off-road travel (approximately 1,600 acres) in order to enhance late-succession forest characteristics.

Some adjustments to travel could be expected under any alternative, but none would necessitate a change to the existing Motorized Travel Opportunities as presented in the 1997 Revised Forest Plan. There will be shifting of percentages for travel

opportunities as road and areas as described in Objective 422 (1997 Revised Forest Plan, page I-27) as project-specific travel management decisions are implemented, but management area direction allows such changes.

Neither Alternative 2 nor 3 in the Project Sample Group analysis showed any increase in road closures for the purpose of protecting snags from firewood cutting. Additional road closures at the landscape level may, however, be expected under Alternatives 2 and 3 in project areas where there is a demonstrated loss of snags due to removal of snags for firewood use.

See pages II-57 through 62 and pages III-425 through 427 of the FEIS for the 1997 Revised Forest Plan for further discussion.

3-13.3. Cumulative Effects on Transportation and Travel

Effects on Travel Opportunities from Roadless Area Policy

The National Roadless Area Policy may become effective during the life of the Phase I Amendment. Existing roadless areas on the Forrest would see little change under any of the alternatives, except in the Beaver Park area where road use would be restricted to emergency needs or stewardship purposes. The effects would be the same under all alternatives.

See pages II-73 through 75 of the FEIS for the 1997 Revised Forest Plan and the FEIS for Forest Service Roadless Area Conservation (November 2000) for further discussion.

Effects on Travel Opportunities from the Proposed Roads Policy and New Roads Analysis Process

Planning regulations to incorporate the Roads Analysis Process have become effective during the life of the Phase I Amendment. Most of the requirements of the process are already incorporated in site-specific NEPA analysis required for individual planning areas. Additional documentation would be required under the process. The effects of all alternatives would be the same.

Effects on Travel Opportunities from Public Forest Service Roads Program

This initiative is an effort to have selected National Forest System roads declared Public Roads in order to qualify for Federal Highway Trust funds for improvements. All work would require appropriate NEPA analysis and would be similar under all alternatives.

Effects on Travel Opportunities from the Jasper Fire

Travel will be restricted in the Jasper Fire area in both the short and long term. For public safety, public travel on arterial and collector roads is prohibited until hazard trees are removed from the roads (an estimated three to six months). Travel on local roads will likely be restricted until hazard trees can be removed (one to three years). Off-road travel may be restricted to protect the soil resource until vegetation can stabilize the slopes (two to five years or more).

These restrictions are a change from the original management area direction that allows road and off-road travel, with some seasonal restrictions for wildlife security. The effects are expected to be similar under all alternatives.

Effects on Transportation Operations from the Jasper Fire

Additional road work to support haul of hazard and salvage trees can be expected in the Jasper Fire area. Some of this work was already designated in sold timber sales within the fire area, and would be the same with any of the alternatives. Rehabilitation work will be needed on some roads to repair suppression damage. Some reconstruction may be needed to accommodate anticipated increased water flows.

3-14. SCENERY

3-14.1. Affected Environment

See the FEIS for the 1997 Revised Forest Plan (pages III- 429 through 433) for background information on affected environment and consequences related to scenic resources. These pages describe the Existing Scenic Integrity relationship to Scenic Class Values, Scenic Integrity Objectives, Scenic Integrity Objectives by Management Area, and the natural and human-made occurrences that can affect this resource. For example, suppression of wildfire and attempts to control insects in the Black Hills over the past 100 years have had far-reaching consequences on forest composition, structure and overall forested ecosystems. Today's ponderosa pine ecosystem evident today is considerably more dense with trees and extensive than it was prior to European settlement. This dense ecosystem is the "natural" landscape we view, and manage, today. Therefore, natural events (such as wind storms and wildfires) and human-made disturbances (road construction, vegetation management, etc.) affect the landscape we perceive around us.

Scenic integrity, the measure of the degree to which a landscape is visually perceived to be "complete", is used to describe the existing situation, standard for management, or desired condition. The highest scenic integrity ratings are given to those landscapes that have little or no deviation from the aesthetic appeal of the valued landscape character of the Forest (see the FEIS for the 1997 Revised Forest Plan, Appendix B-52 through B-60).

3-14.2. Direct and Indirect Effects on Scenery

Refer to the FEIS for the 1997 Revised Forest Plan (pages III-433 through 439) for a discussion of direct and indirect effects for Alternative 1.

Effects on Scenery Management from Travel Management, Recreation Management, Wilderness Management, Soil, Water and Air-quality Management, Landownership Adjustment Program, Mineral Exploration and Extraction, Range Management, Utilities Development, and Fire Management

No change in effects on scenic quality from travel management, recreation management, wilderness management, soil, water and air-quality management, landownership adjustment program, mineral exploration and extraction, range management, utilities development, or fire management is expected. Effects of Alternatives 1, 2, and 3 would be similar. Effects on Scenery are expected to be similar to Alternative 1. See the FEIS for the 1997 Revised Forest Plan for further information (pages III-435 through 438).

Effects on Scenery Management from Wildlife Habitat Management & Timber Management

Alternatives 1, 2, and 3 would have similar effects on scenery from wildlife habitat and timber management. Timber management activities would provide a more continuous canopy and greater visual penetration into some tree stands. Alternative 3 would provide the greatest opportunity to achieve scenic characteristics in ponderosa pine stands in the form of large diameters and "orange" deeply fissured bark. Alternatives 2 and 3 would create small openings, one to ten acres in size, similar to Alternative 1; they would, however, maintain three to five reserve trees, which would not be present under Alternative 1. Through project-level decisions, the viewed landscape could display an increase in openings (structural stages 1 and 2) as compared to Alternative 1. In the Bearlodge portion of the Forest, more hardwoods could be evident as they often quickly sprout in open areas, and then compete with the conifers for those sites. Potentially, five to ten percent of the Forest could be in a more open condition. However, the overall character would likely be similar to that resulting from Alternative 1. See the FEIS for the 1997 Revised Forest Plan for further information (pages III-435 through III-438).

3-14.3. Cumulative Effects on Scenery

Cumulatively it is expected there would be no difference in effect on scenic quality from travel management, recreation management, wilderness management, soil, water and air-quality management, landownership adjustment program, mineral exploration and

extraction, range management, utilities development, wildlife habitat management, timber management, and fire management related to selection of either Alternative 2 or 3. Site-specific project analysis would determine any constraints or mitigation required, but would not preclude project implementation. Effects on scenery from timber management are not expected to change substantially under Alternative 2 or 3 as compared to Alternative 1, as discussed in the FEIS for the 1997 Revised Forest Plan. Alternative 3 would, however, move some ponderosa pine stands toward larger-diameter trees.

Long-term cumulative effects from the Jasper Fire have occurred, affecting the vegetative matrix that covers the landscape visible from both a State Highway (16) and numerous private residences within the fire area. The scenic impacts are expected to be long-term. Increased management activities related to all of these alternatives will have the same cumulative impacts to the scenic resource for several years in and around the Jasper Fire area. The ability to mitigate these impacts is not restricted under any of the three alternatives.

3-15. HERITAGE RESOURCES

3-15.1. Affected Environment

Descriptions of heritage resources (archaeological and historical sites) on the Black Hills National Forest are discussed in the FEIS for the 1997 Revised Forest Plan. Effects on heritage resource sites include direct, indirect, and cumulative impacts that would result from either intentional or inadvertent damage to those sites. In general, such effects would be the result of ground-disturbing activities in the vicinity of heritage resources. Such activities are constrained by 1997 Revised Forest Plan Standards and Guidelines. Field inventories for heritage resources are accomplished prior to approval of ground-disturbing projects and activities. There is, however, potential for effects on this resource when ground-disturbing projects and activities are implemented.

Alternative 1 would continue the present management directed by the 1997 Revised Forest Plan; this alternative would maintain the protection levels identified in the FEIS for the 1997 Revised Forest Plan.

Heritage resources are the physical remains and conceptual content or context of an area that provide a link to our past. Heritage resources include, but are not limited to, artifacts, rock art, ruins, landscapes and structures; or settings for legendary, historic or prehistoric events.

The Black Hills are of particular importance to a large number of American Indian tribes. Artifacts and settings provide a direct link between modern American Indians and their cultural heritage.

Heritage resources are managed for public benefit through three primary actions (FEIS for the 1997 Revised Forest Plan, p. III-115), including:

1. Prevent loss or damage until they can be evaluated and managed for appropriate uses,
2. Provide opportunities for scientific study to gain knowledge about past human behavior and past environments
3. Provide interpretive opportunities for the public to gain a better understanding and perspective on our diverse collective heritage.

Heritage resource field inventories have been conducted on approximately 500,000 acres of the Black Hills National Forest. Over 4,000 historic and prehistoric sites have been formally recorded as a result of these inventories. These heritage resources date between 12,000 years and 50 years in age. More than 500 of these sites or properties contain significant information about the past and have been evaluated as eligible for nomination to the National Register of Historic Places (NRHP). Forty of these properties have been formally listed on the NRHP. A majority of the listed properties are prehistoric rock pictograph sites that are of scientific importance to society at large and of spiritual importance to modern American Indians across North America. Heritage resources are an extremely fragile and non-renewable resource regardless of age or cultural affiliation.

A review of findings from intensive pedestrian surveys indicates that site density ranges roughly between one site per 66 acres and one site per 182 acres. Heritage resources are not, however, evenly distributed across the landscape. Resource locations depend on slope, proximity to water, and proximity to natural resources used by Native Americans and other inhabitants of the Black Hills over time.

Resource Protection Measures

The National Historic Preservation Act (NHPA) as amended in 1999 and 2001 provide specific guidance to federal agencies that must consider potential effects on heritage resources as part of the agencies' management activities. These guidelines or protocols are found in Section 106 of 36 CFR 800.

A standard measure for the protection of heritage resources is field inventory and site identification prior to the implementation of land management projects. Sites can then be avoided by project activities. Effects on sites can also be reduced or minimized through archaeological recordation, structure recordation, interpretation, increased monitoring, and restrictive covenants.

3-15.2. Direct and Indirect Effects on Heritage Resources

Direct effects can result from both natural events and human activities. Natural events such as soil erosion, weathering, freezing and thawing of soil, and natural wildfires can alter and/or destroy heritage resources. Human actions can affect these resources rapidly and profoundly. Ground disturbing activities such as road construction, logging, livestock grazing, off-road travel, and dispersed camping are examples of potential threats to heritage resources.

Indirect effects can result from improved access into an area that increases the potential for vandalism, looting, and inadvertent damage. Introduction of new activities in an area can affect the scenic and auditory setting of certain heritage properties as well, particularly Traditional Cultural Properties containing spiritual significance.

Despite field inventories, the potential exists for undiscovered sites to be exposed and/or damaged by surface disturbance or other events. This damage represents an unavoidable adverse effect through implementation of management activities. The Forest continually seeks to minimize these adverse effects in all Forest planning alternatives and specific project designs.

Effects on Heritage Resources from Timber Management

Timber management will result in various degrees of soil disturbance. Timber harvesting, skid trails, temporary road use, landings, "yarding" of equipment, and piling and disposal of slash piles can adversely affect heritage resources. In comparing the alternatives for the Phase I Amendment, Alternative 3 would probably disturb the most acres, followed by Alternative 1. Alternative 2 would result in the least ground disturbance. As the amount of potential ground disturbance increases, the potential for disturbance and adverse effects on heritage resources also increases. See pages III-118 and 119 of the FEIS for the 1997 Revised Forest Plan for further discussion.

Under each alternative, disturbance to heritage resources would be minimized through identification and avoidance or mitigation measures. The Forest would comply with Section 106 of the National Historic Preservation Act under each alternative.

Effects on Heritage Resources from Roads

Heritage resources can be adversely affected by road construction and reconstruction. Adverse effects also occur under certain conditions through use of temporary roads and road maintenance activities. Effects on heritage resources are of particular concern where two-track and unclassified roads are subject to maintenance and use as temporary roads. In most cases mitigation measures which use barrier cloth and

additional material fill can reduce damage to heritage resources. See page III-119 of the FEIS for the 1997 Revised Forest Plan for further discussion.

In a review of the Alternatives considered under the Phase I Amendment, Alternative 3 would result in the greatest number of miles of road and hence have the greatest potential to affect heritage resources. Alternatives 1 and 2 are similar in scope and would have a lower potential to affect heritage resources.

Under each alternative, disturbance to heritage resources would be minimized through identification and avoidance or mitigation measures. The Forest would comply with Section 106 of the National Historic Preservation Act under each alternative.

Effects on Heritage Resources from Range Management, Recreation Management, Wildlife and Fisheries Management, Minerals Exploration and Extraction, Fire Management, Land Ownership Adjustments, Special Area Designation and Other Activities

No change to effects on heritage resources from range management, recreation management, wildlife and fisheries management, minerals exploration and extraction, fire management, land ownership adjustments, special area designation, or other activities (such as recreation residences, road easements, utility lines, or military operations, pest management, soil and water management) would be expected under any alternative. There are no substantial differences among the alternatives being considered. See the FEIS for the 1997 Revised Forest Plan for further discussions (pages III-120 through 123).

3-15.3. Cumulative Effects on Heritage Resources

Cumulative effects on heritage resources are discussed on pages III-123 through 124 of the FEIS for the 1997 Revised Forest Plan and summarized briefly in this report. In short, Forest management activities may cause surface disturbance, bring additional people in contact with heritage resources, or affect the integrity of historic structures. Differences in cumulative effects from the alternatives considered under the Phase I Amendment should be minimal if appropriate mitigation and protection measures are implemented on the ground.

Cumulative effects can also occur to heritage resources through natural processes such as erosion, mass wasting, natural weathering or wildfire. In addition, non-sanctioned activities such as vandalism or illegal excavations can also adversely affect the resource. Management activities that require increased levels of field inventory could reduce these types of cumulative effects through identification of sites in need of stabilization, protection, monitoring, or mitigation.

The Jasper Fire. The Jasper Fire of 2000 caused the most recent cumulative effects on heritage resources. A total of 90 previously recorded eligible and potentially eligible heritage properties are located within the Jasper Fire perimeter. A total of 133 additional sites evaluated as not eligible for the NRHP are also located within the fire impact area. The eligible and potentially eligible sites were field-inspected for direct fire and fire suppression impacts.

Two eligible prehistoric sites were impacted by construction of fire line with bulldozers. The impact was not severe and hand rehabilitation of the fire line was recommended. No other sites were impacted by suppression activities.

Fourteen eligible sites were exposed to high levels of fire intensity. Historic properties containing wood features were severely impacted. Open surface scatters of lithic material were also altered to varying degrees by high fire intensity. Eight eligible sites were exposed to moderate levels of fire intensity, while 13 eligible sites were exposed to low levels of fire intensity. The Jasper Fire had no impact on 30 of the previously recorded eligible or unevaluated properties.

Initial site inspections indicate the fire was by and large of high intensity and low duration. It is possible that buried components were not heavily impacted unless burning stumps and roots were present. None of the impacted properties were submitted to the BAER team as an emergency stabilization need, although stability of several sites are of long-term management concern (Jasper Fire BAER Report 2000).

A total of 100 miles of bulldozer line, hand line, staging areas, and supply drop points represent the disturbances caused by suppression efforts on the Jasper Fire. Twenty-one new historic properties were discovered as a result of fire suppression activities. Fourteen sites are prehistoric in age. Nine sites are historic, and two sites contain both prehistoric and historic components. In general, guidelines call for either mechanical or hand rehabilitation of bulldozer firelines, depending on the significance of an individual property. The Forest has recommended that seven of these newly discovered sites exhibit high potential for research and public benefit and should be considered eligible for nomination to the NRHP.

3-15.4. American Indian Concerns

A number of American Indian Tribes attach cultural and religious significance to the Black Hills and to specific sites and landscapes within it. Cultural practices such as gathering traditional use plants and conducting religious ceremonies occur regularly on the Forest. Participants in these activities include members of tribal communities and American Indians living in Rapid City, South Dakota and other locations nearby. A wide variety of topics are of concern to affected Indian tribes, including economic development, environmental health, and the preservation and use of traditional religious and sacred locations.

The Black Hills National Forest has a unique government-to-government relationship with American Indian Tribal governments in the region. It is through this relationship that the Forest implements its legally mandated trust responsibility to consult with these tribes on policies, programs, and proposed projects in the Black Hills. This trust responsibility to consult has been articulated in Forest Service policy (FSM 1563), several Presidential Executive Orders (EO-13007, EO-13175), and a number of Federal laws including the National Historic Preservation Act, National Environmental Policy Act, Forest and Rangeland Renewable Resource Act, American Indian Religious Freedom Act, Archaeological Resources Protection Act, Native American Graves and Repatriation Act, and the Religious Freedom Restoration Act.

3-16. MINERALS

3-16.1. Affected Environment

Mineral operations on the Forest are driven by market conditions and proponent-developed plans of operation or lease applications. Mineral development proposals that are approved on the Forest are usually 20 acres or less with the majority being less than 10 acres. Currently the minerals program is focused on the pegmatite minerals (quartz, feldspar, mica, mica schist, etc.) in and around the Custer and Hill City areas. For the last several years there has been very little activity in precious metals and no activity in the uranium minerals on the Forest. There are no pending lease applications for oil and gas exploration and there is little expectation of the potential for development of these energy minerals (FEIS for the 1997 Revised Forest Plan, Appendix E). Much of the current activity in the minerals program is being spent reclaiming old abandoned mining sites that were developed prior to regulations for mineral activity on National Forest System Lands.

Most mineral activity on the Forest is governed by the General Mining Laws of the United States (commonly called 1872 Mining Law) and regulated under 36 CFR 228 (Minerals) and subpart A (Locatable Minerals). Under these laws and regulations, citizens and corporations can locate and file mining claims with the Bureau of Land Management for the mineral estate found in the National Forest. Mineral deposits are sites that cannot be moved, but mitigation measures can be developed to offset or lessen the environmental impacts. Ancillary facilities associated with the mining can be moved, modified, or mitigated to lessen the impacts that they will have on the surface resources. Each proposal will be analyzed under NEPA, and the mitigation and modifications developed in the analysis will be incorporated into the approved plan of operations prior to development or exploration activities.

The Forest has a number of gravel pits that supply gravel and road base material for Forest and County roads within the Forest Boundary. No gravel is supplied to the private sector due to the fact that there is ample material available from private property. The

Forest does sell some mineral materials in the form of fill material, slate rock, and some building stone to the private sector.

See the FEIS for the 1997 Revised Forest Plan, pages III-441 and III-445, for additional information regarding the affected environment discussion for the minerals program.

3-16.2. Direct and Indirect Effects on Mining

Alternatives 2 and 3 include one change for clarification related to recreational mining activities in Standard 1511. The change is to include a reference to the implementing regulations at 36 CFR 228, Subpart A (Locatable Minerals).

Due to the limited nature of the minerals activity on the Forest, the Project Sample Group and landscape-level analyses prepared for this plan amendment did not effect any mineral operations in the relevant watersheds. As was stated above, other than the ore deposit, most minerals-related development could be mitigated, modified, or moved to an area that would lessen the environmental impacts on the surface resources.

No changes in effects on the minerals program are anticipated from the Phase I Amendment. In comparing the alternatives for the Phase I Amendment, Alternatives 1, 2, and 3 are similar. See the FEIS for the 1997 Revised Forest Plan for further discussions (pages III-29 through 30; 94 through 94; 100 through 101; 109; 165 through 166; 197; 219; 271; 290; 301 through 302; 313; 358; 407; 421; 437; 483; 519).

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References Supporting Phase I Analysis

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Appendix B

Phase I Amendment
NFMA Significance Documentation

Phase I Amendment Significance Evaluation

The Proposal

The Forest is proposing to amend the 1997 Revised Forest Plan to address deficiencies identified in the October 12, 1999 Appeal Decision (1999 Appeal Decision) for the 1997 Revised Forest Plan and accompanying 1996 FEIS. The 1999 Appeal Decision identified additional management direction to be applied during the interim period it takes to re-evaluate species viability and diversity.

Under NFMA, Land and Resource Management Plans (also known as Forest Plans) may be amended after final adoption and public notice. The NFMA implementing regulations at 36 CFR 219.10(f) state: "Based on an analysis of the objectives, guidelines, and other contents of the Forest Plan, the Forest Supervisor shall determine whether a proposed amendment would result in a significant change in the plan." Neither NFMA nor its implementing regulations define the term "significant." Instead, the regulations place full discretion to determine whether a proposed amendment will be significant in the hands of the Forest Service.

Under NFMA and its regulations, an amendment that does not result in a significant change in a Forest Plan must be undertaken with public notice and appropriate NEPA compliance. If a change to a Forest Plan is determined to be significant, the Regional Forester must follow the same procedure required for the development of the Forest Plan, including preparation of an Environmental Impact Statement.

The Land and Resource Management Planning Handbook (Forest Service Handbook (FSH) 1909.12) provides more detailed guidance for exercising this discretion. This guidance offers a framework for consideration but does not demand mechanical application. No one factor is determinative, and the guidelines make it clear that other factors may be considered. Section 5.32 of FSH 1909.12 lists four factors to be used when determining whether a proposed change to a Forest Plan is significant or not: 1) timing; 2) location and size; 3) goals, objectives and outputs; and 4) management prescriptions. It also states that "[o]ther factors may also be considered, depending on the circumstances."

The determination of whether a proposed change to a Forest Plan is significant depends on analysis of all of these factors. The decision-maker must consider the extent of the change in the context of the entire Plan affected, and make use of the factors in the exercise of his or her professional judgment

The discussion which follows uses the criteria to evaluate the significance of adopting the proposed amendment to the 1997 Revised Forest Plan.

A. Timing

The timing factor examines at what point, over the course of the Forest Plan period, the Plan is amended. Both the age of the underlying documents and the duration of the amendment are relevant considerations. The Forest Plan was revised in June 1997. The Forest operated under the 1997 Revised Forest Plan for two years. In October 1999, some deficiencies were noted related to the Northern Goshawk, American Marten, and species associated with snags. The Phase I Amendment is designed to correct the deficiencies for Northern Goshawk, American Marten, species associated with snags, and other sensitive species, and is anticipated to be in place for a period of two to five years until additional reevaluation of species viability and diversity is completed with the Phase II amendment. The action is limited in time, and changes to the Revised Forest Plan are not intended to be permanent, but will endure until the end of the re-evaluation planning period. The proposed management direction is anticipated to be superseded by the Phase II amendment.

B. Location and Size

The key to the location and size is context, or "the relationship of the affected area to the overall planning area," (Forest Service Handbook 1909.12, sec. 5.32(d)). As further discussed in Forest Service Handbook 1909.12, sec. 5.32(d), "the smaller the area affected, the less likely the change is to be a significant change in the Forest Plan." Although the Phase I Amendment direction would apply forest wide, the proposed direction would be applied to new proposed projects on National Forest System lands in the Black Hills National Forest (see Phase I EA, Map 1-1). The forested acres affected by future timber harvest treatments or prescribed fire projects that would implement the Phase I Amendment management direction would be a small subset of the forest total; less than 3% of the acres are treated annually across the national forest, and less than 15% is anticipated for treatment over the next five years. There would be limited effects to current and future grazing permits during the life of this amendment. Changes to permits would be accomplished through annual operating instructions, and would likely include avoidance of specific sites (e.g. protective fencing) to provide increased protection of sensitive species and their habitat.

Thus, the size of the area projected to be affected during this time period is small when compared to the total in the planning area

C. Goals, Objectives, and Outputs

The goals, objectives, and outputs factor involves the determination of "whether the change alters the long-term relationship between the level of goods and services in the overall planning area" (Forest Service Handbook 1909.12, section 5.32(c)). This criterion concerns analysis of the overall Revised Forest Plan and the various multiple-use resources that may be affected. There is no guarantee under NFMA that output projections will actually be produced. The proposed management direction would apply prospectively only; that is, to proposed or new projects following adoption of this amendment. Thus, the proposed management direction does not significantly alter the long-term relationships between the levels of goods and services projected by the Revised Forest Plan.

This amendment does not alter current planning direction on "why" management is needed (e.g., to provide habitat to support viable populations of sensitive species) or "what" management actions can be taken (e.g. vegetative treatments to manage habitat). This amendment focuses on new information related to the how (e.g., how vegetative treatments will be implemented to achieve habitat conditions) and where (e.g., at-risk habitat) management is needed.

The effects on timber supply and other commodity resources resulting from implementation of proposed management direction would be short term, since this direction will only be in place for approximately two to five years. The proposed management direction will likely have short-term beneficial effects upon some resources, such as habitat for the goshawk and its prey. Primarily changes would result in decreases in the amount timber harvested and acres treated with vegetative management actions. Increased protection measures for sensitive species would be put in place affecting permitted domestic livestock grazing activities with adoption of the proposed management direction. The proposed management direction does not involve a demand for any new service or good not discussed in or contemplated by the Revised Forest Plan. The guidance in Forest Service Handbook 1909.12, section 5.32(c) explains: "In most cases, changes in outputs are not likely to be a significant change in the Forest Plan unless the change would forego the opportunity to achieve an output in later years." Short-term temporary reductions in outputs from the Phase I amendment would not foreclose opportunities to achieve such outputs in later years. The proposed management direction under Alternative 2 and the high end of the range of Alternative 3 would likely maintain most of the existing wood product mills and not foreclose the achievement of existing goals and objectives. The low end of the range of Alternative 3 would likely result in the closure of one of the large mills, however other mills are anticipated to remain.

D. Management Prescriptions

The management prescriptions factor involves the determination of (1) "whether the change in a management prescription is only for a specific situation or whether it would apply to future decisions throughout the planning area" and (2) "whether or not the change alters the desired future condition of the land and resources or the anticipated goods and services to be produced" (Forest Service Handbook 1909.12, section 5.32(d)).

Species experts reviewed the 1997 Revised Forest Plan and found that management activities addressed in the 1997 Revised Forest Plan would likely continue to support the currently viable populations of species present on the Forest. Phase I was initiated to maintain future management options until the reevaluation of species diversity and viability is completed. Additional direction identified in the 1999 Appeal Decision provided more specific habitat management measures for the Northern Goshawk, American Marten, species associated with snags, and other sensitive species. This project was initiated to adopt additional protective measures until the reevaluation in Phase II is completed.

The desired future conditions and long-term levels of goods and services projected in 1997 Revised Forest Plan and 1996 FEIS would not be substantially changed by the proposed management direction. The proposed management direction will work to accomplish an element of the multiple-use desired future condition currently described in the 1997 Revised Forest Plan by providing habitat needed to support viable populations of Northern Goshawk, American Marten, species associated with snags, and other sensitive species.

As noted above, the proposed management direction is temporary and applies only to a portion of the overall planning area. Thus, the "anticipated goods and services" will not be greatly affected by proposed management direction. The proposed management direction only affects a limited area where selected projects may be proposed and does not alter the management framework for the majority of lands within the overall planning area because it will not supersede direction for most resources already in place. In adopting the proposed management direction (essentially mitigation measures) until the Forest has completed a reevaluation of species diversity and viability considering new information, the Phase I Amendment would retain or improve the environmental status quo on a portion of the national forest.

Findings and Conclusions

The analysis above documents the evaluation of the proposed Phase I Amendment described in Chapter 1 of the Phase I EA. Based on the considerations of timing; location and size; goals, objectives, and outputs; management-area prescriptions; and other provisions of the National Forest Management Act of 1076 (36 CFR 219.10(e) and (f), these changes would not constitute a significant amendment to the Black Hills National Forest 1997 Revised Land and Resource Management Plan.

APPENDIX C

October 12, 1999 Appeal Decision Summary

Summary from the October 12, 1999 Appeal Decision

Decision Summary

My response to the appellants' substantive concerns includes a discussion of associated legal, regulatory, and policy requirements. This approach provides a focused response to contentions involving complex resource management issues. Although every contention made by appellants may not be cited in this decision, all of the concerns have been considered. My review of the concerns focused upon compliance of the Regional Forester's decision with those law, regulation, and policy requirements cited.

I identified a total of 27 key issues from the three appeals, which together constituted some 400 pages of contentions and related discussion from the appellants. The issues are listed in the Table of Contents and are addressed subsequently in this decision. Generally, the appellants request a thorough analysis of the issues be completed, further analysis be done, and, the ROD, Revised Plan, and FEIS be revised. I find that the majority of these issues had been addressed in the record in conformance with applicable law, regulation, and policy. However, I also find that additional evaluation of the sufficiency of the plan in providing for the diversity of plant and animal communities, and species viability, is needed. I believe that modifications are necessary to reduce the level of risk and uncertainty regarding health of the land, including sustainability of its watersheds, and of its plant and animal species. In accordance with the relevant regulations (36 CFR 217.16(b)), the Regional Forester's June 24, 1997, decision to approve the Revised Plan is affirmed in part, with instructions for further actions concerning the issues of viability and diversity, and mining.

The viability and diversity issue warrants adjusting some land management activities during an interim period, which begins with the issuance of this appeal decision and concludes with completion of any necessary adjustments to the Revised Plan. The rationale associated with the viability and diversity issue, and with the related instructions for further action, is discussed later in this appeal decision. In summary, the primary deficiencies concern:

- Viability determinations for some species.
- Standards and guidelines to maintain viability of some species.
- Management indicator species (MIS) requirements.
- Monitoring direction for some sensitive species.

Although I am affirming the Regional Forester relative to the Migratory Bird Treaty Act issue raised by the appellants, I am directing the Regional Forester, as part of the re-evaluation of the sufficiency of the plan in providing for the diversity of plant and animal communities and species viability, to consider comprehensive bird planning efforts, such as Partners-in-Flight.

With regard to mining, a relatively minor adjustment would remove ambiguity associated with this issue which, also is described in more detail later in this appeal decision. The Regional Forester is directed to clarify Forest Standard Number 1511 by incorporating a reference to 36 CFR 228 Subpart A - Locatable Minerals, rather than simply referring to the term "operating plan."

Instructions for Further Action

I am providing the following instructions to address key areas of concern and to conserve management options during the interim period. The Regional Forester is further directed to:

(1) Provide a brief Action Plan to the Chief, within three months of issuance of this decision. The Action Plan should include a timeframe and schedule the Region and BHNF will meet in completing the relevant analysis, public input, and adjustments. The Action Plan should articulate a process for:

- completing further analysis and planning necessary to address and determine the scope of, and address, key areas described in this appeal decision, concerning viability and diversity;
- providing mechanisms for public input in the analysis; and,
- making appropriate adjustments to the Revised Plan to address deficiencies and incorporate the most recent scientific information.

(2) Implement the approved Action Plan within the timeframe identified by the Region, including all relevant analysis, public input, and adjustments.

(3) Apply the following interim direction to all projects or activities for which **decision documents have not been signed as of the date this appeal decision is rendered**. The interim direction will remain in effect until appropriate adjustments have been made to the Revised Plan, in accordance with the above Action Plan.

(4) To address protection of riparian and aquatic species and their habitats in areas with **ongoing livestock grazing activities**, apply the interim direction for ongoing grazing activities (described below), where appropriate, beginning in calendar year 2000. The interim direction will remain in effect until appropriate adjustments have been made to the Revised Plan, in accordance with the above Action Plan. This interim direction was based on the administrative record for the revised LRMP. Additional provisions which meet the intent of this direction have likely been provided in later allotment management plan decisions, other related project decisions, and in recently issued regional or forest-level policy. These additional documents may be used in applying the following interim direction.

General Interim Management Direction

In order to maintain management options during the interim period, the following direction will apply:

- Treat all environmentally protective guidelines in the Revised Plan as standards unless doing so would conflict with other interim direction listed below.

- In situations in which there is an inconsistency between the interim direction and the Revised Plan, whichever direction is more protective relative to conservation of species populations and habitats will apply.

- Environmental analyses for proposed projects must evaluate the effectiveness of best management practices (BMP's) and other measures proposed to mitigate adverse effects to species and the ecological conditions that support them. This requirement may be satisfied by previous analysis that can be incorporated by reference.

Interim Direction Concerning Sensitive Species

- Conduct surveys for sensitive species under the following conditions, unless such species are known not to be present: 1) the project area is within the known or suspected range of the species and suitable habitat exists within the proposed project area, and, 2) the type of activity being proposed is known or suspected to be potentially detrimental to the species. Surveys should address spatial and temporal scale considerations. Existing habitat and population data may be used. This information should be used in project planning and analysis. In situations where adequate population data do not exist, and where such data would be difficult to obtain, the project analysis may be based on the assumption that the species is present, and the project designed accordingly to provide sufficient protection such that there is a low likelihood of adverse effects to the species or its habitat within the project area.

- As part of the environmental analysis for proposed projects, conduct thorough analyses of direct, indirect, and cumulative effects for all sensitive species and their habitat.

- Determine whether a need exists to monitor habitat and/or populations of sensitive species within the affected area of proposed projects, and display the rationale for this determination. Where a need is identified, identify monitoring objectives, assumptions, uncertainties, design standards, schedules, and methods. Identify contingencies for adjusting management if monitoring cannot be completed on schedule as designed or if monitoring results indicate that protection and restoration measures do not achieve desired/predicted effects.

- Increase the precision and reliability of methods by which populations of sensitive species are monitored from Class B to Class A, as defined in the Revised Plan (p. IV-3) to more effectively discern species and/or habitat status.

Northern Goshawk

- The following additional protective measures will apply relative to the northern goshawk for all projects involving the removal of trees in suitable habitat, except those done for the express purpose of enhancing goshawk habitat:

  1. A goshawk nest survey must be conducted prior to any projects in forested areas.

  2. If the project area includes an historically active nest or a replacement stand associated with an historically active territory, this acreage will be excluded from the project.

  3. If a historically active territory occurs within one-half mile of the project area and protected acreage has not yet been identified, the project analysis will determine whether some of the protected acreage should occur within the project area.

  4. If the pre-project survey identifies a previously unknown active nest, the project analysis will determine where protected acreage will be located.

  5. In all cases, protected acreage will include 180 acres best suited for nesting habitat within one-half mile of the historically active or currently active nest. The acreage need not be contiguous but must occur in 30-acre units or larger. If these conditions cannot be met, then the acreage will include stands that are not currently suitable but that could be managed to meet nesting conditions over time. Activities within these stands should be limited to those that aid in maintaining or enhancing the stand's value for goshawks.

- From March 1 through September 30, minimize additional human-caused noise and disruption beyond that occurring at the time of nest initiation (e.g. road traffic, timber harvests, construction activities) within one-fourth mile of all active goshawk nests.

- Design silvicultural prescriptions and manage activities to enhance prey species habitat by maintaining vegetative diversity and achieving a balance of structural stages, from stand initiation to late successional, within goshawk fledgling habitat (approximately 420 acres around each historically active goshawk nest and alternate nests).

American Marten

- Design vegetation management activities, including prescribed fire, to maintain a sufficient number and size of sound logs per acre to provide den sites, resting sites, and prey habitat within areas currently occupied by martens or with high potential for occupancy.

- All vegetation management projects should be designed to prevent further decrease in patch size of late-successional forests within areas currently occupied by martens or with high potential for occupancy. Seek opportunities to increase connectivity of such areas.

Snag-dependent species

- Within the associated watershed, for each vegetation management project, retain the following minimum densities of hard snags at least 25 feet in height:

  Ponderosa Pine on north- or east-facing slopes or in protected areas which, would have historically supported an infrequent, stand replacing fire regime:
  Retain an average of 4 snags per acre > 10" DBH (diameter at breast height), collectively 25% of which must be > 20" DBH.
  If 20" DBH or 25 feet high snags are not available, retain snags in the largest size class available.

  Ponderosa Pine on south- or west-facing slopes or in exposed areas which, would have historically supported a more frequent, lower intensity fire regime:
  Retain an average of 2 snags per acre > 10" DBH, collectively 25% of which must be > 20" DBH. If 20" DBH or 25 feet high snags are not available, retain snags in the largest size class available.

  Other Forest Types
  Retain a minimum average of 6 snags per acre > 10" DBH.

  Snags chosen for retention should represent the largest diameter class available.

  Snags can be clustered or individual, but must be well distributed within the watershed.

- In watersheds not meeting the minimum hard snag direction, all vegetation management projects will be designed to move hard snag densities toward this objective.

- Identify roads to be closed at completion of projects to protect snags from removal, especially in areas where snag densities are low.

- During vegetation management activities in ponderosa pine, retain a sufficient number of green trees > 20" DBH or from the largest diameter class available, to

move towards or maintain an average minimum density of one large green tree per acre within the associated watershed, for the purpose of snag recruitment. Retention trees can be clustered or individual.

Interim Direction Concerning Management Indicator Species

- Designate one or more aquatic MIS for the interim period. Such designation should include the following documentation: 1) basis for determining the selected MIS adequately represent(s) the aquatic biota and native faunal assemblages of the Forest for planning purposes;
  2) recognized MIS habitat relationships, based on published/unpublished research, professional judgment, administrative studies/surveys, effectiveness monitoring, or from ongoing research/validation monitoring; 3) MIS habitat objectives; 4) MIS monitoring objectives and rationale for the selection of monitoring and evaluation designs, protocols and methods; and 5) contingency plans for addressing concerns identified through monitoring.

- Analyze effects to all of the MIS that are known to, or could potentially, occur within the project area.

- Continue current MIS monitoring during the interim period.

Interim Direction for Ongoing Grazing Activities

- Review existing grazing permits, allotment management plans and grazing project decisions relative to the deficiencies identified in this appeal decision, to evaluate and document whether adequate measures are in place which provide for the diversity of plant and animal communities, and protect species viability during the interim period. Where existing measures are determined to be adequate, no further actions are required relative to ongoing grazing activities. Otherwise, the following measures will apply:

  1. Treat all environmentally protective guidelines in the Revised Plan as standards unless doing so would conflict with other interim direction.

  2. Specific conservation measures must be provided for sensitive species. Project files shall include an analysis of the known or expected effectiveness of such measures, relative to minimizing risks to sensitive species viability, based on best available scientific information.

  3. As part of the administration of grazing activities affecting streamside riparian areas, monitor one or more measures of stream habitat integrity. Commonly used measures can include one or more of the following: streambank stability, width-to-depth ratios, water temperature, streambank angle, dominant

streambed substrate, or other measures commensurate with maintaining the integrity of aquatic communities.

4. Protect sensitive plant populations in designated Botanical Areas from adverse impacts of domestic livestock grazing.

5. Ensure that all known colonies of sensitive snail species (Cockerell's striate disc and Cooper's Rocky Mountain snail) are protected from adverse effects of livestock use and other management activities.

My review of the record indicates the Regional Forester used the best information available for development of the majority of the Revised Plan. Public comment to the DEIS was incorporated and modeling techniques were updated. However, progress in science and technology continuously lead to discovery of new relationships and new information about natural environments. As a result, national forest planning is an ongoing, dynamic process. There is a continuing need to evaluate original assumptions as new information becomes available. In enacting the National Forest Management Act (NFMA), Congress recognized forest plans must be dynamic. Thus, NFMA includes provisions which delegate broad discretion to the agency with regard to monitoring, evaluation, amendments, and revisions. The land and resource management plans (LRMP's) are designed to be responsive to new information and changing conditions and demands (36 CFR 219.10 (f) and (g)). During the interim period, the Revised Plan provides the basic structure for project implementation, and is strengthened by the above interim direction. Once any needed adjustments to the Revised Plan have been completed, the BHNF will resume normally scheduled reviews to ensure the validity of planning assumptions. On the basis of these reviews, the Regional Forester will determine whether or not amendments to the Revised Plan are needed. If necessary, the Regional Forester should promptly initiate the process to amend the Revised Plan.

It is my decision that no further relief is warranted with respect to the majority of the issues and concerns raised by the appellants. The exceptions are the direction to the Regional Forester found above. Although I deny other relief as requested, I encourage the appellants to actively participate in the Action Plan analysis and adjustment process, project-level decisions, monitoring, evaluation, and future amendment and revision of the Revised Plan.

This is the final administrative decision of the Department of Agriculture unless the Secretary, on his own initiative, elects to review the decision within 15 days of receipt (36 CFR 217.17 (d)). By copy of this letter I am notifying all parties to the appeal of this decision.

Appendix D

Public Involvement

Part I – Coding Structure to Public Comments
Part II – Mailing List and List of Commenters
Part III – Comments and Response to Comments

Appendix D – Public Involvement

Scoping documents for the Phase I Amendment to the 1997 Revised Black Hills National Forest Land and Resource Management Plan were sent to the public for review and comment on October 27, 2000. There were 477 responses received from a diverse array of stakeholders and interested parties. The Forest used the Content Analysis Enterprise Team (CAET) to collect, sort and analyze each response. Each of the 477 response letters/cards was assigned a number (Part II, pages D-34 thru D-39). From each of the 477 response letters/cards, specific comments were identified. Each comment was assigned a number and assigned a subject category number. All comments were entered verbatim into a database. Part I of this appendix, displays the subject coding structure used to categorize each comment. Part II contains a list of individuals, groups, organizations, and agencies notified of the Phase I project and to invite their comment, and the list of those who commented. Part III of this Appendix, contains all of the Public Comments and the Forest Service responses to them, starting on page D-41.

The following key will help the reader to understand how to use and find comments, and the Forest Service response to them, contained in Part III of this appendix. Several comments were similar in content. If a comment is similar to one that has already been responded to, the reader will be referred to the previous comment and response. For example, see below.

CAT CODE refers to the subject category found on pages D-2 thru D-13.
LTR # refers to the number assigned to each letter or card received during scoping.
COMM # refers to the number assigned to each comment within a letter, or card.

CAT CODE	LTR #	COMM #	COMMENT TEXT	RESPONSE
10020	14	3	The decision maker needs to see and consider all comments.	Black Hills Forest specialists did see and respond to each comment.
10020	55	2	The Forest managers need to read all comments.	See response to comment #10020.14.3.

Part I - Coding Structure to Public Comments

Presented below is the list of categories or "codes" used to sort public comments on the Black Hills National Forest Plan Amendment Phase I.

CHAPTER 1.0: PURPOSE AND NEED

10000 PLANN ~ General Planning Process and Policy

10010 Multiple Use Philosophy *(general comments; code specifics to subject area)*
10020 General Environmental Protection Policy

10100 PLANN ~ Purpose and Need

10110 Purpose
10120 Need

10200 PLANN ~ Proposed action

10210 Decisions to be made
10220 Scope/range of issues *(general reference or disagreement)*
10230 Project timeframe *(appropriateness)*
10240 Management scale *(appropriateness of proposed scale; one-size-fits-all comments)*
10250 Use of science in decision-making process
10260 Clarity of scoping letter and relationship to FEIS
10270 Monitoring and enforcement
10280 Adaptive management

10300 PLANN ~ Public Involvement and Collaboration

10310 Public Involvement General *(general reference to adequacy of process)*
10320 Public Collaboration General *(general references to collaborating with the public*

10400 PLANN ~ Interagency Coordination, Consultation, and Collaboration

(includes state, county; see tribal section for tribal consultations)

10410 Managing across jurisdictions *(protocol and need for managing across jurisdictions)*

10500 PLANN ~ Relationship to Other Planning Processes

10510 Roadless Area Conservation
10520 Transportation policy
10530 Revised Planning Regulations
10540 Forest Planning Process

10600 PLANN ~ Relationship to Applicable Laws, Regulations and Policy

10610 NFMA *(National Forest Management Act)*
10620 NEPA *(National Environmental Policy Act)*
10630 MUSYA *(Multiple Use – Sustained Yield Act)*
10640 FLPMA *(Federal Land Policy and Management Act)*
10650 ADA
10660 APA
10670 FACA *(Federal Advisory Committee Act)*
10680 Forest Service Manuals, regulations etc.
10690 Wilderness Act

10700 PLANN ~ Agency Organization, Forest Service Management Consideration

10710 Funding for Forest Service *(likelihood of future funding; budget allocation)*
10720 Organization structure and Staffing

10800 PLANN ~ Funding for Black Hills National Forest

10810 Funding for Black Hills National Forest *(reference to existing and potential funding sources)*

10820 Cost benefit analysis *(analysis of comparison of cost of BHNF Amendment and projected benefits)*

CHAPTER 2.0: ALTERNATIVES

20000 ALTER ~ Alternative development

20100 Alternatives not considered in detail

20200 Range of Alternatives *(general reference to adequacy of range of alternatives)*

20300 Suggestions for new alternatives

CHAPTER 3.0: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

30000 ENVIR ~ Biological elements (environment general)

30010 Biodiversity scales *(see p 3-126 in FEIS for definitions below)*

30020 Cumulative effects analysis *(general for DEIS lack of cumulative effects analysis; see other categories for other more specific cumulative effects)*

Physical elements

30100 ENVIR ~ Watersheds, groundwater, water quality

30110 Direct and indirect effects of management activities on water/watersheds

30120 Legal and administrative framework

30130 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*

30140 Management direction *(general references to desired future management)*

30150 Monitoring management effects *(effects of alternatives on water, general future protocol, costs and processes)*

30160 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

30200 ENVIR ~ Air quality, soils, flooding and cave resources

30210 Direct and indirect effects of management activities on physical resources

30220 Legal and administrative framework

30230 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*

30240 Management direction *(general references to desired future management)*

30250 Monitoring management effects *(effects of alternatives on physical resources, general future protocol, costs and processes)*

30260 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

Wildlife

31000 WLIFE ~ Wildlife General References (included general aquatic wildlife references)

31010 Direct and indirect effects of management activities on wildlife
31020 Legal and administrative framework (Endangered Species Act compliance)
31030 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
31040 Management direction *(general references to desired future management)*
31060 Connectivity/Fragmentation *(also code wildlife and habitat corridors here)*
31070 Monitoring management effects *(effects of alternatives on wildlife, general future protocol, costs and processes)*
31080 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis for wildlife)*

31100 WLIFE ~ Threatened and Endangered Species (TES)

31110 Direct and indirect effects of management activities on TES
31120 Legal and administrative framework (ESA compliance)
31130 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
31140 Management direction *(general references to desired future management)*
31150 Monitoring management effects *(effects of alternatives on other mammals, general future protocol, costs and processes)*
31160 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis; incl. effects on private property)*

31200 WLIFE ~Fisheries

31210 Direct and indirect effects of management activities on fisheries
31220 Legal and administrative framework
31230 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
31240 Management direction *(general references to desired future management)*
31250 Monitoring management effects (effects of alternatives on fisheries, general future protocol, costs and processes)
31260 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

31300 WLIFE ~ Other Management Indicator Species (MIS) includes aquatic MIS

31310 Direct and indirect effects of management activities on MIS
31320 Legal and administrative framework
31330 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
31340 Management direction *(general references to desired future management)*
31350 Monitoring management effects *(effects of alternatives on snails, general future protocol, costs and processes)*
31360 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

31400 WLIFE ~ Species of public concern (desired non-native species, hunted and trapped species)

31410 Direct and indirect effects of management activities on species of public concern
31420 Legal and administrative framework
31430 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
31440 Management direction *(general references to desired future management)*
31450 Monitoring management effects *(effects of alternatives on species of public concern, general future protocol, costs and processes)*
31460 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

<u>Region 2 sensitive species</u>

32000 WLIFE ~ American Marten

32010 Direct and indirect effects of management activities on American Marten
32020 Legal and administrative framework
32030 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
32040 Management direction *(general references to desired future management)*
32050 Monitoring management effects (effects of alternatives on American Marten, general future protocol, costs and processes)
32060 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis for American Marten)*

32100 WLIFE ~ Other Mammals (including bats)

32110 Direct and indirect effects of management activities on other mammals
32120 Legal and administrative framework
32130 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
32140 Management direction *(general references to desired future management)*
32150 Monitoring management effects *(effects of alternatives on other mammals, general future protocol, costs and processes)*
32160 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

32200 WLIFE ~ Northern Goshawk

32210 Direct and indirect effects of management activities on Northern Goshawk
32220 Legal and administrative framework
32230 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
32240 Management direction (general references to desired future management)
32260 Monitoring management effects *(effects of alternatives on Northern Goshawk, general future protocol, costs and processes)*
32270 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis for Northern Goshawk)*

32300 WLIFE ~ Woodpeckers

32310 Direct and indirect effects of management activities on woodpeckers
32320 Legal and administrative framework
32330 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
32340 Management direction *(general references to desired future management)*
32350 Snag dependent species and habitat
32360 Monitoring management effects *(effects of alternatives on woodpeckers, general future protocol, costs and processes)*
32370 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

32400 WLIFE ~ Other Birds

32410 Direct and indirect effects of management activities on other birds
32420 Legal and administrative framework (Migratory Bird Treaty Act)
32430 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
32440 Management direction *(general references to desired future management)*
32450 Snag dependent species and habitat
32460 Monitoring management effects *(effects of alternatives on other birds, general future protocol, costs and processes)*
32470 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

32500 WLIFE ~ Reptiles

32510 Direct and indirect effects of management activities on reptiles
32520 Legal and administrative framework
32530 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
32540 Management direction *(general references to desired future management)*
32550 Monitoring management effects *(effects of alternatives on reptiles, general future protocol, costs and processes)*
32560 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

32600 WLIFE ~ Amphibians

32610 Direct and indirect effects of management activities on amphibians
32620 Legal and administrative framework
32630 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
32640 Management direction *(general references to desired future management)*
32650 Monitoring management effects *(effects of alternatives on amphibians, general future protocol, costs and processes)*
32660 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis*)

32700 WLIFE ~Butterflies

32710 Direct and indirect effects of management activities on butterflies
32720 Legal and administrative framework

32730 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
32740 Management direction *(general references to desired future management)*
32750 Monitoring management effects (effects of alternatives on butterflies, general future protocol, costs and processes)
32760 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

32800 WLIFE ~Snails

32810 Direct and indirect effects of management activities on snails
32820 Legal and administrative framework
32830 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
32840 Management direction *(general references to desired future management)*
32850 Monitoring management effects *(effects of alternatives on snails, general future protocol, costs and processes)*
32860 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

33000 PLANT ~ Vascular Plants, Bryophytes and Fungi

33010 Direct and indirect effects of management activities on vascular plants, bryophytes, and fungi
33020 Legal and administrative framework
33030 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
33040 Management direction *(general references to desired future management)*
33050 Monitoring management effects *(effects of alternatives on vascular plants, Bryophytes and fungi, general future protocol, costs and processes)*
33060 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis for vascular plants, Bryophytes and fungi)*

Vegetation management

40000 VEGET ~ Forested ecosystems

40100 Direct and indirect effects of management activities on forested ecosystems
40200 Legal and administrative framework
40300 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
40400 Management direction *(general references to desired future management; general forest management)*
40500 Monitoring management effects *(effects of alternatives on forested ecosystems, general future protocol, costs and processes)*
40600 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

41000 VEGET ~ Non-forested ecosystems

41100 Direct and indirect effects of management activities on non-forested ecosystems
41200 Legal and administrative framework
41300 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*

41400 Management direction *(general references to desired future management; general forest management)*
41500 Monitoring management effects *(effects of alternatives on non-forested ecosystems, general future protocol, costs and processes)*
41600 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

42000 VEGET ~ Riparian areas/wetlands

42100 Direct and indirect effects of management activities on riparian areas/wetlands
42200 Legal and administrative framework
42300 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
42400 Management direction *(general references to desired future management; general forest management)*
42500 Monitoring management effects *(effects of alternatives on riparian areas/wetlands, general future protocol, costs and processes)*
42600 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

Natural disturbance processes

50000 NADIS ~ Fire and fuels

50100 Direct and indirect effects of management activities on fire and fuels
50200 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
50300 Management direction *(general references to desired future management)*
50400 Costs of fire suppression *(effects on counties/communities)*
50500 Monitoring management effects *(effects of alternatives on fire and fuels, general future protocol, costs and processes)*
50600 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

51000 NADIS ~ Insects and disease

51100 Direct and indirect effects of management activities on insects and disease
51200 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
51300 Management direction *(general references to desired future management)*
51400 Monitoring management effects *(effects of alternatives on insects and disease, general future protocol, costs and processes)*
51500 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

Use and Occupation of the forest (special management areas and uses)

60000 SPECL ~ Roadless areas

60100 Direct and indirect effects of management activities on special areas
60200 Legal and administrative framework
60300 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
60400 Management direction *(general references to desired future management)*

60500 Monitoring management effects *(effects of alternatives on special areas, general future protocol, costs and processes)*
60600 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis for special areas)*

61000 SPECL ~ Wilderness

61100 Direct and indirect effects of management activities on special areas
61200 Legal and administrative framework
61300 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
61400 Management direction *(general references to desired future management)*
61500 Monitoring management effects *(effects of alternatives on special areas, general future protocol, costs and processes)*
61600 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis for special areas)*

62000 SPECL ~ Wild and scenic rivers,

62100 Direct and indirect effects of management activities on special areas
62200 Legal and administrative framework
62300 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
62400 Management direction *(general references to desired future management)*
62500 Monitoring management effects *(effects of alternatives on special areas, general future protocol, costs and processes)*
62600 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis for special areas)*

63000 SPECL ~ Scenic resources

63100 Direct and indirect effects of management activities on special areas
63200 Legal and administrative framework
63300 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
63400 Management direction *(general references to desired future management)*
63500 Monitoring management effects *(effects of alternatives on special areas, general future protocol, costs and processes)*
63600 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis for special areas)*

64000 SPECL ~ Botanical areas (RNA's)

64100 Direct and indirect effects of management activities on botanical areas
64200 Legal and administrative framework
64300 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
64400 Management direction *(general references to desired future management)*
64500 Monitoring management effects *(effects of alternatives on botanical areas, general future protocol, costs and processes)*
64600 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis for vascular plants, Bryophytes and fungi)*

65000 RECRE

65100 Direct and indirect effects of management activities on recreation
65200 Legal and administrative framework
65300 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
65400 Management direction *(general references to desired future management)*
65500 Monitoring management effects *(effects of alternatives on recreation, general future protocol, costs and processes)*
65600 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

66000 TRAVL ~ Travel opportunities

66100 Direct and indirect effects of management activities on travel
66200 Legal and administrative framework
66300 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
66400 Management direction *(general references to desired future management)*
66500 Monitoring management effects *(effects of alternatives on travel, general future protocol, costs and processes)*
66600 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

67000 TRAVL ~ Forest transportation system

67100 Direct and indirect effects of management activities on forest transportation system
67200 Legal and administrative framework
67300 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
67400 Management direction *(general references to desired future management)*
67500 Administrative Use *(protocol for administrative use)*
67600 Monitoring management effects *(effects of alternatives on forest transportation system, general future protocol, costs and processes)*
67700 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

<u>Production of Natural Resources</u>

70000 MININ

70100 Direct and indirect effects and mitigation of management activities on mining
70200 Legal and administrative framework
70300 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
70400 Management direction *(general references to desired future management)*
70500 Monitoring management effects *(effects of alternatives on mining, general future protocol, costs and processes)*
70600 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

71000 TIMBR

71100 Direct and indirect effects and management of management activities on timber

71200 Legal and administrative framework
71300 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
71400 Management direction *(general references to desired future management)*
71600 Monitoring management effects *(effects of alternatives on commercial forest products, general future protocol, costs and processes)*
71700 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

72000 GRAZE

72100 Direct and indirect effects and mitigation of management activities on grazing
72200 Legal and administrative framework
72300 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
72400 Management direction *(general references to desired future management)*
72500 Monitoring management effects *(effects of alternatives on grazing, general future protocol, costs and processes)*
72600 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

Social and Economic Consequences

80000 SOCEC

80100 Direct and indirect effects of management activities on society
80200 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
80300 Management direction *(general references to desired future management)*
80400 Shifting resource burdens (globally)
80500 Environmental Justice Executive Order compliance *(management compliance, also general social justice and equal opportunity)*
80600 Monitoring management effects *(effects of alternatives on society, general future protocol, costs and processes)*
80700 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

81000 SOCEC

81100 Direct and indirect effects of management activities on economy
81200 Legal and administrative framework
81300 Analysis of existing conditions and needs for further analysis *(accuracy/description of existing conditions)*
81400 Maintaining community stability *(general references)*
81500 Community costs and revenues *(general references)*
81600 State and county costs *(effects on counties/communities)*
81700 Sustaining levels of forest products and services *(need and appropriate levels)*
81800 Contributions of recreation/tourism to economies
81900 Monitoring management effects *(effects of alternatives on economy, general future protocol, costs and processes)*
82000 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

83000 TRIBA ~ American Indian Rights and Interests

83100 Direct and indirect effects of management activities on American Indian rights and interests
83200 Legal and administrative framework
83300 Federal Trust Responsibilities
83400 Role of Indian Law in National Forest Planning
83500 Treaty rights
83600 Social and economic conditions
83700 Management direction *(general references to desired future management)*
83800 Monitoring management effects *(effects of alternatives on* American Indian rights and interests*, general future protocol, costs and processes)*
83900 Cumulative effects analysis *(references to need or accuracy of cumulative effects analysis)*

Part II – Mailing List and List of Commentors

The following is a list of Organizations, Businesses, State and Federal Agencies and Individuals to which the Phase I Environmental Assessment was sent.

Organizations and Businesses

Honorable Gene G Abdallah, SD House of Representatives
Anthony A Addison Sr, Northern Arapaho Business Council
Honorable Stan Adelstein, SD House of Representatives
Senator Kenneth D Albers, SD Senate
Dennis Anderson, Custer County Hwy Dept
Greg Anderson, WY Game & Fish Dept
Stanley H Anderson, WY Cooperative Fish & Wildlife Research Unit
Mark H Andrus, Episcopal High School
Honorable Jerry Apa, SD House of Representatives
Tina Arapkiles, Sierra Club
Madonna Archembeau, Yankton Sioux Tribe
Keith Aubry, Pacific Northwest Research Station
Darrell Ausborn, USDI Bureau of Indian Affairs Winnebago Agency
Douglas Backlund, SD Game Fish & Paraks
Robin Bailey, Office of Senator Michael B Enzi
Andy Baker, USDI Bureau of Indian Affairs Winnebago Agency
Bill Baker, SD Homebuilders
Mr Gail Baker, Three Affiliated Tribes
Don Baldwin, Sturgis Sawmill
Mr & Mrs Don Baldwin, MW Ranch
Leland Baron, SD Dept Water Quality
Honorable Julie Bartling, SD House of Representatives
Dr R A Battaglia, SDSU Coop Extension Service
Keith Beartusk, Bureau of Indian Affairs
Gary Beauvais, University of Wyoming
Honorable Eli Bebout, Wyoming State Legislature
Kenneth Beer, Pioneer Bank And Trust
Honorable Tim Begalka, SD House of Representatives
Ron Beiswenger, Univ of WY Dept of Geography & Rec

Leonard Benson, Pioneer Coop Grazing Dist
Diane Berigan, WY Assoc Prof Archeologists
Venice Beske, WY Statewide Info Service
Wilbur Between Lodge, Oglala Sioux Tribe
Martin Beutler, SDSU West River Ag Center
Joe Big Medicine Jr, Cheyenne/Arapaho Tribe
Bryan Bird, Forest Conservation Council
Erik N Birk, Lawrence County Plan & Zone
Robert Black D-8580, Bureau of Reclamation
Mr Ben Black Bear, Rosebud Sioux Tribe
Clayton Blankenship, Spokane Creek Resort
Senator Eric Bogue, SD Senate
R Boham, Indian Natural Resource, Science And Engineer o
Mr Albert Bordeaux, Rosebud Sioux Tribe Forestry
Ms Fern Bordeaux, Tribal Land Enterprise
Carla Boucher, United Four Wheel Drive Assoc
Gregg Bourland, Cheyenne River Tribal Office
Larry Bourret, WY Farm Bureau
Sandy A Boyce, Pacific Northwest Research Station
Jerry J Boyer, Spearfish Canyon Foundation
Brian D Brademeyer, Sierra Club BHGroup
Honorable Jim Bradford, SD House of Representatives
Dave Brenneisen, Pope & Talbot Inc
Mike Brewer, Univ of Wyoming
Honorable B Michael Broderick Jr, SD House of Representatives
Honorable Don Brosz, SD House of Representatives
Bobbi Brown, Office of Senator Craig Thomas
Dennis Brown, Newberg Lumber Co
Honorable Jarvis W Brown, SD House of Representatives
Honorable Richard E Brown, SD House of Representatives
Mr Francis Brown, Medicine Wheel Coalition
Senator Arnold M Brown, SD Senate
Gene Bryan, WY Bc Division Tourism
Stephen Buchholz, Rapid City Journal
Jeff Buechler, Dakota Research Services
Kurt Buer, BH RC&D
Pam Buline, Office of Senator Craig Thomas
Cherie Burd, Office of Senator Michael B Enzi
Honorable Quinten Burg, SD House of Representatives
Henry Burkwhat, SD Dept Agriculture
Mayor Winifred Bush, Town of Hulett
Gene Campbel, Bureau of Land Management
Cathy Carlson, National Wildlife Federation
Jasper Carlton, Biodiversity Legal Foundatn
Joe Carter, Carter Inc
Mr Reginald Cedar Face, Pine Ridge Indian Health Service
Richard A Chancellor, Land Quality Division
Steve Chaplin, The Nature Conservancy
Lyle Chase, Bureau of Land Management
Honorable Judy Clark, SD House of Representatives
Tom Clarke, SBA-ONRSA
Sam N Clauson, Sierra Club, BH Group
Laura Cleland, Independent Forest Products Assn
Jim & Tammy Clyde, Clyde Company
Bill Coburn, SD Tree Farm Committee
Cliff Coburn, NM State Univ Ag Econ

Attn: Cindy Cody, Environmental Review Coordinator
Tom Collins, WY Game & Fish Dept
John Cooper, SD Dept Game Fish & Parks
Steve Corn, Aldo Lepold Wildernes Research Institute
Steve Cournoyer, Yankton Sioux Tribe
Dr W W Covington, Northern Arizona University
Kyra J Crago, Crago Family Trust
Ross Crago, Crago Family Trust
Elgin Crows Breast, Three Affiliated Tribes
Darrell Cruea Director, SD Dept Agriculture
Honorable Barbara Cubin, US Congress
John Culhane, Consolidated Papers Inc
Travis Cundy, WY Game & Fish
Kirk Cunningham, Sierra Club
Steve Darling, Off-Road Riders Association
Honorable Thomas Daschle, US Senate
Senator Dennis Daugaard, SD Senate
Honorable Kay Davis, SD House of Representatives
Ina R Davis, Rainbow Ranch
Senator Patricia De Hueck, SD Senate
Greg Dean, SD Chamber of Commerce
Shelly Deisch, SD Dept Game Fish & Parks
Mike Demersseman, Black Hills Fly Fisherman
Robert Demersseman, Rc Economic Dev Partnership
Stanley Dempsey, Environmental Strategies Inc
Senator H Paul Dennert, SD Senate
Butch Denny, Santee Tribal Office
Honorable Michael Derby, SD House of Representatives
Deirdre Desmond, Cheyenne River Sioux Tribe
Honorable Larry W Diedrich, SD House of Representatives
Honorable Elmer Diedtrich, SD House of Representatives
Frank J And Marilyn Dobesh, SD Stockgrowers
Victor Douville, Sinte Gleska University
Senator Bob Drake, SD Senate
Dan Driscoll, US Geological Survey
Km & Shirley Driskill, T Cross T Ranch
Honorable Jay L Duenwald, SD House of Representatives
Jeff Kessler & Donald J Duerr, Friends of Bow/Biodiversity Assoc
Duerr Kessler Stanfield, Friends of Bow/Biodiversity Assoc
Honorable J P Duniphan, SD House of Representatives
James Dunn, Spearfish Canyon Homeowners Assoc
Senator Robert N Duxbury, SD Senate
Honorable Scott Eccarius, SD House of Representatives
Charles Edwards, Lawrence Conservation District
John Edwards, National Wild Turkey Federation
Sherry Eisner, Oglala Sioux Parks And Recreation Auth
Honorable Burt Elliott, SD House of Representatives
Tracy & Margaret Ellsbury, Ellsbury Ranch
Donald R Emch Supt, Hill City School District #51-2
Honorable Michael Enzi, US Senate
Honorable Michael B Enzi, US Senate
Doug Eoute, SD Dept Parks & Recreation
Mr John Estes, Lower Brule Treaty Council
Jd Estip, Estip Logging
Senator Barbara Everist, SD Senate
Fremont Fallis, Sicangu Lakota Treaty Council Office

William O Farber, I.D. Weeks Univ Library
Mark Ferrell, Univ of Wyoming
Mr Edgar Fire Thunder, Oglala Sioux Tribe Parks & Rec Dept
Mr Robert Firman, Office of Senator Tom Daschle
Del First, Ft Peck Sioux Treaty Council
Mary Flanderka, BH Regional Multiple Use Coalition
Steve Flanderka, Neiman Sawmill
Senator Charles R Flowers, SD Senate
Mr Jerry Flute, Assoc On American Indian Affairs
Jerry Foster, BH 4-Wheelers
Marie T Fox Belly, Oglala Sioux Tribe
Tom Freeman, BH 4-Wheelers
H Paul Friesema, Northwestern University
Honorable Larry Frost, SD House of Representatives
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Butte County Commissioners
Chadron Record
City of Custer
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City of Keystone
City of Newcastle
City of Spearfish
City of Whitewood
CP Limited Liability Corp
Crook County Attorney
Crook County Fsa Office
Crook County Planning Commissioner
Crook Cty Road & Bridge Dept
Custer County Chronicle
Custer County Courthouse
Custer County Library
Daily Post
DC Booth Fish Hatchery
Dickson Media
Fall River Archers
Fall River Co Weed & Pest
Fall River Extension Service
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Griffith Memorial Library
High Country Herald
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Morgan Sawmill
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Pioneer Review
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Sturgis Public Library
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The Journal
The News
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Indian Country Today
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102	JIM NEIMAN, DEVILS TOWER FOREST PROD
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104	LINDA TOKARCZYK, BEARLODGE MULTIPLE USE ASSN
105	MARK SEMLEK, OFC OF CNTY COMMR/CROOK CNTY
106	W NOBLE, NEIMAN TIMBER CO
107	GAE & ARNE KOSKI
108	ALVIN MAEL
109	GEORGE BOCK
110	TIMOTHY STOVER
111	GENE NORMAN
112	BRIAN BRADEMEYER, BLACK HILLS GRP SIERRA CLB
113	DAN JANOVY
114	DAN MELANSON
115	TOM PENNING
116	TOM SHAFFER
117	DWIGHT PEIR KING
118	JAY JOHNS
119	JIM SUOBOCHA
120	CURTIS TENOLD
121	ROBERT HENRICKSEN
122	RON BEARS
123	GARY THOLE
124	KATHY FLOWERS
125	LORETT PREUSS
126	D GOEDERS
127	RANDY ROBERTS
128	CHRIS PENNING
129	THOMAS LUCAS
130	GERALYN BJORKLUND
131	MIKE NEELY
132	DONALD ANNIS
133	TOM EUBANKS

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134	JODY SOHM
135	CHED VOYLES
136	DAVID ANEHMUTY
137	GREG HAUBER
138	ROBERT CODY
139	TROY WILSON
140	SYLVAN STRONGHEART, JR.
141	JAMES DIRKS
142	JASON DUNNAHOE
143	PAUL DANIELS
144	DAN CARSON
145	CODY CARSON
146	RODNEY ROBERTSON
147	LINDA ELLEFSON
148	BART TRUCANO
149	KEN KING
150	JOHN TRACY
151	TERRY PAGE
152	JAMES VOLL
153	JOHN HILL
154	CHRIS THOLE
155	D MADDISON
156	JULIA LAND
157	BOB HAUBER
158	JERRY LAND
159	STEVE BRIEN
160	LOYD JOHNSON
161	JOE NRERUAUH *
162	JILL JOHNSON
163	ALISA SVOBODA
164	MONROE MC DANIEL
165	DELORES MAHONEY
166	RICHARD OSTER
167	STEPHANIE GOODWIN
168	COLT MASSIE
169	RESIDENT, *
170	ALFRED J. REYNOLDS
171	MIKE STEVENS
172	RICHARD REEDY
173	MARY REEDY
174	TOM MILLER
175	BRUCE BROWN
176	WALTER MANAHAN
177	DIANN ROBERTS
178	DONALD BENJAMIN SR
179	ROD DE CENT
180	SHERI STINSON
181	TROY TRODGEN
182	RONALD PARKS

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183	DICK HELMANDOLLAN
184	PATRICIA SHAW
185	CHANCE SYLVESTER
186	RICKY ESTRADA
187	KASEY COFFIELD
188	RAYMOND VAUGHN
189	ALMA BENEDICT
190	JOAQUIN BULTO
191	TOMAS GONZALES NIEVES
192	ARMANDO GUTIERREZ
193	LUIS SANCHEZ
194	GEA FROGDEN
195	MICHAEL HOLSWORTH
196	REX KING
197	JOHN HANAN
198	CONNIE LINDMIER
199	JAMES HOXIE
200	MICHELE KURTENBACH
201	RICAHRD BOYBLUE
202	REX KING
203	GARY ANDERSON
204	JOEY CARLSON
205	DAVID LEWIS
206	JIM EHRMERTAUT
207	CECILIA GASTON
208	BRICE DENTON
209	BOB OILVER
210	LAUREL DANCEY
211	RITTER ROBERT
212	MICHAEL KORKAW
213	NICOLE SHRINER
214	CURT TERMEER
215	RICHARD GONZALES
216	CRAIG ROMAN
217	DAN TOWNSEND
218	DELANE MC GILLIVRARY
219	DALE HAYFORD
220	RANDY LEWIS
221	MARTIN TOBAR
222	JEFF LEONARD
223	DAVID PHELPS
224	DAVID BRENNEISEN
225	DAN HORSLEY
226	STEVE VOLK
227	CHARLES HOHEN
228	PAT DIENSTIL
229	JONA HAGEN
230	KIP SCHELLER
231	BARRY SCHALLER

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232	ALLEN EQURISON
233	ALFRED GRENSTINER
234	NORBERT ROTH
235	RON EWING
236	JAKE SHOOK
237	DAKOTA FORESTRY CONSULTING INC
238	NICK NOVAK
239	MARLENE SIMONS
240	BARNEY WAGNER
241	LEWIS MC COY
242	GEORGE RINKER
243	LARRY MATTHESEN
244	BRUCE BYRUM
245	GEORGE KRUNG
246	ANSWOLTH BENNIAL CONST
247	JAMES DUNN
248	JIMMY MASSEY
249	LARRY KELLOGG
250	DANIELS & JOHN DANIELS BRISLY
251	DALE TOMLISON
252	VERNE SHEPPARD
253	PAUL TURBIVILLE
254	OLIVER SWANSON
255	GRANT HENNING
256	TRAVIS JONES
257	NICK EYRICH
258	KEN HOLSTROM
259	DON ANDERSON
260	MICHAEL HOLSWORTH
261	ANONYMOUS
262	MARIUM JENSEN
263	RICHARD CORDELL
264	ROSS PETERSON
265	BRANDON MILLIKEN
266	AL YOUNG
267	ALLAN TAIT
268	LEROY VAN CLEAVE
269	JEFF PLOOSTER
270	CHARLES HABKER
271	MANUEL BAD MILK
272	BRIAN CHALL
273	PETELO SINAMONI
274	JOHN SMITH
275	CRAIG HAMMOND
276	BRIAN WRIGHT
277	JIM SORENSEN
278	BRENDA SORENSEN
279	KEN MC GHEE

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280	TIM DANLEY
281	DAVE DE MARANVILLE
282	CECIL CURLEY, JR.
283	DONALD YOUNG
284	DUANE BREWER
285	RON MC NUTT
286	ALFRED BRAVEHAWK
287	KEITH DANLEY
288	LENNIE HOOK
289	MAURICE SKATES
290	FOSTER JENSEN
291	JEROME JOHNSON
292	QUENTIN DANLEY
293	RAY CLARK
294	TIM WILLIAMS
295	SHAUN MC VEY
296	BRYANT SMITH
297	GARTH HENDERSON
298	MARK TURNER
299	AARON FORNEY
300	KARL RANTA
301	DEAN PENNEL
302	KEITH MYERS
303	ROBERT PLAISTED, SR.
304	JESS JONES
305	CLINT PLAISTED
306	DOUG THOMPSON
307	HAROLD SMITH
308	F FAIRBAIRN
309	SANDRA JORDAN
310	STEVE SOELZER
311	STEVEN FLICH
312	RESIDENT *
313	HOWARD UPLAND
314	PAIGE CROFF
315	LARRY BURY
316	JEROME BERTSCH
317	COY L. HOMES
318	DECK PARIS
319	TINA MOORE
320	DAVE SAMUELSON
321	DANIEL HAWEY
322	MIKE NOYER
323	GARETH DEAL, JR.
324	DONALD & JULIE REUER
325	RYAN ZEIDLER
326	RON NESS
327	DORASHAL STANLEY
328	DOUG THEEL, AG & NTRL RESRCS CMMTE

LTR. NO.	INDIVIDUAL/ORGANIZATION
329	RICK ROTHLEUTNER
330	RESIDENT *
331	CHUCK CARLSON
332	JIM RARICK
333	BILL HERN
334	LEE RAABE
335	RICK SPERRY
336	LARRY PRIVRATSKY
337	TERRY HAUF
338	GARY COULSTINE
339	MIKE CHRUBAK
340	KEITH BELLA
341	BRIAN RUSHIA
342	BOB STENSGAARD
343	JIM & ERICA HUSTED
344	RICH ELLISON
345	RYAN STRAND
346	BILLY YOUNG
347	TOM SCHULTZ
348	WAYNE MARK
349	NICK REED
350	JACK BEHRENS
351	KEVIN LAHREN
352	BRETT WHEALY
353	BRAD SKYBERG
354	AL GARY
355	BRIAN HEIN
356	WAYNE HALVORSON
357	ROGER GREER
358	ALLEN WEIDNER
359	TAMMY HALL
360	GUY YAUNG
361	MIKE MURK
362	JOE ALLEN
363	DALE STRONG
364	TOD PETERSON
365	DOUG ELLISON
366	JERRY AUSTIN
367	RICHARD WILLIAMSON
368	MERLIN JORGENSON
369	JUD PARSONS
370	RPVERT WITT
371	ROGER ROSE
372	DAN OTT
373	MATT LEETON
374	DOUG OLSON
375	JEFF PINGREY
376	LEWIS KREBS
377	VERLYN BOURNE

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378	STEVE PESTULK
379	BILL COBURN
380	SCOTT WAVER
381	CHAD MERCHEN
382	DARRELL BORG
383	MIKE CHAPELL
384	DAN MECANSON
385	JODY PARKER
386	FRANKLIN MANKE
387	TOMOKO PAAOWE
388	WADE WEAVER
389	JOHN NIKUDYM
390	TODD CARLSON
391	RESIDENT *
392	ANTONIO PAEZ ISTEBAN
393	RODNEY TRABING
394	STEWART STEELE
395	DALE STANGE
396	DAYLE MC KEE
397	RICHARD DINSON
398	JANETTE MC INTYRE
399	LLOYD BOOHER
400	LAYNE DVORALE
401	JASON JEFFREY
402	BRET BURGHER
403	DEAN STOEBNER
404	TOM SEIFERT
405	TIM LIPP
406	STEVE LANGENBAU
407	JAMES NEIMAN
408	TOM SHAFFER
409	SAMSON BEARS
410	SAMSON BEARS
411	KEVIN NEST
412	TROY TRODGEN
413	MICHELE KURTENBACH
414	JOHN HANAN
415	GENE NORMAN
416	JAMES NEIMAN
417	DRUSE KELLOGG
418	WAYNE & VALERIE RYAN
419	WAYNE & VALERIE RYAN
420	CURTIS NUPEN
421	CURTIS TENOLD
422	CHARLES WILBURN
423	ELAINE DUGAN
424	BOB KOSKI
425	CHARLES EDWARDS
426	ELDON CHRISTIANS

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427	VERN TIMMERMAN
428	KEVIN FRASIER
429	SCOTT EBERHARD
430	BILL BAKER
431	STEVE DARLING
432	STEVE DARLING
433	KELLY KAUFMAN
434	GARY HOXENG
435	LORIE EICHART
436	PAUL MC IMUONEY
437	DANIEL COLE
438	GLEN HANSON
439	KARL JENSEN
440	ROBERT MALLOW
441	TERENCE KARIREN
442	JERRY RUESER
443	BILL VIRTUE
444	DELE KUKUCHKA
445	BRAD WOJAHN
446	COREY WOJAHN
447	RICHARD KORNMANN
448	BOB MEYER
449	CRIS MILLER
450	BRUCE STINSON
451	JEAN STINSON
452	DIANNE MILLER,
453	ROBERT MALLOW
454	RAYMOND OSLOOND
455	ROBERT MALLOW
456	KARL JENSEN
457	KRISTY HOXIE
458	BEN HOXIE
459	FRITZ CARLSON
460	RON & PAM GILLESPIE
461	IVA GRUBL
462	STEVE SOELZER
463	ROSS PETERSON
464	NICK PITHAROVLIS
465	JEROME BERTSCH
466	MIKE NOYES
467	WAYNE & VALERIE RYAN
468	QUENTIN DANLEY
469	JESS JONES
470	DONALD RAUSCH
471	JOHN FARRIER
472	MARK & JEANNE & JACK HETLEY
473	CLARENCE FOOS
474	LINDA RABE
475	BOB KOSKI

LTR. NO.	INDIVIDUAL/ORGANIZATION
476	W THOMPSON
477	NANCY HILDING, PRAIRIE HILLS AUDBN SCTY
478	CAROL FOOS

* unable to read signature

Part III – Comments and Response to Comments

CAT CODE	LTR #	COMMENT #	COMMENT TEXT	RESPONSE TO COMMENT
10000	63	6	Go back to 1945 management. The FS management before the new 10 yr. plan was much superior. I have lived in the BH Forest for 54 yrs. The trees grew bigger, then, the fires less deadly, the habitat was sufficient. The failure to control bugs, the over population of wildlife is detrimental.	Going back to management strategies of 1945 is beyond the scope of the Phase I Amendment. Insect control would continue to be part of the management of the Black Hills National Forest.
10000	432	1	Stop the War on the West!	This comment is outside the scope of the Phase I Amendment.
10010	5	7	I would like to state that I believe the Black Hills National Forest has been well managed until recent years when the National policy seems to have become don't enjoy it, don't use it, the result has been the recent fire so it seems that at the national level you would rather burn it than use it.	The Black Hills National Forest will continue to be managed for multiple uses. The Deputy Chief identified deficiencies in the Revised Forest Plan that needed to be addressed. Additional management direction is is incorporated Alternatives 2 and 3 to assure management options will not be foreclosed during the period needed to re-evaluate the sufficiency of the Revised Forest Plan in maintaining species diversity and viability. Overall the direction would lessen the level of risk for species for which there may be a viability concern by providing greater protection during the interim period, while still providing the opportunity to continue management activities. Management on the Black Hills National Forest will continue to incorporate the Multiple-Use Sustained-Yield Act and the National Forest Management Act requirements of providing for multiple uses of several products and services. Forest management would continue to be a tool used to improve habitat conditions and maintain or enhance vegetative diversity. The EA discusses forest health and fire management in Chapter 3. Also see response to comment #10000.63.6.
10010	23	1	I take the view that the forest is under-managed unused gift from God that has polluted the hills with excess timber. The canopy of thick jack pines holds the snow off the ground which allows air to dry snow before it reaches the ground. When we do not adequately manage a renewable resource God will by fire, insects, heavy wind and snow, slow growth from heavy stands, lack of adequate water. Heavy canopy also prevents forage brush & grasses to grow for game and domestic animals. I am sure that you know all of this. It is very difficult to manage the Hills Forest to the best use for all on a short budget, personnel, and all the bureaucratic paper work connected with forest management: then add the time it takes to answer and counter (if you can) those who place more value on a tree, bird or ecosystem than on human life! Ecology systems have come and gone along with many animals since God created this great earth and they and man will continue to do so. We cannot stop the process but we can work with it. I cannot place the responsibility for the current condition of the forest on the present management. All of us must take responsibility for its present condition because we have been interested in its condition until we are about to lose the use of access to its many uses.	Comment noted. See response to comment #10010.23.11.
10010	23	11	I will draw to a close by saying that the most important need, in my view, is in this order: More logging, control of pine beetle, control of pine beetle infestation. These three things done adequately will keep the forest healthy and contribute to a health eco-related systems!	Comment noted. Management on the Black Hills National Forest will continue to incorporate the Multiple-Use Sustained-Yield Act and the National Forest Management Act requirements of providing for multiple uses of several products and services. Management direction for providing commodity outputs and control of insect damage is

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				maintained under all alternatives considered in detail.
10010	30	1	Please help us to preserve our national forest for the use that it was originally intended for. Recreation and to provide natural resources for our lively hood.	Comment noted. See response to comment #10010.5.7.
10010	40	6	The National Forests were set aside to provide timber and water for the people of the area. Nothing should be done to change the purpose.	Comment noted. See response to comment #10010.5.7.
10010	67	6	I strongly support multiple use.	Comment noted. See response to comment #10010.5.7.
10010	70	6	Please keep our forests open to all Americans.	Comment noted. See response to comment #10010.5.7.
10010	80	6	Our family enjoys snowmobiling in the Black Hills - management is the key. Multiple use, not lock up.	Comment noted. See response to comment #10010.5.7.
10010	81	1	Please keep multiple use forestry management alive. An overall healthy forest is more important than do nothing management. You are planning our forests to death.	The Black Hills National Forest will continue to be managed for multiple uses. The Deputy Chief identified deficiencies in the Revised Forest Plan that needed to be addressed. Additional management direction is incorporated Alternatives 2 and 3 to assure management options will not be foreclosed during the period needed to re-evaluate the sufficiency of the Revised Forest Plan in maintaining species diversity and viability. Overall the direction would lessen the level of risk for species for which there maybe a viability concern by providing greater protection during the interim period, while still providing the opportunity to continue management activities. Management on the Black Hills National Forest will continue to incorporate the Multiple-Use Sustained-Yield Act and the National Forest Management Act requirements of providing for multiple uses of several products and services. Forest management would continue to be a tool used to improve habitat conditions and maintain or enhance vegetative diversity. The EA discusses forest health in Chapter 3.
10010	88	6	Please keep our forests for the people - all the people.	Comment noted.
10010	89	6	Please keep the forests multiple use so everyone can benefit from them.	Comment noted. See response to comment #10010.5.7.
10010	93	6	Keep multiple use management.	Comment noted. See response to comment #10010.5.7.
10010	101	1	As you know our family, our business and our communities are partners with the Forest Service in completing their mission to manage and protect our forests. I like the other millions of Americans want to see the Black Hills National Forest grow and flourish as the crown jewel of multiple use and forest management.	The Black Hills National Forest will continue to support multiple uses. The Deputy Chief identified deficiencies in the Revised Forest Plan that needed to be addressed. Additional management direction is incorporated Alternatives 2 and 3 to assure management options will not be foreclosed during the period needed to re-evaluate the sufficiency of the Revised Forest Plan in maintaining species diversity and viability. Overall the direction would lessen the level of risk for species for which there may be a viability concern by providing greater protection during the interim period, while still providing the opportunity to continue management activities. Management on the Black Hills National Forest will continue to incorporate the Multiple-Use Sustained-Yield Act and the

CAT CODE	LTR #	COMMENT #	COMMENT TEXT	RESPONSE TO COMMENT
				National Forest Management Act requirements of providing for multiple uses of several products and services. Forest management would continue to be a tool used to improve habitat conditions and maintain or enhance vegetative diversity.
10010	102	1	As you know our family, our business and our communities are partners with the Forest Service in completing their mission to manage and protect our forests. I like the other millions of Americans want to see the Black Hills National Forest grow and flourish as the crown jewel of multiple use and forest management.	See response to comment #10010.101.1.
10010	103	4	The net outcome of either of the action alternatives will be a major disruption of the uses on the Forest, a disruption, I might add, that is not adequately justified by the information presented in the scoping letter.	See response to comment #10010.81.1. The Forest sent an updated Newsletter in December 2000 to clarify information.
10010	117	6	Logging and grazing livestock on National Forest lands has worked well for years until you people stuck your over managing hands into the works. Get real.	Comment noted. See response to comment 10010.101.1.
10010	324	6	Keep logging going. Keep hunting, fishing, ATVs in Hills.	Comment noted. See response to comment #10010.5.7.
10010	434	1	Let[']s keep the land open for all of us to use.	Comment noted. See response to comment #10010.5.7.
10010	450	1	Enforce the LAW-Keep the Forest open to multiple use!	Comment noted. See response to comment #10010.5.7.
10010	451	1	Follow the LAW-Keep the Forest MULTIPLE USE.	Comment noted. See response to comment #10010.5.7.
10010	456	4	Proper management of all natural resources is at a critical point for the National Forest Lands. Along with the species viability and diversity, we also need to address our cultural and economic values of Lawrence County. Multiple uses such as timber harvesting, livestock grazing permits, and recreation are important roles in Lawrence County.	Social and economic (employment and income, payments to counties) are discussed in Chapter 3 of the EA. Also see response to comment #10010.5.7 pertaining to multiple use management.
10010	474	2	We believe the Phase I amendment should be designed to have the least possible effect on the implementation of the revised forest plan including timber harvest, recreation, grazing permits, and access. We urge you, as part of the Phase I amendment, to fully analyze the effect proposals may have on multiple use of the forest.	Comment noted. See response to comment #10010.5.7.
10020	55	1	NFPA and FCC are dedicated to protecting and restoring the integrity of our nation's forests and public lands, including the ecosystems they provide and the cultural and biological heritage they sustain. NFPA and FCC believe that commodity extraction on America's public lands is not a legitimate use and makes no sense economically or ecologically.	Comment noted. National Forests are managed in accordance with laws and regulations such as the Multiple Use Sustained Yield Act, National Forest Management Act, National Environmental Policy Act, and the Forest and Rangeland Renewable Resources Planning Act. The Black Elk Wilderness provides an area with the absence of commodity extraction. Effects of the Phase I Amendment are discussed in Chapter 3 of the EA. See also response to comment # 10010.5.7.
10020	74	6	Imagine a forest without trees or living things.	This comment is outside the scope of the Phase I Amendment.

CAT CODE	LTR #	COMMENT #	COMMENT TEXT	RESPONSE TO COMMENT
10020	478	1	Too much government intervention is a problem in all aspects of life. Those at the top are too influenced by special groups who won't need to Make a living, but have appealed to old widows, etc. with a sob story Of how bad things are & get large amts. Of money. The less Regulations there are the more reasonable it is to handle situations and The less staff needed to do this. Why let environmentalists have so much Say when they haven't really proved their point? For those who want a communist run country let them go to areas where that is the rule. We don't all the squabbling that goes on, but of course money spends.	Comment noted.
10100	61	2	[T]he purpose and need as described in the proposed action extends the scope of the Phase I Amendment beyond that described in the Settlement Agreement for Civil Action 99-N-2173. The proposed action indicates that the purpose and need is to assure that projects implemented during a complete re-evaluation of species viability and diversity will maintain viable populations of native and desired non-native species. As stated in the Settlement Agreement for Civil Action 99-N-2173, "the Phase I Forest Plan amendment shall address the Chief's interim direction contained in the October 12, 1999 decision in Appeal No. 97-13-00-0120" and further, "Phase II shall address all of the issues identified in paragraphs 2, 3 and 4 of this settlement agreement, including northern goshawk, Management Indicator Species, and Research Natural Areas."	The purpose and need of the Phase I Amendment EA is discussed in Chapter 1. Alternative 2 addressed the Deputy Chief's interim direction contained in the October 12, 1999 appeal decision. Accredited scientific experts were interviewed to obtain information on Region 2 sensitive species for use during the Phase I Amendment analysis. The interview information was summarized and (Expert Interview Summary for the Black Hills National Forest Land and Resource Management Plan Amendment, October 2000). Some scientist recommendations, appropriate for the short term, were incorporated into Alternative 3 to assure management options for sensitive species are maintained, as well as the communities and processes that maintain them. See also response to comment # 10240.34.7 and 10100.99.1.
10100	99	1	We do not agree with the stated Purpose and Need. As stated in the Settlement Agreement for Civil Action 99-N-2173, "the Phase I Forest Plan amendment shall address the Chief's interim direction contained in the October12, 1999 decision in Appeal No. 97-13-00-0120" and further, "Phase II shall address all of the issues identified in paragraphs 2, 3, and 4 of this settlement agreement, including northern goshawk, Management Indicator Species, and Research Natural Areas". We also do not agree with the time frame outlined in the Purpose and Need. Again, as stated in the Settlement Agreement for Civil Action 99-N-2173, "Phase II is anticipated to be completed in 2002".	See response to comments #10240.34.7 and 10240.99.9. The Forest is in compliance with the Settlement Agreement. Alternative 2 addresses the interim direction, and Phase II will address the required issues. Nothing in the Settlement Agreement limited the Forest to considering only the Deputy Chief's Interim Direction as an alternative in Phase I. The timeframe necessary to complete the Phase II Forest Plan Amendment is approximately 2-5 years. Preliminary work has already begun. The Forest will be steadfast and committed to completing the Phase II analysis in the shortest timeframe possible.
10100	99	17	We recommend the following:-that the Forest clarify the Purpose and Need to be consistent with the language in the Settlement Agreement, specifically that the scope of the Phase I amendment should be limited to consideration of the Interim Direction, and that the Phase II amendment should be completed in 2002.	Comment noted. See response to comment #10100.99.1, 10240.34.7 and 10240.99.9.
10100	100	1	We do not agree with the stated Purpose and Need. As stated in the Settlement Agreement for Civil Action 99-N-2173, "the Phase I Forest Plan amendment shall address the Chief's interim direction contained in the October12, 1999 decision in Appeal No. 97-13-00-0120" and further, "Phase II shall address all of the issues identified in paragraphs 2, 3, and 4 of this settlement agreement, including northern goshawk, Management Indicator Species, and Research Natural Areas". We also do not agree with the	Comment noted. See response to comment #10100.99.1, 10240.34.7 and 10240.99.9.

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			time frame outlined in the Purpose and Need. Again, as stated in the Settlement Agreement for Civil Action 99-N-2173, "Phase II is anticipated to be completed in 2002".	
10100	100	17	We recommend the following:-that the Forest clarify the Purpose and Need to be consistent with the language in the Settlement Agreement, specifically that the scope of the Phase I amendment should be limited to consideration of the Interim Direction, and that the Phase II amendment should be completed in 2002.	Comment noted. See response to comment #10100.99.1, 10240.34.7 and 10240.99.9.
10110	31	1	I believe the goal of the Phase I amendment should be to implement the forest plan with a minimal effect on the forest plan outputs, (grazing permits, public access, timber harvest, recreation). I do not feel there is a need for any new road closures in the Black Hills National Forest.	Comment noted. The EA identifies the purpose and need for the Phase I Amendment in Chapter 1. Effects of the alternatives are discussed in Chapter 3 of the EA. See also response to comment 10100.61.2.
10110	34	6	We are troubled with what has transpired with the Black Hills Forest Plan. It should not have happened. What took thousands of man-hours and millions of dollars has been subverted by the Chief's response to the Sierra Club's et. al. appeal. The Chief, by not following the advise and recommendations of his own local and regional experts, has created an unnecessary process which will have little positive impact on the alleged deficiencies while complicating the Forest Service's ability to manage the Black Hills National Forest for a full range of management objectives.	Comment noted. This comment is outside the scope of the Phase I Amendment.
10110	49	6	The comments that follow are therefore written with the understanding that the Revised Forest Plan, the Veteran Settlement Agreement, and even the Chief's interim direction are not sufficient to ensure the Black Hills will have viable, well-distributed populations of the species of concern on the Forest..	Comment noted. See also response to comment #10210.58.2.
10110	49	85	We again want to urge the Forest Service to develop and adopt a Phase I amendment that provides the strongest possible interim protections for the species of concern and their habitats throughout the Black Hills. Only in this way can the agency ensure these species will not suffer further declines in numbers or distributions. We strongly oppose any attempt to weaken or relax the Chief's interim direction or requirements of the Revised Forest Plan.	The alternatives considered for the Phase I amendment display a range from Alternative 1 (the no action alternative) which includes the existing Forest Plan direction; Alternative 2, which incorporates the Deputy Chief's interim direction designed to conserve management options during the interim period, and Alternative 3, which incorporates measures in the Deputy Chief's interim direction along with additional direction to further assure management options are maintained. Management on the Black Hills National Forest will continue to incorporate the Multiple-Use Sustained-Yield Act and the National Forest Management Act requirements of providing for multiple uses of several products and services. See also response to comment # 10210.58.2. Alternative 2, as modified in the Decision, also incorporates appropriate recommendations from the scientist interviews to reduce risks to species.
10120	11	1	It is obvious the sole reason for the existence of this proposed amendment is appeasement in the face of threatened future lawsuits. In our opinion, to hold the US Forest Service and, by proxy, the Citizens of the United States of America, hostage under such a threat amounts to the equivalent of environmental terrorism. Therefore, it is unfortunate to read a document such as this that will have such profound impact on management of the Black Hills	Comment noted. Chapter 1 discusses the purpose and need of the Phase I Amendment. See also response to comments #10010.101.1 and 10100.61.2.

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			National Forest. The lives and financial futures of thousands of our citizens hang in the balance of a decision to be made from a poorly written document that seeks to protect birds that are already thriving under current management policies. We have difficulty reconciling this deviation of process to the historically proven management principles that have served the Black Hills National Forest so successfully for 100 years.	
10120	26	3	We all can agree that there is far too much money and time being wasted in government analysis of the present Forest Plan. Let's not delay an already well-planned policy. No more goshawk habitat analysis; no road closures of existing roads.	Comment noted. The Black Hills National Forest will continue to be managed for multiple uses. The Deputy Chief's October 12, 1999 Appeal Decision identified deficiencies regarding the Revised Forest Plan. Management direction changes require plan amendments with analysis of effects to Forest resources.
10120	49	1	Despite its remarkable ecological values and diversity, the Black Hills has the sad distinction of being perhaps the most heavily impacted National Forest in the entirely country. More than 97% of the BHNF has been logged at least once, and most parts of the Forest have been logged repeatedly. Over 8,000 miles of roads have been build[sic] in the Forest, most of them constructed to facilitate commercial logging of the public lands. Nearly all of the old growth forest has been logged, there is a serious snag shortage, and few large patches of "interior" forest habitat remain. Livestock grazing and water development have severely impacted riparian areas, native plant communities, and streams.	Comment noted. Past management and activities were considered during the revision analysis for the Revised Forest Plan and were disclosed in the 1996 FEIS.
10120	473	1	The plan used from the 1800 to 1970 worked fine and was cost. Today we spend millions and are further from common cents than ever.	This comment is outside the scope of the Phase I Amendment.
10210	14	1	With the recent Jasper fire which cause about 83,500 acres timber, wildlife, plants and archaeological sites to be considered before any alternatives could be considered. I don't know what (BAER) team has recommended at this time.	This comment is outside the scope of the Phase I analysis. The April 2001 Jasper Fire Value Recovery Final Environmental Impact Statement (FEIS) discloses the site-specific proposals and effects within the Jasper fire area. The Burned Area Emergency Rehabilitation (BAER) team noted the majority of the burned area maintained a duff/litter layer that would provide appropriate seedbed. Rehabilitation measures identified included rehabilitation of the fire lines constructed in the efforts to control the fire. The Phase II analysis will include a review of the Jasper Fire area, as part of the Forest review, to evaluate if specific management direction is appropriate to address the conditions found in the burn area.
10210	19	1	My family and I have recently been starting to visit the area, which we've enjoyed very much. It appears to us a fragile environment, one that is quite threatened by heavy use and fragmentation, and we'd like to see you propose more protection for it than your new proposed amendment provides.	See response to comment #10010.101.1.
10210	20	1	I oppose any attempt to weaken the Chief's interim direction. To ensure viable, well-distributed populations, the Phase I amendment should offer the	See response to comments #10110.49.85 and 31010.49.8.

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			maximum possible interim protections for the species of concern on the Black Hills (including goshawks, marten, rare land snails, snag-dependent species, and rare plants).	
10210	20	2	Responsible stewardship also demands that the USFS provide strong protection for these species in the short 2-5 year interim period because once scarce habitat is degraded or lost, it may not be possible to recover it for the foreseeable future. Likewise, once a species' population becomes non-viable or poorly distributed due to lack of suitable habitat, it is very difficult to correct.	See response to comments #10110.49.85 and 31010.49.8.
10210	21	1	I'm opposed to any change in the original Forest Plan of 1997. There is nothing non-significant about this proposal.	Comment noted. The Phase I EA discusses significance in Chapter 1. See response to comment #10210.112.5.
10210	26	1	I believe it is your duty to manage our public National Forest with all concerned interests taken into consideration. These should include Washington's concerns about species viability and diversity. They should also include local concerns and possible effects on Black Hills recreation, timber harvest, grazing permits, and public access. Ideally, the Black Hills National Forest should provide new documentation to Washington without changing or delaying the Forest Plan.	The Forest will continue to be managed with multiple use goals, including species viability and diversity, possible effects on Black Hills recreation, timber harvest, grazing permits, and public access. The Deputy Chief identified deficiencies in the Revised Forest Plan that need to be addressed. The Appeal Decision contained measures to be incorporated in the short term to reduce risks to plant and wildlife species. Some of the measures revise existing direction in the Forest Plan, while other items are new direction. To add additional measures and to change existing measures within the Forest Plan requires an amendment to the Forest Plan. The Appeal Decision further instructed the Forest to re-analyze species viability and diversity. This re-analysis (Phase II) is anticipated to take two to five years to complete, and will include opportunities for public involvement. Providing new documentation to Washington without amending (changing) the Forest Plan would not address the NFMA concern with regard to the diversity of plant and animal communities, and species viability. Changing the Forest Plan without amending the Forest Plan would be inconsistent with the National Environmental Policy Act and regulations at 36 CFR 219.
10210	36	1	This is to inform you that I oppose any attempt to weaken Chief Dombeck's interim direction. The Phase I amendment should offer maximum possible interim protection for all species of concern on the Black Hills, including goshawks, marten, snag-dependent species, and rare plants. Responsible stewardship of the Black Hills Forest demands that the FS provide protection for these species in the interim period because, once their habitat is degraded or lost, it may not be recoverable in the foreseeable future.	See response to comments #10110.49.85 and 31010.49.8.
10210	50	8	The Chief's direction for wildlife changes in the Revised Plan were not completely included in your proposals. Since the Chief identified deficiencies of the Forest Plan, why aren't you concerned about of these addressing all problems?	The intent of Phase I is to amend Forest Plan direction to guide individual project planning until re-analysis of the Forest Plan is complete (2-5 years). The Deputy Chief provided the Forest with Interim Direction so that management could continue during the time it takes to re-evaluate the Forest Plan, such that species viability and diversity are protected. The Phase I assessment addresses the deficiencies identified in the Forest Plan Appeal Decision to assure that

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				projects implemented during the time period it takes to complete the re-evaluation of the Forest Plan will maintain viable populations of native and desired non-native species. Alternatives 2 and 3 incorporate the Deputy Chief's interim direction from the October 12, 1999 appeal decision in standards and guidelines (see Phase I EA Appendix E for a full listing of changes to the Revised Forest Plan standards and guidelines) and monitoring items (see Phase I EA, Chapter 2 and Appendix F). Some items in the Deputy Chief's decision are found in existing Forest Service manual direction.
10210	50	13	The scientific review of Forest Plan direction for wildlife has substantiated NEC's ongoing concerns about the severe failure of the Black Hills Forest to protect wildlife. It does not seem, with respect to all the flaws in the Plan, that a non-significant amendment will suffice. This is all the more true since you are not going to do very much fixing in the interim period.	See response to comments #10210.58.2 and 10210.112.5.
10210	50	14	What we believe is necessary is to not only address the Chief's appeal response, but to look at all the problems that have been identified by your panels of scientists. We would like to see these problems addressed as quickly as possible in a significant amendment to the Plan. It seems likely that the Phase I and Phase II strategy will result in very little change to benefit wildlife, since widespread logging will continue over the short term in Phase I, and Phase II may never be done.	Alternative 3 incorporated the Deputy Chief's interim direction from the Appeal Decision and recommendations from scientists, appropriate for the short-term nature of the Phase I Amendment, to assure management options are maintained, as well as the communities and process that maintain them. Not all recommendations were incorporated due to conflicting recommendations and in other cases recommendations were for longer-term direction. Alternative 2, as modified in the Decision, also incorporates the appropriate recommendations.
10210	50	18	Implementation of adequate protective measures of wildlife is very important, and should not be rushed just to accommodate timber harvest. We would like to recommend that the Forest Service do just one significant amendment to the Forest Plan to address wildlife management for the next 1-15 years. There is adequate scientific information available to do this. This approach may take a little longer, but it would also save the Forest from a promise to do additional analysis (if this is actually ever done). We have been waiting a long time for better habitat management on the Black Hills. Your panels of scientists indicate there is a lot more that needs to be done RIGHT NOW for these species. Lets just get on with it, instead of all this stalling!	The Forest did consider doing only one amendment. This approach was developed into an alternative. However, this alternative was dropped from detailed study because it will take approximately 2-5 years to complete the re-evaluation and EIS of the Forest Plan.
10210	51	1	I am writing to tell you I am opposed to any attempt your office might make to dilute the Forest Service Chief's interim direction for correcting the weaknesses of the new Forest Plan. It is extremely important to me, as a person who loves the Black Hills National Forest, that the Forest Service make sure that the wildlife of the Hills are fully protected.	Comment noted. See response to comments #10110.49.85 and 31010.49.8.
10210	54	1	I oppose any attempt to weaken the chief's interim direction.	Comment noted. See response to comments #10110.49.85 and 31010.49.8.
10210	58	2	The "No Action" alternative is not possible. It is clear that the Forest must implement the interim guidance provided by the Washington Office. The real question that needs to be addressed is this: "Are current land	Alternatives 2 and 3 incorporate the Deputy Chief's interim direction. Accredited scientific experts were interviewed to obtain information on Region 2 sensitive species for use during the Phase I Amendment

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			management activities compatible with the species and their habitat?" Perhaps gathering more information on species present is needed but until that information is gathered, it should not be assumed that the current practices are harmful and that activities must cease, roads must close. This is reactionary and it isn't consistent with the multiple use mandate for our nation's forests.	analysis. The interview information was summarized and (Expert Interview Summary for the Black Hills National Forest Land and Resource Management Plan Amendment, October 2000). Alternative 3 incorporates the Deputy Chief's interim direction from the appeal and some of the recommendations from scientists to assure management options are maintained, as well as the communities and process that maintain them. Not all recommendations were incorporated due to conflicting recommendations and in other cases the recommendations were for longer-term direction. Management on the Black Hills National Forest will continue to incorporate the Multiple-Use Sustained-Yield Act and the National Forest Management Act requirements of providing for multiple uses of several products and services.
10210	58	4	Phase I should meet the concerns of Deputy Chief Furnish while at the same time having the least possible effect upon implementation of the revised forest plan, including timber harvest, recreation, grazing permits and access. It should not be necessary to impose more stringent guidelines than those requested by Furnish in his interim direction.	Comment noted. See response to comments #10210.58.2 and 10240.29.2.
10210	64	6	We need caretakers for our forest. But lets be reasonable about its use.	Comment noted. See response to comment #10010.101.1.
10210	95	6	We have one of the most beautiful and well managed forest in the world. If it ain't broke, don't fix it.	Comment noted. See response to comment #10110.101.1.
10210	98	2	Historically, rather than simply being the bridge "interim direction" was intended to be, management activity during excluded "interim direction" time frames have had overt influence on the basis for the next plan (in this case Phase 2).	Comment noted. The Phase II analysis will be based on an additional review of species information available. See also response to comment #10100.99.1.
10210	98	14	Finally, it is important to note that we are well aware of the "tough spot" the Forest Service is in with regard to this. We also understand the concept of positioning yourselves in a safe zone. Nonetheless, it is wrong that successful management of the Black Hills National Forest for over 100 years be held hostage to the litigation process brought by extremist organizations. Since it has been stated publicly that they will, in essence, sue no matter what the decisions made on this interim direction (Rapid City Journal, Wednesday, November 9, 2000, HABITAT PLAN RAISES LOGGERS' IRE), we would much rather see our tax dollars spent in defense of doing the right thing.	Comment noted. See response to comment #10210.58.2.
10210	99	21	We understand the importance of protecting the species on the Black Hills National Forest, but firmly believe that the issues associated with species viability and diversity are more related to a lack of data and monitoring information than with actual threats to any single species or groups of species. We are very concerned that the proposed Phase I amendment will undermine the tremendous success of past management and in the process do irreparable damage to the forest products industry, communities and families in the Black Hills. We urge you to take every possible step to avoid	See response to comment #10210.58.2.

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			this unnecessary calamity.	
10210	100	21	We understand the importance of protecting the species on the Black Hills National Forest, but firmly believe that the issues associated with species viability and diversity are more related to a lack of data and monitoring information than with actual threats to any single species or groups of species. We are very concerned that the proposed Phase I amendment will undermine the tremendous success of past management and in the process do irreparable damage to the forest products industry, communities and families in the Black Hills. We urge you to take every possible step to avoid this unnecessary calamity.	See response to comment #10210.58.2.
10210	101	11	I ask that you consider Balancing economic, social and biological effects of each alternative.	Comment noted. Both Phase I and Phase II analyses will consider impacts to the social, economic, biological and physical environments in and around the Black Hills National Forest.
10210	102	11	I ask that you consider Balancing economic, social and biological effects of each alternative.	Comment noted. Both Phase I and Phase II analyses will consider impacts to the social, economic, biological and physical environments in and around the Black Hills National Forest.
10210	104	3	The amendment also should only address the issues that the lawsuit specified. The amendment does not given the Forest Service license to alter other aspects of the forest plan that were not addressed in litigation.	See responses to comments #10100.61.2, 10240.34.7, and 10220.98.12.
10210	107	3	The on going "planning" needs to be stopped and the best interest of forest health needs to be permanent. This should include timber harvest, thinning, recreation, grazing and access to all CONTROLLED burns are also helpful.	The Phase I Amendment continues to incorporate the multiple use goals established in the Forest Plan. These goals include managing for timber harvest, thinning, recreation, grazing, access, and fire and fuels management, including prescribed burns. The EA discusses effects to resources and management in Chapter 3. Forest planning activities follow regulations at 36 CFR 219, and will continue to be an ongoing process incorporating new information as it becomes available.
10210	109	2	My priorities would be fire deterrence and suppression, balancing of entomology, disease control, practical harvest, reforestation, limited tenable mining, and recreation management. Oh yes, wildlife management.	Fuels treatments, fire suppression, measures to control insect and disease, timber harvest, reforestation efforts where needed, mining, recreation management and wildlife management are all activities that can occur under any of the Phase I Amendment alternatives. The EA, in Chapter 3, discusses the anticipated effects of the Phase I Amendment alternatives.
10210	110	1	The goal of the Phase I amendment should be to implement the forest plan with the least amount of diverse effects on the forest outputs, including timber, grazing, recreation and access.	Comment noted. See response to comments #10110.5.7 and 10240.34.7.
10210	110	6	It is time to set a plan and stick to it. Let's stop the endless planning. The forest was put here for the people to manage. Change is inevitable for all things, all things will adapt.	Comment noted. See response to comment #10210.112.5.
10210	111	2	Alternative 2 would incorporate the "interim direction" into the forest plan which would allow the Forest Service to proceed with new management	See responses to comments #10100.61.2 and 10210.58.2.

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			decisions between now and the completion of the phase 2 amendment. The phase 1 amendment should not go beyond Deputy Chief Furnish's "interim direction". The goal of the phase 1 amendment should be to implement the forest plan with the least effects on plan outputs, including timber harvest, recreation, grazing, access, and fire protection and fuel hazard reduction.	
10210	112	5	Last year, the Chief of the Forest Service ruled that the 1997 BHNF Revised Forest Plan is significantly flawed in a number of important respects, including a failure to provide for viable, well-distributed populations of goshawks, pine marten, land snails, rare plants, and snag-dependent species. The Chief also instituted strong interim direction to help protect wildlife and key habitats while population viability and other issues are being reassessed. The Chief instructed that this interim direction is to remain in effect until the Revised Forest Plan is amended. The Chief made no reference to a "non-significant" amendment. It is inconceivable that the short-circuited public participation process now being proposed is an acceptable alternative to the significant amendment process, or that such a fast-track process can be used to weaken the Chief's interim direction.	Changes to management direction in the Forest Plan requires that the Forest Plan be amended. The Deputy Chief made no determination regarding the significance of the interim direction. Significance is determined, based on NFMA requirements, by several factors, including whether or not the proposed change will alter long-term levels of goods and services projected by the Forest Plan. Phase I was determined to be non-significant because allocations are not changed and it is a short-term (2-5 years) adjustment in management direction until the Forest Plan can be re-evaluated under Phase II. Phase II may be considered to be a significant Forest Plan amendment, since adjustments to long-term levels of goods and services could be made. See also response to comment #10110.49.85.
10210	113	2	If needed, the Phase 1 Amendment should not "go beyond" Deputy Chief Furnish "interim direction". Phase 1 amendment should be to implement the forest plan with the least possible effects on forest plan outputs, including timber harvest, recreation, grazing permits and access.	See responses to comments #10210.58.2 and 10240.29.2.
10210	114	6	If we don't manage our forest, there won't be any animals or birds to protect. They will be black like our forest was last year - please stick to the 7 year plan.	See response to comment #10010.5.7.
10210	115	6	Go back to the 1980 plan - it worked!	This comment is outside the scope of the Phase I Amendment.
10210	123	6	Manage the Black Hills Forest as it has for the past 100 yrs or trees and animals will burn like the JASPER FIRE.	This comment is outside the scope of the Phase I Amendment. The Jasper Fire area had been managed extensively in the past; see the Jasper Fire Value Recovery Final EIS for further information.
10210	360	6	Clinton sold us out, please don't do the same, many families are counting on you.	This comment is outside the scope of the Phase I Amendment.
10210	407	1	The Forest Service was started to mange the Forest. Not cutting it and burning it is not management. You need to make a stand or we will all be out of jobs.	Comment noted. See response to comment #10010.5.7.
10210	408	1	We need to stop "alternativing" and treat the BHNF as the "Multiple use Jewel" that it is. The 1997 plan is a good one-lets go with it.	Comment noted. See response to comment #10010.5.7.
10210	409	1	Make a decision that will best benefit the people that live and work in the Black Hills. Not the big money people who don't know what we live and work for.	Comment noted. See response to comment #10010.5.7.

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10210	453	7	We disagree with an amendment that ignores impacts on other goals we've told you are important to local communities, such as economic stability, recreation, and water quality.	The EA in Chapter 3 discusses effects to economics, recreation and water quality. The Phase I Amendment does not change the overall goals of the Forest Plan of: 1) Protecting basic soil, air, water and cave resources; 2) Provide for a variety of life through management of biologically diverse ecosystems; 3) Provide for sustained commodity uses in an environmentally acceptable manner; 4) Provide for scenic quality, a range of recreational opportunities, and protection of heritage resources in response to the needs of the Black Hills National Forest visitors and local communities; 5) In cooperation with other landowners, strive for improved landownership and access that benefit both public and private landowners; 7) Improve financial efficiency for all programs and projects; 8) Promote rural development opportunities; 9) Provide high-quality customer service.
10210	454	1	First the goal of the Phase 1 amendment should be to implement the forest plan with the least possible effects on forest plan outputs, including timber harvest, recreation, grazing permits, and access.	Comment noted. See response to comment #10240.34.7.
10210	454	4	If needed, the Phase 1 amendment should not go beyond Deputy Chief Furnish's "interim direction".	Comment noted. See response to comment #10240.29.2 and 10210.58.2.
10210	456	1	As elected officials, our mission is to provide leadership in conservation and wise use of soil, water, and related resources through a balanced cooperative program that protects, restores, and improves those resources. We feel the best alternative should be to implement the forest plan with the least possible effects on the forest plan outputs, including timber harvest, recreation, livestock grazing permits and access for these uses. Any further road closures appears to unnecessary at this point.	The Black Hills National Forest will continue to be managed for multiple uses. The October 12, 1999 Forest Plan Appeal Decision identified deficiencies in the Revised Forest Plan. The Phase I Amendment will provide new management direction to assure species viability and diversity, while allowing project planning to continue. The Phase I direction will remain in place until the Phase II Forest Plan Amendment is completed. The Phase II amendment will fully re-evaluate the sufficiency of the 1997 Revised Forest Plan in relation to species viability and diversity.
10210	457	1	The goal of the Phase I amendment should be to implement the forest plan with the least possible effects on forest plan outputs, including timber harvest, recreation, grazing permits, and access.	Comment noted. See responses to comments #10010.5.7 and 10240.34.7.
10210	458	1	The goal of the Phase I amendment should be to implement the forest plan with the least possible effects on forest plan outputs, including timber harvest, recreation, grazing permits, and access.	Comment noted. See response to comment #10210.107.3.
10210	471	1	Upon reviewing the current Forest plan revision proposals I've come to the conclusion that the current plan is satisfactory, a great deal of time (years) was spent on its creation and I feel that making hasty revisions has the smell of someone trying to fabricate a "legacy" for themselves.	This comment is outside the scope of the Phase I Amendment. See also response to comment #10210.26.1.
10220	29	3	The Phase I amendment should be designed to have the least possible effect on the implementation of the revised forest plan, including timber harvest, recreation, grazing permits and access.	See response to comments #10010.5.7 and 10240.34.7.

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10220	50	2	We are also concerned about the arbitrary nature of the determination that the amount of acres to be impacted in this interim period are not significant. What are the criteria for this determination?	Significance is discussed in Chapter 1. See also response to comment #10210.112.5.
10220	58	1	We have several concerns with this proposed amendment. First, it is being termed a "non-significant" amendment. We disagree. This amendment and it's resulting consequences will be very significant particularly to the timber industry. As well, it will be significant in terms of financial and personnel commitments that will be required by U.S. Forest Service and the Wyoming Game and Fish Department(to name but a few) who will be heavily involved in building the sort of information that would be required under this amendment.	Significance is discussed in Chapter 1. Chapter 3 discloses effects. See also response to comment #10210.112.5.
10220	58	6	The intent of Phase I amendment is to address identified Forest Plan deficiencies which must be corrected to assure that projects implemented during the time period it takes to complete the plan's re-evaluation of species viability and diversity (up to 5 years) will maintain viable populations. The appellants original concerns regarding species viability and diversity were deemed significant, since this appeal point was upheld and ultimately led to the plan's re-evaluation. The amendment will provide additional guidance on the management of these species, and the "resulting changes anticipated in program work, including outputs", over potentially the next 5 years. This action should be considered significant, since it covers a time period equal to one-third the length of a regular Forest Plan, and a draft Environmental Assessment or Environmental Impact Statement provided for actions to be taken during that time period. As an example, under the Fisheries section on Page 4 of attachment 3, the USFS states the acres harvested would increase by 30% under Alternative 3 and decrease by 17% under Alternative 2 compared to the no action alternative. Given the substantial range in harvest activity, we fail to see how the amendment can be considered as non-significant. The justification for that classification should be provided, considering the total range of all actions and the cumulative impacts that could be take place under the listed alternatives.	Significance is discussed in Chapter 1. Chapter 3 discloses effects. See also response to comment #10210.112.5.
10220	60	4	The alternatives need to embody only what the lawsuit and interim direction are requiring. Any additionally requirements that they contain are extraneous and inappropriate.	Comment noted. See response to comment #10240.29.2.
10220	61	14	The BHNF intends the Phase I amendment to be a non-significant amendment to the Forest Plan and it will only be in place until the Phase II amendment process is completed. However, the Phase I and II scope appear to have been joined giving much greater significance to the Phase I Amendment. Originally, Phase II was expected to take two years; now it is expected to take two to five years. Given the amount and complexity of the data required for completing Phase II are at best unknown and possibly very significant. The cessation of most forest management activities for even two years is unacceptable and unnecessary.	Significance is discussed in Chapter 1 of the EA. The intent of Phase I is to amend Forest Plan direction to guide individual project planning until re-analysis of the Forest Plan is complete (2-5 years). The Deputy Chief provided Interim Direction so that management could continue during the time it takes to re-evaluate the Forest Plan, such that species viability and diversity are protected. The Phase I assessment addresses the deficiencies identified by the Deputy Chief to assure that projects implemented during the time period it takes to complete the re-evaluation of the Forest Plan will maintain viable populations of native and desired non-native species.

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				Alternatives 2 and 3 incorporate the Deputy Chief's interim direction from the October 12, 1999 appeal decision. Appendix E contains a full listing of changes to the Revised Forest Plan standards and guidelines. Monitoring items have been updated to address items identified in the Appeal Decision (see Phase I EA Appendix F). Some items in the Deputy Chief's decision are found in existing Forest Service manual direction. See also response to comment #10210.58.2.
10220	98	10	The Forest Service must do a very thorough job of analyzing the effects of such far-reaching decisions and justify the need for them in "interim direction". We are fairly sure we don't need to remind you, this is not the end result. It is only to serve as a bridge while the necessary science is completed to achieve the end result in amending the plan under Phase 2. It is our contention the Phase 1 Amendment as presented in the selectable alternatives constitutes more than "interim direction". Enough so that it could be argued that it is no longer, "non-significant" and should be addressed as a "significant amendment" and subject to the normal environmental assessment, environmental impact statement, etc., involved under the letter of the law.	Significance is discussed in Chapter 1. Chapter 3 discloses effects. See also response to comment #10210.112.5.
10220	98	12	Again, this presupposes the intent of the "interim direction" is the supplication to the Forest Plan rather than transition to Phase 2 which is supposed to be the supplication. This type of analysis belongs in Phase 2 and not in Phase 1. We think Phase 1 should include only what is necessary to maintain species viability and diversity.	See responses to comments #10010.101.1, 10210.26.1 and 10240.34.7.
10220	99	16	In our view, Alternative 3, as proposed, constitutes a significant change to the Forest plan, and for this reason alone, is not appropriate for consideration as the Phase I non-significant amendment.	Significance is discussed in Chapter 1. See also response to comment #10210.112.5.
10220	100	16	In our view, Alternative 3, as proposed, constitutes a significant change to the Forest plan, and for this reason alone, is not appropriate for consideration as the Phase I non-significant amendment.	See response to comment #10210.112.5.
10220	103	2	Instead of simply addressing the issues dealt with in the lawsuit, the proposed alternatives (except for the no action alt. of course) attempt to effect changes in the forest plan outside the scope of the specific lawsuit topics. Alternative 3 goes much too far in its proposed changes.	See responses to comments #10100.61.2, 10100.99.1, 10210.58.2, 10240.34.7 and 10240.99.9.
10220	112	1	We object to the Forest's intention to produce a "non-significant" amendment rather than preparing a full Environmental Impact Statement (EIS). The Forest is again refusing to comprehensively address the viability problem with other pressing issues on the Forest before authorizing resumption of activities with impacts that are not understood. The Forest has failed to address whether road building and even-aged management prescriptions (e.g., seed, shelterwood, and overstory removal cuts) are appropriate actions for an interim period directed to older forest remnants to compensate for the significant loss of goshawk habitat in	Significance is discussed in Chapter 1. The Jasper EIS acknowledges that the fire destroyed, or severely damaged, nine goshawk nest stands. One goshawk nest stand survived on the northern periphery of the fire. Two timber harvest units near this stand are currently under contract. Under the Jasper FEIS, the Forest plans to identify dead trees to be traded for the green trees in these units. This is an attempt by the Forest to mitigate, on the project level, for damage to the rest of that nest territory resulting from the fire. See the Jasper Value Recovery FEIS for further information regarding the Jasper Fire area.

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			the Jasper Fire area. Therefore, we feel BHNF must prepare a full EIS for the Phase I amendment before determining the appropriate range of ground-distributing activities to be allowed during the interim until the Phase II Amendment can be completed	
10220	112	3	As a threshold matter, it is our position that whenever there may be significant impacts(including cumulative impacts) associated with a proposed action, an EIS is needed even if the agency believes mitigation measures may reduce or offset the impacts to insignificant levels.	Significance is discussed in Chapter 1. No significant impacts will occur from this decision. Project level decisions actually implement. See also response to comment #10210.112.5.
10220	358	1	It is a national forest but more than that its the Black Hills of South Dakota. We should make people understand that.	This comment is outside the scope of the Phase I Amendment.
10220	457	3	If needed, the Phase I amendment should not go beyond Deputy Chief Furnish's "interim direction".	See responses to comments #10240.29.2 and 10210.58.2.
10220	458	3	If needed, the Phase I amendment should not go beyond Deputy Chief Furnish's "interim direction".	See responses to comments #10240.29.2 and 10210.58.2.
10230	17	5	[T]he Forest Service has to-GET IT DONE QUICKLY!	Comment noted.
10230	27	4	Regardless of your course of action for the Phase I amendment, I do not support dragging out further analysis for another 5 years. That would require too much time and money, and simply distracts from on-the-ground management.	Comment noted. The timeframe necessary to complete the Phase II Forest Plan Amendment is approximately 2-5 years. The analysis for Phase II has already begun with the gathering of additional information. The Forest will be steadfast and committed to completing the Phase II analysis in the shortest timeframe possible.
10230	29	6	Regardless of your concern of action for the Phase I amendment, I do not support dragging out further analysis for another 5 years. That would require too much time and money, and simply distracts from on-the-ground management.	See response to comment #10230.27.4.
10230	31	4	Despite the outcome of the Phase I amendment, the BHNF should adhere to the original schedule and complete the Phase II amendment within the time frame allotted.	See response to comment #10230.27.4.
10230	32	6	The analysis cannot drag out for another five years because continuity will be lost with personnel changes and ideas. I suggest that with the revisions to the forest plan the NEW revised plan be given the life of 10-15 years.	See response to comment #10230.27.4.
10230	34	8	It is also important that we go forward as quickly and efficiently as possible to finish the Phase One process and then complete Phase Two work and amendment within two years. As you know, every day that the process is delayed increases the risk of shutdown to our forest products industry and the loss of over 350 high paying jobs in our Lawrence County.	See response to comment #10230.27.4.
10230	50	1	The agency appears to be violating the NEPA by not only completing a non-significant amendment to the Forest Plan, but by not allowing public review of a draft environmental analysis. This "interim" analysis will	Significance is discussed in Chapter 1. See also response to comment # 10210.112.5. 36 CFR 217 (b)(a) does not include a requirement of a 30 day comment period for non-significant Forest plan

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			supposedly be in effect for 2-5 years. Five years is half of an entire planning period of 10 years. How can this be considered non-significant with respect to timing.	amendments not related to a project.
10230	50	5	There is no guarantee to the public that this non-significant amendment will only last 2-5 years, even though this is still a long time. How can you guarantee that the next analysis will actually be done?	Preliminary work on Phase II is already underway. Phase II is required by the Settlement Agreement. The Forest will be steadfast and committed to completing the Phase II analysis in the shortest timeframe possible. See also response to comment #10230.27.4
10230	62	6	It must be completed within 2 years.	See response to comment #10230.27.4.
10230	71	6	Enough time has been spent on the Forest Plan. Let's move on to final this plan and go to other things.	See response to comment #10230.27.4.
10230	98	1	The Phase I amendment proposal as presented defines itself as interim direction to be superceded by Phase 2 in two to five years. It is our contention this time frame is ambiguous toward completion of Phase 2 and extends potentially 3 years beyond time frames presented in other related documents such as the Settlement Agreement for Civil Action 99-N-2173.	See responses to comments #10100.99.1 and 20300.112.14.
10230	98	3	From the stated purposed as being "interim direction", the more important function is to get to the end of the need for "interim direction" which is Phase 2. Left to the 2-5 year time frame, that end will inevitably reach out to the 5 years rather than truncate at the 2 years which is adequate time for the project at hand which, according to the appeal decision is only to re-evaluate and supplement the record.	See response to comment #10100.99.1.
10230	98	5	The Forest Service has an obligation in this matter to the constituency of the local communities, to the Timber Industry and to the taxpayers at large. That is to identify and hold to a timely schedule in completing the Phase 2 groundwork and amendment. We contend that time frame should have a "drop dead" date of 2002.	See response to comment #10100.99.1.
10230	99	5	We believe that the Objectives for the Phase I Expert Interview process as outlined on page 2 of the Expert Interview Summary are inappropriate. Specifically, we do not agree that the "experts" should have been queried about the effects for a period beyond the anticipated date of completion of the Phase II amendment, i.e., 2 years. The Phase I amendment is designed specifically as transition direction until a more thorough analysis can be completed, not as the long-term solution itself.	See responses to comments #10100.61.2 and 10230.27.4.
10230	100	5	We believe that the Objectives for the Phase I Expert Interview process as outlined on page 2 of the Expert Interview Summary are inappropriate. Specifically, we do not agree that the "experts" should have been queried about the effects for a period beyond the anticipated date of completion of the Phase II amendment, i.e., 2 years. The Phase I amendment is designed specifically as transition direction until a more thorough analysis can be completed, not as the long-term solution itself.	See responses to comments #10100.61.2 and 10230.27.4.

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10230	101	8	I ask that you consider: Ensuring that the Phase II implementation be accomplished in 2002;	See response to comment #10230.27.4.
10230	102	8	I ask that you consider: Ensuring that the Phase II implementation be accomplished in 2002;	See response to comments #10100.99.1and 10230.27.4.
10230	110	5	No matter what alternative that is selected it should be done in an expedient manner, not more than the already planned 2 years.	See response to comment #10230.27.4.
10230	111	4	Phase 1 and 2 amendments to the Forest Plan need to be completed in the two year time period that was originally suggested. It is time to stop all the senseless waste of time and money that is spent in planning the management of the Black Hills National Forest. It is time to direct the time and effort into managing the forest for the forest health and the various multiple uses that the forest can provide.	See responses to comments #10230.27.4 and 10100.99.1.
10230	113	5	Regardless of the alternative selected for the Phase 1 amendment, the Black Hills NF should stick to their original schedule and finish the Phase II amendment in 2 years. For them to even suggest 5 years is outrageous and a waste of taxpayer's money. It is time to stop the endless planning and cowering to the special environmental interest groups.	See response to comment #10230.27.4.
10230	415	1	We need to stop this continuous planning program that the USFS has going and direct the budget dollars to on the ground programs.	Comment noted.
10230	454	6	Regardless of the alternative selected for the Phase 1 amendment, the BHNF should stick to its original schedule and finish the Phase 1 amendment in 2 years. For them to even suggest 5 years is outrageous. It's time to stop the endless planning.	See response to comment #10230.27.4.
10230	457	5	Regardless of the alternative selected for the Phase I amendment, the BHNF should stick to its original schedule and finish the Phase I amendment in 2 years. For them to suggest 5 years is outrageous. It's time to stop the endless planning.	See response to comment #10230.27.4.
10230	458	5	Regardless of the alternative selected for the Phase I amendment, the BHNF should stick to its original schedule and finish the Phase I amendment in 2 years. For them to suggest 5 years is outrageous. It's time to stop the endless planning.	See response to comment #10230.27.4.
10230	474	5	Regardless of the course of action for the Phase I amendment, we believe that the required Phase II amendment should be completed as quickly as possible. Continuing the planning process for possibly another 5 years will require considerable time and money, and distract from on-the-ground management of the Forest.	See response to comment #10230.27.4.
10240	27	1	I believe that the Black Hills National Forest should look for any possible opportunity to provide additional documentation to the Forest Service's Washington Office to satisfy their concerns about species viability and diversity. If a Phase I amendment is really needed, it should be limited to no more than incorporating Deputy Chief Furnish's Interim Direction into	There is a current lack of precise knowledge of what a viable population is for many of the species in question. This forest is working toward providing this information, but it will take time. The Phase II process, which is underway, is designed to satisfy population viability concerns. This process will use conservation assessments, more intensive

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			the revised forest plan until the Phase II amendment can be completed.	monitoring and pre-project surveys to accomplish the level of documentation required. See also responses to comments #10210.58.2 and 10240.29.2.
10240	29	2	If a Phase I amendment is really needed, it should be limited to no more than incorporating Deputy Chief Furnish's Interim Direction into the revised forest plan until the Phase II amendment can be completed.	The Deputy Chief's October 12, 1999 Appeal Decision identified deficiencies in the Revised Forest Plan. Some corrections (e.g. HABCAP corrections due to program errors related to cover and forage values for deer and elk) were discovered after the adoption of the Revised Forest Plan and are included in Phase I to be corrected. The Forest had planned to correct known items at the time the first amendment was proposed. The Regional Forester was the decision maker for the Revised Forest Plan, and the Chief's office is the Appeal Reviewing Officer. The changes to the Revised Forest Plan address the deficiencies identified by the Deputy Chief in the Appeal Decision. Reducing risks of adverse impacts to species viability and diversity will maintain management options during the interim period until the re-analysis of species viability and diversity is completed in Phase II. See also response to comment 10210.58.2.
10240	32	2	The Phase I amendment should be limited to, and directly in answer to the Deputy Chief Furnish's Interim Direction with the more detailed work being completed during the Phase II amendment period over the next two years (not the five years suggested).	See responses to comments #10210.58.2 and 10240.29.2.
10240	34	7	We do want to ensure that the Forest Service does what is only necessary to address the purported deficiencies. It is important to remember that you and the Regional Forester agreed on the management guidelines and standards in the 1997 LRMP. That opinion should not have been changed by the unnecessary directions that the Chief has decreed.	The Deputy Chief's October 12, 1999 Appeal Decision identified deficiencies in the Revised Forest Plan. Some corrections (e.g. HABCAP corrections due to program errors related to cover and forage values for deer and elk) were discovered after the adoption of the Revised Forest Plan and are included in Phase I to be corrected. The Forest had planned to correct known items at the time the first amendment was proposed. The Regional Forester was the decision maker for the Revised Forest Plan, and the Chief's office is the Appeal Reviewing Officer. The changes to the Revised Forest Plan address the deficiencies identified by the Deputy Chief in the Appeal Decision.
10240	50	3	It is not clear why two separate "amendment" phases are needed. This seems to be simply a postponement by the agency to deal with public concerns about viability of wildlife on the Black Hills Forest.	Chapter 1 of the Phase I Amendment EA discusses the adjustments to the Revised Forest Plan under in Section 1-2 under Background. The October 12, 1999 Appeal Decision identified the need for additional management direction to assure management options would not be foregone until the re-evaluation of species viability and diversity is completed. Changes to management direction are incorporated into the alternatives considered for the Phase I Amendment. Programmatic changes to Forest Plan direction require amendments.
10240	50	17	Can you make a determination on a management program which has yet to be developed? You have already decided that your Phase II program will be adequate to ensure viability, so that your Phase I program will be okay. How can you decide the environmental impacts of a	Chapter 1 of the Phase I Amendment EA discusses the adjustments to the Revised Forest Plan under in Section 1-2 under Background. The The Deputy Chief's October 12, 1999 Appeal Decision identified deficiencies in the 1997 Revised Forest Plan. Additional management

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			program that has yet to be developed?	direction is incorporated into Alternatives 2 and 3 to assure management options will not be foreclosed during the period needed to re-evaluate the sufficiency of the Revised Forest Plan in maintaining species diversity and viability. Overall the direction would lessen the level of risk for species for which there may be a viability concern by providing greater protection during the interim period, while still providing the opportunity to continue management activities. The Phase II analysis results will be disclosed in a future environmental impact statement.
10240	99	9	The Oct. 27, 2000 Phase I scoping letter states that "The intent of the Phase I effort is to ensure management options are maintained during the re-evaluation period (two to five years) for protection of species viability and diversity, while allowing some management activities to occur." The General Interim Management Direction from the Chief begins with the phrase "In order to maintain management options during the interim period...". These statements give a clear indication that the goal of the Phase I amendment is not to improve species viability and diversity, but to maintain it at current levels while the Phase II amendment is being formulated.	See responses to comments #10100.61.2 and 10100.99.1.
10240	100	9	The Oct. 27, 2000 Phase I scoping letter states that "The intent of the Phase I effort is to ensure management options are maintained during the re-evaluation period (two to five years) for protection of species viability and diversity, while allowing some management activities to occur." The General Interim Management Direction from the Chief begins with the phrase "In order to maintain management options during the interim period...". These statements give a clear indication that the goal of the Phase I amendment is not to improve species viability and diversity, but to maintain it at current levels while the Phase II amendment is being formulated.	See responses to comments #10100.61.2 and 10100.99.1.
10241	22	1	To ensure viable, well-distributed populations, the Phase I amendment should offer the maximum possible interim protections for the species of concern in the BHNF (including goshawks, marten, rare land snails, snag-dependent species, and rare plants). Responsible stewardship also demands that the BHNF provide strong protection for these species in the short 2-5 year interim period because once scarce habitat is degraded or lost, it may not be possible to recover it for the foreseeable future. Likewise, once a species' population becomes non-viable or poorly distributed due to lack of suitable habitat, it is very difficult to correct.	See responses to comments #10110.49.85 and 31010.49.8.
10241	26	2	The Phase I amendment should not go beyond Deputy Chief Furnish's "interim direction." Alternative 3 goes too far and should not even be considered for the Phase I amendment. I feel that Alternative 3 is too time-consuming, impractical, and a waste of money. It simply distracts from good management of our Black Hills National Forest.	See responses to comments #10210.58.2 and 10240.29.2.
10241	27	2	The Phase I amendment should be designed to have the least possible effect on the implementation of the revised forest plan, including timber	Chapter 3 discusses effects. Road closures may be considered in site-specific project analyses to address site-specific concerns

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			harvest, recreation, grazing permits and access. I do not support new road closures, because I do not want to lose more access to the Forest and also because I do not want the Forest to then have to consider those areas as "unroaded" during future analyses.	regarding soil erosion, water quality, and may be considered in areas where snag densities are low. See response to comment # 10010.101.1
10241	49	7	For the Phase 1 amendment, WE URGE THE USFS TO DEVELOP AND ADOPT THE STRONGEST POSSIBLE INTERIM PROTECTIONS FOR THESE SPECIES AND THEIR HABITATS IN THE BLACK HILLS. This is the only defensible approach for the interim period -- a period when the USFS wants to proceed with numerous new timber sales and other significant new development activities across the Forest prior to having completed the study needed to determine the actual status and needs of these species. This approach is also the most prudent and conservative approach to meet the USFS's stewardship and public trust responsibilities for the proper management of these species.	See responses to comments #10010.101.1, 10110.49.85 and 31010.49.8.

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10241	98	7	In reading through the related documentation and proposed alternatives, we have further concluded the Phase 1 Amendment proposal goes well beyond the needs of the interim direction given by Furnish in his decision. We contend that Phase 1 encroaches on issues that should be part of the Phase 2 process.	See responses to comments #10210.58.2 and 10240.34.7.
10241	106	1	From initial review of information provided and subsequent visits with yourself and staff, we remain very concerned that as presented, this amendment and analysis as exceeds direction from the Chief's office. It has been our understanding that Phase I was the vehicle to incorporate Interim Direction into current Forest Plan, not to provide such analysis so to severely impact current Forest Plan and outputs.	See responses to comments #10210.58.2 and 10240.34.7. The intent of the direction from the Deputy Chief was to protect species habitat needs and to comply with applicable laws and regulations. This Phase I Amendment and the Phase II Amendment are designed to do that and meet NEPA requirements.
10242	106	3	We would encourage that the Forest Service consider the concerns noted above, complete Phase I as soon as possible, and use Phase II as the vehicle for the detailed analysis. Our concern remains that planning should result in what is best for the land, the resource, and for local dependant communities.	See responses to comments #10010.101.1 and 10100.99.1.
10250	17	4	I ask that you: Avoid the pitfalls of fulfilling single species scientist 'wish lists' that are not based on any scientific studies in the Black Hills.	See response to comment # 10250.101.6.
10250	20	12	The expert interview process--purportedly used by the USFS to develop the weaker interim direction in Alternative 3--was flawed and must be done over with public oversight and input and with full documentation of expert testimony.	See response to comment #10110.49.85.
10250	22	25	The Forest Service did interview some experts about the BHNF wildlife, and some of the expert interview information will be useful for the Phase I amendment. However, before a draft EA or EIS is issued, the Forest Service must conduct a new and open expert interview process after the scoping process is completed. This is needed because: (1) some key experts were excluded from the process; (2) it appears the individuals who were interviewed by the BHNF were not give up-to-date and accurate information about the current conditions on the BHNF; (3) the interviews appear to have been prejudiced or handicapped by unreasonably narrow lines of questioning; (4)citizens were not given the opportunity to oversee the process and ensure its integrity; (5) the interviews were not recorded or fully documented so it is possible key statements, opinions, conclusions, or recommendations offered by the experts are not reflected in the "Expert Interview Summary". The BHNF should conduct new interviews and seek management recommendations from all experts who have published peer-reviewed scientific studies or a graduate thesis or dissertation on species of concern on the Black Hills. The BHNF should provide the experts with reliable, current data on habitat conditions in the Black Hills, and the agency should provide the experts with alternatives identified through the scoping process. All interviews must be recorded, and the public should be given the opportunity to review and comment on questions to be asked of the experts	(1) Experts were drawn from federal and state agencies and private organizations, with each individual having recognized technical knowledge of the species and ecological understanding of its habitat requirements. (2) The scientists were provided as much information as possible before and during the interviews. (3)(4) The interview process was developed in consultation with Richard Holthausen, Forest Service Washington Office biologist, and Dave Cleaves, Forest Service Research Washington Office. The interview process was determined to be an appropriate method for gathering the best scientific information prior to alternative development. The interviews were conducted prior to the public NEPA process in order to formulate the best preliminary alternatives possible. (5) While the interviews were not recorded on tape, notes were taken during the interviews and the scientists reviewed and edited the notes to ensure accuracy. See also response to comment # 10250.49.17.

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10250	35	11	[W]e are concerned that the "expert interview process" did not make use of the best available scientific information and unjustly excluded the public. We urge the Forest Service to start over with both of these processes to remedy these important problems.	See responses to comments #10250.22.25 and 10250.49.17.
10250	36	8	[T]he "expert interview" process used by the USFS to develop the poor interim direction in Alternative 3, appears flawed and must be redone with public oversight and input and with full documentation of expert testimony.	See responses to comments #10110.49.85 and 10250.22.25.
10250	42	6	Lets use SCIENCE, not Rhetoric, to finish this plan quickly and correctly!	Comment noted. See response to comment #10100.61.2.
10250	49	16	We applaud the Forest Service for seeking information from some of the scientists, researchers, and biologists who have expertise on the species of concern in the Black Hills. However, we have a number of serious concerns about the way the USFS conducted the interviews.	Comment noted. See responses to comments #10250.49.17 and 10250.49.20.
10250	49	17	The first problem we noticed with the expert interview process was that a number of individuals with obvious and essential expertise on the species of concern on the Black Hills were never interviewed. The following individuals clearly have particularized expertise about the Black Hills ecosystem and the issues involved in the amendment, yet they were apparently not interviewed by the Forest Service: Terrence Frest and Edward Johannes (the leading experts on lands snails of concern in the Black Hills and concluded logging and grazing are disastrous to these species);William Baker (who is one of the leading authorities on forest fragmentation in the Rocky Mountains, who has in particular studied forest fragmentation in the Black Hills with Shinneman, and who has expertise in fire ecology and landscape ecology); Douglas Shinneman (who is, perhaps, the leading authority on fragmentation in the Black Hills and who has also done extensive research of historical records showing the existence of large stand-replacing fires were part of the Black Hills ecosystem);Crompton (who studied the effects of logging bird species diversity in the Black Hills and found that only in unlogged patches larger than 1000 hectares was the full compliment of interior forest bird species observed, and noted a complete absence of brown creeper from logged areas);[continued to 18]	As explained in the 2000 Expert Interview Summary, two to five experts were interviewed for each species or group of species. The criteria for selection and the list of experts are provided in 2000 Expert Interview Summary, Appendix A and Appendix B, respectively. Experts were selected based on their recognized technical competence related to particular species, including knowledge of published scientific literature. Expert interviews were not the only source of information that was considered by the interdisciplinary team. Journal articles, books, theses and reports written by many of individuals mentioned were cited in the FEIS for the Revised Forest Plan and in the Phase I BA/BE (Baker, Frest and Johannes, Shinneman, Crompton, Bartelt, Erickson, and Turner). See also response to comment # 10250.49.20.
10250	49	18	[contd from 17]Brian Dykstra (who studied birds in the Black Hills and found that goshawks, sharp-shinned hawks, Cooper's hawks, great-horned owls, Swainson's thrushes, and black-headed grosbeaks were detected only in unharvested stands);Paul Bartelt (who has studied amphibians in the Rocky Mountains and found high mortality in frog eggs following harvest near water bodies, and who has also studied goshawks in the Black Hills and found they nest in stands with 12-20 inch DBH and a restricted area with a radius of 100 meters is too small for the Black Hills goshawk..._); Michael Erickson (who studied goshawks in the Black Hills and found that they nest in old growth ponderosa pine with 59-85% canopy cover);Jack States (who provided expert affidavit on the Revised Forest Plan is an authority on ponderosa pine succession, old growth, and goshawk habitat in p.pine communities);B. Huntsman, Richard Baumann, and Boris Kondratieff (who	See responses to comments #10250.22.25, 10250.49.17 and . 10250.49.20. Many of these researchers' information was available to the scientists interviewed, and several were cited in the 1997 Revised Forest Plan FEIS. Additional Information will be considered during the Phase II analysis. Five aquatic species are identified for MIS to meet the Deputy Chief's direction to designate at least one aquatic MIS species. The Selection Report for Aquatic MIS describes the process used to select the aquatic management indicator species considered in Phase I. The Phase II analysis will review the list of MIS used by the Forest, and . consider additional information.

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			have studied stonefly populations in the Black Hills recently; these researchers have concluded some populations of stoneflies within the Black Hills may have already been extirpated and that restoring the stonefly fauna of the Black Hills should be a priority_);Ronald Turner (who wrote the book Mammals of the Black Hills of South Dakota and Wyoming);Shelly Dubay (who studying flying squirrels and likely has information about the habitat needs and possible threats to this species that lives in the Black Hills); and Tate Fischer (who may have information on reptiles and amphibians in the Black Hills).None of these published researchers are mentioned in the Expert Interview Summary document. This is a fatal flaw in the information gathering process.	
10250	49	19	While Doug Backlund was interviewed about some species, he apparently was not about the American Dipper in the Black Hills. Given the precarious status of the dipper in the BHNF, the USFS should consult with experts such as Mr. Backlund to develop new direction for the Phase I amendment to address the needs of this species.	Chapter 2 of the Phase I EA and the 2000 Expert Interview Summary, explain that the interviews focused on Region 2 Sensitive Species that occur or potentially occur in the Black Hills. Region 2 Sensitive Species were specifically mentioned in the Deputy Chief's appeal decision, and are the species for which there is the most concern for viability. The American Dipper is not designated a Sensitive Species in Region 2 (FSM 2670 R2 Supplement No. 2600-94-2).
10250	49	20	We are not suggesting the USFS has an obligation to contact and interview every scientist who might have something worthwhile to contribute to the amendment process. However, we do feel the USFS has an obligation to seek information from all of the scientists and researchers who have done research on the Black Hills. Certainly, the people listed above have much to contribute, and it is wrong to ignore them in this important process. New interviews must be done to gather information from these and other obvious experts.	In conducting forest planning, the Forest Supervisor is responsible for assuring that the interdisciplinary team has access to the best available data. Interdisciplinary teams are to collect, assemble, and use data, maps, graphic material, and explanatory aids, of a kind, character, and quality, and to the detail appropriate for the management decisions to be made (36 CFR 219.12(d)). There is no requirement to interview all scientists and researchers who have conducted research in the planning area. As explained in the 2000 Expert Interview Summary, two to five experts were interviewed for each species. The criteria for selection and the list of experts are provided in the 2000 Expert Interview Summary at Appendix A and Appendix B, respectively. Experts were drawn from federal and state agencies and private organizations, with each individual having recognized technical knowledge of the species and ecological understanding of its habitat requirements.
10250	49	21	Another serious concern we have about the interview process is that the USFS failed to record the interviews. Indeed, the scoping materials indicate the Expert Interview Summary was prepared from notes and that the quality of the notes varies with such factors as the typing skills of the recorder. Because the interviews were not recorded, it is reasonable to expect that the most complicated answers were the ones most likely to have been poorly or inaccurately documented. Some questions and comments were probably not included at all in the Expert Interview Summary document. While it helps that the USFS circulated the Summary to the experts to make sure the agency had not made significant mistakes, this cannot undo the fact that the Summary is merely that -- a summary. It does not fully document all comments made during the lengthy discussions on the	Comment noted. While the interviews were not recorded on tape, notes were taken during the interviews and scientists reviewed and edited the notes to ensure accuracy. Notes from the interviews are located in the project file.

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			technical subject matters that covering a broad spectrum of issues. Thus, citizens have no way of knowing just what key remarks made by the experts may have been omitted from the Summary. This is undermines the integrity of the interviews and the amendment process. The experts need to be interviewed again, with all meetings fully recorded (at least audio) and transcribed to ensure the public has access to all of the same information and counseling the USFS had access to in this process.	
10250	55	12	The expert interview process-purportedly used by the USFS to develop the weaker interim direction in Alternative 3 -- was flawed and must be done over with public oversight and input and with full documentation of expert testimony. The USFS did interview some experts about the BHNF wildlife, and some of the expert interview information will be useful for the Phase I amendment. However, before a draft EA or EIS is issued, the USFS must conduct a new and open expert interview process after the scoping process is completed. This is needed because (1) some key experts were excluded from the process (contact Biodiversity Associates for a list), (2) it appears the individuals who were interviewed by the USFS were not give up-to-date and accurate information about the current conditions on the Forest, (3) the interviews appear to have been prejudiced or handicapped by unreasonably narrow lines of questioning, (4) citizens were not given the opportunity to oversee the process and ensure its integrity, (5) the interviews were not recorded or fully documented so it is possible key statements, opinions, conclusions, or recommendations offered by the experts are not reflected in the "Expert Interview Summary", and (6) the interview process arguably violated the Federal Advisory Committee Act (FACA) since the USFS used this process to seek recommendations from the people outside the agency. The USFS should conduct new interviews and seek management recommendations from all experts who have published peer-interviewed scientific studies or a graduate thesis r dissertation on species of concern on the Black Hills. The USFS should provide the experts with reliable, current data on habitat conditions in the Black Hills, and the agency should provide the experts with alternatives identified through the scoping process. All interviews must be recorded, and the public should be given the opportunity to review and comment on questions to be asked of the experts.	(1)-(5) See response to comment # 10250.22.25. (6) Most scientists were interviewed individually, with the exception of two occasions where two individuals were interviewed together. The 2000 Expert Interview Summary describes the process used. Interviews of individual scientists or other individuals with special .information to share relevant to planning questions complies with the terms of FACA, and implements Forest Service policy for gathering information to support planning efforts. Recommendations were then reviewed by Forest Specialists, and those appropriate for inclusion within the Phase I Amendment timeframe were incorporated into Alternative 3. Some recommendations were not included, especially where recommendations conflicted with one another. See also response to comment #10250.49.20.
10250	57	4	The expert interview process--purportedly used by the USFS to develop the weaker interim direction in Alternative 3--was flawed and must be done over with public over-sight and input and will full documentation of expert testimony.	See responses to comments #10110.49.85 and 10250.22.25.
10250	98	11	We are dumbfounded by the bearing the "expert" interviews carry in influencing the verbiage of the Phase 1 amendment. It seems the Phase 1 Amendment proposal was developed from the text of their comment rather than using the responses as input to a balanced approach. It appears, for all intent and purpose, the experts were interviewed from the standpoint of what the ideal situation would be if you were going to manage the Black Hills National Forest exclusively for Goshawks rather than for a balanced	See response to comment #10010.101.1, 10100.61.2, 10250.101.6 and 10250.17.4. The scientist's recommendations were used in the larger context of the agency's mandate to develop direction that complies with the Deputy Chiefs interpretation of legal obligations.

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			approach including all the goals of proper forest management for multiple use.	
10250	98	13	It also goes to misinterpretation of the role of the experts in planning. Theirs is not to define the management plan but to advise on cause and effect of specific management actions or, likewise, to advise on possible courses of management to achieve specific management objectives.	See responses to comment s#10100.61.2.
10250	99	6	We believe that the researchers were not given accurate information. Specifically, the comments from the "experts" such as "the alternatives do not directly identify...amount of old growth within the range of natural variability" and "5 percent of the Forest in natural condition is low and well outside the range of natural variability" indicate that neither the interviewers nor the interviewees understood the amount of research done on this issue during the revision of the forest plan or the findings of that research. Obviously, the "experts" opinions were made in consideration of information provided by the Black Hills National Forest, and the inconsistency between their comments and the statements and findings in the forest plan FEIS and ROD regarding the amount of old growth on the Black Hills National Forest, and how that amount of old growth compares to the RNV directly reflect on the information they were given. This is especially frustrating since the amount of old growth and the RNV was an issue raised on appeal by the Sierra Club et al, and the Washington Office upheld the Forest on this issue. Attached is a summary of some of the discrepancies between the forest plan, the FEIS, the Chief's Appeal Decision, and the "expert" interviews (see Attachment 1).	Discussions about old-growth forest centered on objectives, standards and guidelines in the Forest Plan and what those means to a species. The scientists assumed that the 5% objective for old growth could be attained, even if more than 5% exists at this time. The scientists comments were often based on the "Century of Change" document that was prepared as part of the Range of Natural Variability (RNV) for the Revised Forest Plan. This RNV information was provided to the scientists prior to the interviews. The scientist's recommendations were used in the larger context of the Deputy Chief's interpretation of legal obligations. While the scientists made recommendations, Forest staff and the decision maker determined which recommendations to incorporate into the alternatives developed and the decision to be made. The Forest will continue to be managed for multiple uses, to strive towards meeting the goals and objectives identified in the Revised Forest Plan. See also responses to comments #10210.453.7, 10250.49.20 and 10250.99.7 and 40300.34.20.
			Comparison of Statements and Findings Related to Old Growth and Range of Natural Variability Forest Plan: "late succession would comprise … Alternative G (97,756 acres)" FEIS, p II-87 "However, fire-suppression activities during the past century have permitted spruce to expand, probably beyond its historic range. FEIS, p III-143 "Areas managed for late-successional conifer in the remaining alternatives … Alternative G (97,756 acres or 9 percent)" FEIS, p III-157 and Table III-21 "The FEIS recognizes that other management areas will eventually result in late-successional conditions. … The total area which may contribute to late-successional conditions is 97,756 acres". ROD, p 29 Chief's Appeal Decision: "The appellants state that the FEIS, Revised Plan, and ROD are base on erroneous assumptions that historically old growth conditions were only five percent of the Forest … ." p11 : support the assumptions made in the FEIS, Revised Plan and ROD." p11 "The FEIS recognizes that other management areas will eventually result in late-successional conditions … which total approximately 97,7 "I find that acres of late successional forest on the BHNF are based on the best available information." p 13 "The Regional Forester's decision is affirmed, concerning the primary issue of range of natural variability." p 13 Expert Interviews: "Squires was concerned that the alternatives do not directly identify spatial distribution and amount of old growth within the range of natural variability." p 75 "The objective (207) to manage at least 5 percent of the forested land base in late succession may be too low to support goshawks (Reynolds, Squires)." p 78 "It seems that 5 percent	The Forest Plan Final EIS BA/BE (USDA Forest Service 1996, Appendix H) identified ponderosa pine structural stages 4C and 5 (i.e., dense mature forests and old growth), at least 25 to 30 acres in size, as likely affording the best nesting habitat for goshawks in the Black Hills. However, goshawks are not restricted to nesting in these stands and could use stands with lower canopy cover as well, such as structural stage 4B (2000 Expert Interview Summary). Goshawks exhibit high site fidelity (Reynolds and Joy 1998) and may use lower quality habitat but not produce young (2000 Expert Interview Summary). It is important to provide nesting habitat across the landscape, outside of known territories (2000 Expert Interview Summary). During the interviews the scientists noted that goshawk habitat would be better if within stand diversity was higher, and irregular shaped patches of different ages occurred (2000 Expert Interview Summary). From looking at Parrish et al (1996), it is likely there was once a higher large tree density and irregular pattern to the trees (2000 Expert Interview Summary).

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			of the Forest in natural condition is low and well outside the range of natural variability (Squires)." p 78 "Anderson felt that the percentage of old growth allocated in the Forest Plan is inadequate for the three-toed woodpecker." p 87. "Saab specifically stated that managing 5 percent of the Forest as late succession may not be enough for long-term persistence of the Lewis's woodpecker." p 88 "Saab expressed immediate concern regarding inadequate old growth allocation in the Forest Plan …" p 91 The final issue related to the "expert" interviews is the context given to the interviews. We believe that the Forest has relied unduly on the interviews with researchers, and has inappropriately given the opinions of the researchers more weight than other goals of national forest management. The role of scientists should be to explain the consequences of proposed alternatives or to suggest courses of action to achieve specific management objectives, not to assume or be given the role of making management decision about future national forest management.	The interviewees were focused on the amount of large diameter of trees, available across the landscape, rather than other late successional. characteristics
10250	99	7	One of the Forest Service staff at the Open House in Rapid city commented that the "experts" "directed" the development of Alternative 3. While that may not be the "official party line", it was certainly that person's perception and possibly a perception of the entire ID Team. Researchers and experts don't make management decisions and they don't make policy. They advise decision makers on consequences or on alternative courses of action to achieve specified objectives, but they don't make forest plan decisions. Clearly, the Phase I process to date has not properly considered comments from "experts" in the proper context, and that failure has flawed the entire process.	The Phase I EA discusses alternative development in Chapter 2. Scientist recommendations were reviewed by Forest specialists and some recommendations were included in the development of Alternative 3. Forest staff and the decision maker determined which recommendations to incorporate into the alternatives developed and the decision to be made. See also response to comment #10210.58.2.
10250	100	6	We believe that the researchers were not given accurate information. Specifically, the comments from the "experts" such as "the alternatives do not directly identify...amount of old growth within the range of natural variability" and "5 percent of the Forest in natural condition is low and well outside the range of natural variability" indicate that neither the interviewers nor the interviewees understood the amount of research done on this issue during the revision of the forest plan or the findings of that research. Obviously, the "experts" opinions were made in consideration plan or the findings in the forest plan FEIS and ROD regarding the amount of old growth on the Black Hills National Forest, and how that amount of old growth compares to the RNV directly reflect on the information they were given. This is especially frustrating since the amount of old growth and the RNV was an issue raised on appeal by the Sierra Club et al, and the Washington Office upheld the Forest on this issue. Attached is a summary of some of the discrepancies between the forest plan, the FEIS, the Chief's Appeal Decision, and the "expert" interviews (see Attachment 1). Comparison of Statements and Findings Related to Old Growth and Range of Natural Variability <u>Forest Plan</u> "late succession would comprise … Alternative G (97,756 acres)" FEIS, p II-87 "However, fire-suppression activities during the past century have permitted spruce to expand, probably beyond its historic range.	See responses to comments #10250.99.6 and 10250.99.7.

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			FEIS, p III-143 "Areas managed for late-successional conifer in the remaining alternatives … Alternative G (97,756 acres or 9 percent)" FEIS, p III-157 and Table III-21 "The FEIS recognizes that other management areas will eventually result in late-successional conditions. … The total area which may contribute to late-successional conditions is 97,756 acres". ROD, p 29 Chief's Appeal Decision "The appellants state that the FEIS, Revised Plan, and ROD are base on erroneous assumptions that historically old growth conditions were only five percent of the Forest … ." p11 :"The discussions support the assumptions made in the FEIS, Revised Plan and ROD." p11 "The FEIS recognizes that other management areas will eventually result in late-successional conditions … which total approximately 97,700 acres". p 12 "I find that acres of late successional forest on the BHNF are based on the best available information." p 13 "The Regional Forester's decision is affirmed, concerning the primary issue of range of natural variability." p 13 Expert Interviews "Squires was concerned that the alternatives do not directly identify spatial distribution and amount of old growth within the range of natural variability." p 75 "The objective (207) to manage at least 5 percent of the forested land base in late succession may be too low to support goshawks (Reynolds, Squires)." p 78 "It seems that 5 percent of the Forest in natural condition is low and well outside the range of natural variability (Squires)." p 78 "Anderson felt that the percentage of old growth allocated in the Forest Plan is inadequate for the three-toed woodpecker." p 87. "Saab specifically stated that managing 5 percent of the Forest as late succession may not be enough for long-term persistence of the Lewis's woodpecker." p 88 "Saab expressed immediate concern regarding inadequate old growth allocation in the Forest Plan …" p 91 The final issue related to the "expert" interviews is the context given to the interviews. We believe that the Forest has relied unduly on the interviews with researchers, and has inappropriately given the opinions of the researchers more weight than other goals of national forest management. The role of scientists should be to explain the consequences of proposed alternatives or to suggest courses of action to achieve specific management objectives, not to assume or be given the role of making management decision about future national forest management.	,
10250	100	7	One of the Forest Service staff at the Open House in Rapid city commented that the "experts" "directed" the development of Alternative 3. While that may not be the "official party line", it was certainly that person's perception and possibly a perception of the entire ID Team. Researchers and experts don't make management decisions and they don't make policy. They advise decision makers on consequences or on alternative courses of action to achieve specified objectives, but they don't make forest plan decisions. Clearly, the Phase I process to date has not properly considered comments from "experts" in the proper context, and that failure has flawed the entire process.	See response to comment #10250.99.7.
10250	101	4	In speaking with members of the Phase I ID Team, I understand that many	The Phase I EA discusses the Alternatives developed in Chapter 2, along

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			of the scientist interviews were 'uncomfortable' with Alternatives 1 and 2. We are 'uncomfortable' that their 'discomfort' could change the future of this forest without any documentation or evidence.	with a discussion of the scientific interviews and alternative development at Section 2-4. Effects of the alternatives are discussed in Chapter 3. See responses to comments #10100.61.2, 10210.58.2 and 10250.99.7.
10250	101	6	Alternatives 2 or 3 thrust the entire forest plan to consider single species management regardless of the multiple-use objectives. It appears that the ID Team has not pursued any research that could validate the potential of Alternative 1.	Alternatives 2 and 3 are multiple-species management rather than single species management. The goshawk is a keystone species and many of its prey are also prey for other sensitive species or are sensitive species themselves. Multiple use objectives would remain with the Phase I Amendment. The Deputy Chief identified deficiencies in the Revised Forest Plan (Alternative 1) and interim direction designed to address the deficiencies in the short term until the reanalysis of species viability and diversity is completed.
10250	101	7	I ask that you consider: Having the ID Team talk to researchers about the validity of each of the alternatives in terms of affecting species viability for the next two years, rather than having the scientists provide their preference of activities or levels of comfort;	Species viability is not something that can be evaluated over two years or five years. Viability is usually evaluated over a century and involves determining the risks and the probability of persistence over a hundred or more years. The Phase I Amendment, and the interviews, focused on maintaining options for viability over the next 5 years, until a more extensive analysis can be done in Phase II.
10250	102	4	In speaking with members of the Phase I ID Team, I understand that many of the scientist interviews were 'uncomfortable' with Alternatives 1 and 2. We are 'uncomfortable' that their 'discomfort' could change the future of this forest without any documentation or evidence.	See response to comment #10250.101.4.
10250	102	6	Alternatives 2 or 3 thrust the entire forest plan to consider single species management regardless of the multiple-use objectives. It appears that the ID Team has not pursued any research that could validate the potential of Alternative 1.	See response to comment #10250.101.6.
10250	102	7	I ask that you consider: Having the ID Team talk to researchers about the validity of each of the alternatives in terms of affecting species viability for the next two years, rather than having the scientists provide their preference of activities or levels of comfort;	See response to comment #10250.101.7.
10250	112	8	[T]he expert interview process--purportedly used by the Forest Service to develop the weaker interim direction in Alternative 3-- was flawed and must be done over with public oversight and input and with full documentation of expert testimony.	See responses to comments #10110.49.85 and 10250.22.25.
10250	112	10	While the Forest Service did interview some experts about the BHNF wildlife, and some of the expert interview information will be useful for the Phase I amendment, we believe that before a draft EIS is issued, the Forest Service must conduct a new and open expert interview process after the scoping process is completed. This is needed because some key experts were excluded from the process; because it appears the individuals who were interviewed by the Forest Service were not given up-to-date and accurate information about the current conditions on the Forest; because the interviews appear to have been prejudiced or handicapped by unreasonably narrow lines or questioning; because citizens were not given	See responses to comments # 10250.22.25, 10250.49.20 and 10250.55.12. No public comments received sent in opposing scientific views by other experts.

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			the opportunity to oversee the process and ensure its integrity; because the interviews were not recorded or fully documented so it is possible key statements, opinions, conclusions, or recommendations offered by the experts are not reflected in the "Expert Interview Summary"; because no interviews were conducted with experts on snag recruitment and retention impacts from even-aged management and road building activities; and because the interview process arguably violated the Federal Advisory Committee Act (FACA) since the Forest Service used this process to seek recommendations from people outside the agency. The Forest Service should conduct new interviews and seek management recommendations from all experts who have published peer-reviewed scientific studies or a graduate thesis or dissertation on species of concern on the Black Hills. The Forest Service should provide the experts with reliable, current data on habitat conditions in the Black Hills, and the agency should provide the experts with alternatives identified through the scoping process. All interviews must be recorded, and the public should be given the opportunity to review and comment on questions to be asked of the experts.	.
10250	112	16	The Forest Service's scoping notice asserts that Alternative 3 was developed from recent research and interviews with various scientists. However, the interview process was not open to the public, and it appears the Forest Service asked loaded and unreasonably narrow questions to get answers that would support the agency's desire to weaken the Chief's Interim direction.	See response to comment #10250.22.25.
10250	126	5	[T]he Forest Service has to-GET IT DONE QUICKLY!	Comment noted.
10250	455	2	We would hope you would avoid the pitfalls of fulfilling single species scientist "wish list" that are not based on any scientific studies in the Black Hills and we need action very quickly.	See responses to comments #10250.49.20 and 10250.101.6.
10250	461	5	[T]he Forest Service has to-GET IT DONE QUICKLY!	Comment noted.
10260	11	2	Equally unfortunate is that from a purely literary point of view; this document contains inconsistencies in grammar, misspelled words, and extremely poor sentence structure. Those errors make for a vague and easily misunderstood presentation that, in and of itself, opens the door for future litigation by virtue of the dearth of clarity.	Errors in the scoping letter were noted after it was sent out. A Newsletter update with an expanded comment period was sent out in December 2000 to clarify information from the scoping package. As noted in the October and December Newsletters, additional information regarding the Phase I analysis was available on the Black Hills National Forest website. Additional information was available at the three open houses held to discuss the Phase I Amendment process. Additional documents were available on the website including: information on the analysis, the Expert Interview Summary, Preliminary Standards and Guidelines by Alternative, Draft Selection Report for Aquatic MIS, the October 12, 1999 Appeal Decision, Newsletters, and Scoping Questions and Answers.
10260	18	11	Bullet 2 -"Modify Appendix L to reflect new information": Define "new	Comment noted. Modifications to the Revised Forest Plan Appendix L

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			information" and how will it be modified? New research information SHOULD be used to make appropriate modifications IF it is applicable to the Black Hills or if it is new information on a species for which we have NO local supportive data. For example, new information on white-tailed deer from a study in Colorado may not be appropriate nor applicable to the Black Hills. However, new information on pygmy nuthatches should be included in management plans if no studies have been conducted in the Black Hills.	are included in the Phase I Amendment EA in Appendix E.
10260	18	12	Do you propose to add new species as "new information" as well as "tweak" the HABCAP[habitat capability] model?	The HABCAP model had an error that was discovered after the adoption of the 1997 Revised Forest Plan pertaining to Habitat Effectiveness values related to cover and forage for deer and elk. This error had been disclosed in several decision notices for project decisions signed under the 1997 Revised Forest Plan. The Phase I Amendment EA includes a discussion of the correction and revised values. See also responses to comments # 10240.34.7 and 10260.18.11.
10260	18	19	Soils, page 1:How will Alternatives 2 and 3 (compared to Alternative 1) have less impact on soils if each alternative calls for more potential road construction and reconstruction, greater pre-commercial thinning and more short-term potential deposition and erosion to streams? Is this statement based on the sole supposition that there will actually be less volume removed and thus, less log-truck traffic?	The EA discusses the effects to soils in Chapter 3. Within the scoping letter the 'Less impact on soils' statement looked at the whole picture and not just the gross numbers generated by the Project Sample Group analysis. For timber, if one looks at the gross acres, then one could conclude there will be more impacts on the soils. However, precommercial thinning treatments are generally a non-ground disturbing activity thus not having an impact to the soils. Also, portions of stands treated with selection harvest will not be disturbed, so all those acres are not counted. So when actual disturbed acres for timber activities are compared, it is less. For roads, the Project Sample Group analysis results indicated total use would remain about the same while there was a slight increase in road construction and a larger increase in road reconstruction for the four areas analyzed. The slight increase in road construction is not going to change the big picture. The increase in road reconstruction could potentially have a short-term impact, but over the long term it should improve conditions and have a less of an impact since reconstruction is usually done to improve conditions or correct existing problems with roads. When all this information is considered together, there would be fewer impacts to the soils.
10260	22	23	The BHNF's October 27th scoping notice and its three attachments are not adequate for the public to understand and comment on the proposed action and its possible alternatives. The BHNF must send out a new and clarified public scoping notice to all potentially interested parties to clearly delineate the Chief's interim direction and to explaining precisely what changes are being proposed in Alternatives 2 and 3. The new scoping notice must also fully explain any other changes the BHNF is proposing to make to make to the Revised Forest Plan. The BHNF must then provide a new public comment period on the clarified scoping notice.	Errors in the scoping letter were noted after it was sent out. A Newsletter update with an expanded comment period was sent out in December 2000 to clarify information from the scoping package. As noted in the October and December Newsletters, additional information regarding the Phase I analysis was available on the Black Hills National Forest website. Additional information was available at the three open houses held to discuss the Phase I Amendment process. Additional documents were available on the website including: information on the analysis, the Expert Interview Summary, Preliminary Standards and Guidelines by Alternative, Draft Selection Report for Aquatic MIS, the

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				October 12, 1999 Appeal Decision, Newsletters, and Scoping Questions and Answers.
10260	34	19	We also would like to point out an apparent error in your scoping letter. On page 3 of Attachment 2, in the last paragraph, you have combined the south and east slopes. This is different from what the Interim Directions instruct.	See response to comment #10260.22.23.
10260	35	10	[W]e are concerned that the scoping notice did not include the Chief's interim direction in its entirety so citizens are unable to provide a meaningful response.	See response to comment #10260.22.23.
10260	36	7	The present scoping notice with its extremely short-term deadline and lack of information about Chief Dombeck's interim direction does not allow citizens to provide ample and meaningful input. A new, more informative scoping procedure should be undertaken.	See response to comment #10260.22.23.
10260	47	2	The document is somewhat difficult to follow, especially without all of the documents referred to, at hand.	See response to comment #10260.22.23.
10260	49	11	Another significant problem we can see at the outset of the Forest Plan amendment process is the fact that the October 27, 2000 scoping notice and its three attachments did not provide enough information for the public to fully understand and meaningfully comment on the proposed action and its possible alternatives. This is because those documents do not actually list the Chief's interim direction -- the entire focus of the Phase I amendment. The scoping materials listed 3 _preliminary_ alternatives for BHNF interim direction[.]The Chief has found Alternative 1 to be legally inadequate, so it cannot be selected. Without a full listing of the Chief's interim direction, how can citizens possible know whether Alternative 2 will actually protect populations of the species of concern on the Black Hills during the interim period? Without a listing of the Chief's interim direction, how can citizens really know what Alternative 3 is and how it really differs from Alternative 2? And without a full listing of the Chief's interim direction, how can citizens possible provide suggestions on what other kinds of alternatives should be explored? The answers to these questions is that citizens can't possibly know from the information the USFS has provided in the scoping materials. The failure to provide a listing of the Chief's interim direction is a fatal flaw in the scoping process. There is also no excuse for not including this direction since the Chief's appeal ruling (pages 4-7) has a complete and concise listing of all applicable interim direction.	See response to comment #10260.22.23.
10260	49	12	The scoping materials are also deficient in other significant respects. For instance, the scoping notice says the USFS is proposing to eliminate Guideline 3201, yet there is no discussion of what this Guideline is or why it needs to be eliminated. Likewise, the scoping materials indicate the USFS is going to change the elk and deer habitat effectiveness guidelines in the Revised Forest Plan to address errors identified after the Plan was issued. Yet there is no discussion of what specific errors warrant the USFS's	The October 12, 1999 Appeal Decision, page 57, discussed limitations of guideline 3201. Phase I Amendment is intended to address the deficiencies identified in the Appeal Decision. See also responses to comments # 10260.18.12 and 10260.22.23.

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			proposal to change, and there is no mention of what specific change is the USFS contemplating or proposing to fix these errors. And what is Appendix L, why does it need changing, and what particular changes is the USFS intending to make to this part of the Revised Forest Plan? Without this information, the public has now way of commenting on the scope of impacts and suggesting possible alternatives.	
10260	49	15	Given the omissions of key information in the October 27th, scoping materials, we are formally requesting the USFS to prepare and circulate a new scoping notice to all potentially interested parties. This includes all parties who submitted comments on the Revised Forest Plan or any projects on the BHNF. The new scoping materials must list the entirety of the Chief's interim direction, must clarify terms (e.g., balance of structural stages), and explain the nature, scope, and basis for other proposed changes to the direction in the Revised Forest Plan. The USFS should then provide a new public comment period on the clarified scoping notice.	See response to comment #10260.22.23.
10260	49	80	For the public to fully understand the nature of the alternatives and their impacts, the USFS must provide a clear and complete description of the affected environment in the EA or EIS prepared for the Phase I amendment. At the least, the Affected Environment chapter of the NEPA document must provide the following information: a map showing the locations of existing roads and trails, a map showing the locations of existing actual Structural Stage 5 habitat (depicted in one color) and the locations of existing actual SS-4C habitat (depicted in a different color) maps showing the estimated snag densities across the Forest by size class (a different map should be prepared for each size class, with different colors used on each map to depict different densities of snags)a map showing the locations of all patches of interior forest habitat (SS-5, SS-4B, or SS-4C) larger than 100 acres in size, a map showing distance from edge (stratified in 100 meter increments) of all forested areas in the Black Hills a map showing the locations of all existing patches if unlogged forest larger than 1000 hectares in size a map showing the locations of known and probable pine marten habitat, including habitat without significant spruce component maps showing the locations of known goshawk nest territories, colonies of land snails of special concern, montane grasslands, rare plants and plant communities (provided the plants are not subject to collection), aquatic MIS fish, etc. Maps showing the locations of past, present, and planned timber sales and road construction activities	Affected environment and effects are discussed in Chapter 3 of the Phase I Amendment EA. Maps of sensitive species locations are not included to ensure protection of species habitats. Selection Report for Aquatic MIS describes the waterways where the aquatic MIS fish species have been located. See response to comment # 10260.22.23.
10260	49	83	In a conceptual sense, the Chief's interim direction also constitutes part of the affected environment since this is the focus of the proposed federal action. Therefore, the Chief's interim direction should be fully listed in any draft and final NEPA documents (as well as in the new scoping notice).	The Deputy Chief's October 12, 1999 Appeal Decision was available on the Black Hills National Forest website. Direction from the Appeal Decision was incorporated and included in the list of standards and guidelines listing the direction under each alternative, this information was also available on the Black Hills National Forest website. The Deputy Chief's direction has been incorporated into the standards and guidelines in the Phase I EA, Appendix E, as well as through updates to monitoring

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				(Phase I EA Chapter 2 and Appendix F). See also response to comment # 10260.22.23.
10260	49	84	We will be emailing the USFS some maps and images (jpg format) prepared from the BHNF RIS database. These include a map of the remaining mature forest remnants_ in the Forest and the BHNF road network. The NEPA document should include these maps (or similar ones of higher quality and detail) so the public can better understand the amounts and distribution of key habitats left on the Forest as well as the highly fragmented nature of the old growth and interior forest habitat.	The maps provided are available in the project file. The Phase I EA discusses fragmentation in Chapter 3. The 1997 Revised Forest Plan contains information pertaining to structural stages. Late succession habitats are discussed in the 1997 Revised Forest Plan FEIS pages III-140 through III-143. The 1997 Revised Forest Plan FEIS discusses the fragmentation of the Black Hills at III-247 through III-275.
10260	51	10	I am finding it very difficult to follow the management plan process you are going through on the Black Hills. And I think I am probably not the only citizen who is having this experience. Because of this I would like to make a request regarding your public information process. First, I do not feel the October 27th scoping notice and its three attachments were sufficient for the public to understand and comment on the convoluted set of decisions with all the possible alternatives. For the benefit of public involvement, I am asking you to circulate a new scoping notice which clearly explains all of the Chief's interim directions so that the citizens who care can intelligently participate in the decisions the government is making about the future of the Black Hills. To be honest, at this point I can't say whether or not, or to what extent, the Chief's interim direction should be modified through a different Phase I alternative because the Forest Service has not made clear what the options are. I don't know, for example, about Alternative 3--this expert testimony process needs to be opened up to public review before citizens can rely on it to make a decision about alternatives. Therefore I am asking the Forest Service to rewrite the scoping notice and send it out to anyone you know is likely to be interested. To be helpful, the new notice should make clear what the Chief's interim direction is--and it should explain in as direct a language as possible what changes are being proposed in Alternatives 2 and 3. It would also help if the new scoping notice explained other proposed changes to the Revised Forest Plan like reasons for: eliminating Guideline 3201, changing guidelines for elk and deer habitat effectiveness, and changes to Appendix L. Are there others of these kinds of changes?	The Forest sent an updated Newsletter in December 2000 to clarify information, and provided for additional time for comments. Information, including the Deputy Chief's interim direction, was made available on the Forest Service website. See response to comment #10260.22.23.
10260	55	11	The October 27th scoping notice and its three attachments are not adequate for the public to understand and comment on the proposed action and its possible alternatives. A new scoping notice to all potentially interested parties to clearly delineate the Chief's interim direction and to explain precisely what changes are being proposed in Alternatives 2 and 3. The new scoping notice must also fully explain any other changes the Forest Service is proposing to make to the Revised Forest Plan. For instance, what is Guideline 3201 and why is the Forest Service proposing to eliminate it? What specific errors warrant the proposed change in the elk and deer habitat effectiveness guidelines? What specific change is the Forest Service contemplating or proposing to fix these errors? What is Appendix L, why does it need changing, and what particular changes is the	The Forest sent an updated Newsletter in December 2000 to clarify information, and provided for additional time for comments. Information, including the Deputy Chief's interim direction, was made available on the Forest Service website. See response to comment #10260.22.23.

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			Forest Service intending to make to this part of the Revised Forest Plan? The Forest Service must provide a new public comment period on the clarified scoping notice for a comprehensive EIS for this amendment.	
10260	103	1	I am very disappointed in the document that the Forest service sent to me on the Phase I amendment.	Comment noted. See also responses to comments #10010.101.1 and 10100.61.2.
10260	112	7	[A] new scoping notice should be circulated to list the entirety of the Chief's interim direction should be modified through a different Phase I alternative.	See response to comment #10260.22.23.
10260	112	9	The October 27th scoping notice and its three attachments are not adequate for the public to understand and comment on the proposed action and its possible alternatives. The Forest must send out new scoping notice to all potentially interested parties to clearly delineate the Chief's interim direction and to explain precisely what changes are being proposed in Alternatives 2 and 3. The new scoping notice must also fully explain any other changes the Forest Service is proposing to make to the Revised Forest Plan. For instance, what is Guideline 3201 and why is the Forest Service proposing to eliminate it? What specific errors warrant the proposed change in the elk and deer habitat effectiveness guidelines? What specific change is the Forest Service contemplating or proposing to fix these errors? What is Appendix L, why does it need changing, and what particular changes is the Forest Service intending to make to this part of the Revised Forest Plan? The Forest Service must provide a new public comment period on the clarified scoping notice for a comprehensive EIS for this amendment.	See response to comment #10260.22.23.
10310	19	7	Please also undertake an effort to get all of the Chief's interim direction out to the public, so people can provide effective comments on what the Phase I amendment if any should be. This may require a new scoping notice.	Errors in the scoping letter were noted after it was sent out. A Newsletter update with an expanded comment period was sent out in December 2000 to clarify information from the scoping package, and provide additional opportunities for comments. As noted in the October and December Newsletters, additional information regarding the Phase I analysis was available on the Black Hills National Forest website. Additional information was available at the three open houses held to discuss the Phase I Amendment process. Additional documents available on the website included: information on the analysis, the Expert Interview Summary, Preliminary Standards and Guidelines by Alternative, Draft Selection Report for Aquatic MIS, the October 12, 1999 Appeal Decision, Newsletters, and Scoping Questions and Answers.
10310	20	11	A new scoping notice should be circulated to list the entirety of the Chief's interim direction so citizens can provide meaningful comments on whether or to what extent the Chief's interim direction should be modified through a different Phase I alternative.	See response to comment #10310.19.7.
10310	36	9	In trusting the USFS to act responsibly by following rather than weakening the interim direction by the Chief, I am expecting a revision and extension of your present scoping process.	Comment noted. See response to comment #10310.19.7.

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10310	51	11	I am asking, once the new scoping notice is distributed that citizens like me are given ample time, in a new public comment period, to integrate the ideas and comment on them.	See response to comment #10310.19.7.
10310	57	5	The USFS's October 27th scoping notice and its three attachments are not adequate for the public to understand and comment on the proposed action and its possible alternatives.	Comment noted. See response to comment #10310.19.7.
10310	69	6	Stop alienating the taxpayer from his own land.	Comment noted. The Black Hills National Forest will continue to be managed for multiple uses. The Deputy Chief identified deficiencies in the Revised Forest Plan to be addressed. Additional management direction is incorporated Alternatives 2 and 3 to assure management options will not be foreclosed during the period needed to re-evaluate the sufficiency of the Revised Forest Plan in maintaining species diversity and viability. Overall the direction would lessen the level of risk for species for which there may be a viability concern by providing greater protection during the interim period, while still providing the opportunity to continue management activities. Management on the Black Hills National Forest will continue to incorporate the Multiple-Use Sustained-Yield Act and the National Forest Management Act requirements of providing for multiple uses of several products and services. Forest management would continue to be a tool used to improve habitat conditions and maintain or enhance vegetative diversity.
10310	86	6	We keep asking for these things, are you going to help us? Have you forgotten who pays for you're bills?	Comment noted.
10310	361	6	Listen to the people not the selfish extremist.	Comment noted.
10310	416	1	I think it is time for you to start working for the people and the community instead of a few environmentalist that are stopping all [Employment and Industry].	See comment to #10310.69.6.
10310	431	1	Please stop this assault on the Black Hills. Please tell the Sierra Club they do not own America's Forest.	This comment is outside the scope of the Phase I Amendment.
10311	34	3	In addition, due to the conflicting information in the scoping document and the need to have the information verified before submitting our comments, we request a 14-day extension on comments. That would allow the County to provide more accurate and substantive comments to the Forest Service.	A Newsletter update with an expanded comment period was sent out in December 2000 to clarify information from the scoping package, and provided additional opportunities for comments. See response to comment #10310.19.7.
10311	60	1	Though we do not feel that the comment period is adequate for substantive comment, we express here our concerns and recommendations with regard to the proposed amendment.	See response to comment #10310.69.6.
10311	103	3	I would have appreciated more than the month of November to review the proposal.	See response to comment #10310.69.6.

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10311	105	2	Due to the conflicting information in the scoping document and the need to have the information verified before submitting our comments, we request a fourteen-day extension on comments. That would allow the County to provide more accurate and substantive comments to the Forest Service.	See response to comment #10310.69.6.
10313	24	2	After all the years of work by your people and associated personal, you once again are letting the one special interest groups, named the Sierra Club, jerk you around. Since this group was organized it has NEVER agreed to any proposals that has ever been brought up. All the departments meaning the FOREST SERVICE, DEPARTMENT OF INTERIOR, BLM, and other departments, has ever done, is cave in to them, and all they want is more and more. If this trend does not stop they are going to destroy the west and our means of survival.	Comment noted.
10313	46	1	The "climate" of the country today, especially within federal agencies, appears not to favor logical problem solving on federal lands by using the expertise on those persons and organizations that can create publicized viewpoints(not scientific or time-tested) about their "correct" solution. Federal land managers are frequently threatened with court litigation by these same parties, effectively preventing professionals from using their education and experience.	Comment noted.
10313	49	10	[W]e would like to [express] some concerns we have about the way the amendment is being developed. Specifically, it appears the public comments (including these) will be analyzed and considered by the USFS Content Analysis Enterprise Team (CAET) in Utah, yet the actual amendment and EA/EIS are presumably being prepared by the USFS officials in the Black Hills who are the most familiar with the Chief's ruling and the main issues and concerns facing the BHNF. Is this correct? If so, we must object because those who prepare the amendment will not have full knowledge and understanding of each public comments submitted on the proposal. This was a serious problem in the development of the Revised Forest Plan itself -- where a few BHNF employees paraphrased and summarized_ public comments (often incorrectly or out of context) and the decisionmaker (the Regional Forester) never actually saw any of. the public's actual comments. In fact, knowing the comments were being processed by someone else, the Regional Forester actually issued a decision on the BHNF Revised Plan before all of the public comments had even been analyzed. If the USFS wants to foster public trust and integrity in the amendment process, the agency MUST ensure those developing the amendment review the actual public comments. Accordingly, we demand that all citizens comments, in their original form and in their entirety, be provided to the planning team preparing the amendment. We will appeal the eventual decision if we learn that the planning team only received and considered short and unrepresentative summaries of our comments.	The Forest reviewed all of the comments submitted by the public. Content Analysis Enterprise Team (CAET) was contracted to organize the comments into a database. All of the comments are entered verbatim into the database. This provides an analytical tool for identification and sorting of public concerns. All relevant public concerns are captured and were addressed by the planning team during the analysis process. All comments and response to comments are provided here (Appendix D of the Phase I EA).
10313	49	24	Citizens were not given any opportunity to provide possible questions for the experts to be asked. For example, we have spent many years studying	See response to comment #10250.112.10.

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			the Black Hills ecosystem, and as a result, we have numerous questions we feel need to be answered by experts in determining the appropriate management direction for the species of concern in the Black Hills -- questions that were never asked by the USFS in the interview process. If and when the USFS conducts new interviews, we request that the agency give us the opportunity to provide these comments for consideration by the experts. We aren't suggesting every possible question, no matter how irrelevant or insignificant, be presented to the experts. However, it is important to be seek answers to the most significant and pressing questions facing the Black Hills, and many of these questions have never been asked. After asking the public to provide questions for the interview process, the USFS biologists can do a first-cut to screen out irrelevant or insignificant questions, and they provide the remaining questions to the experts for their consideration.	
10313	477	3	Nancy noted she is ignored if she writes a comment and the best result is to get in our faces so she is heard.	Although some comments may not be incorporated, they are considered. See also responses to comments #10230.49.19 and 70410.477.1.
10320	9	1	It is obvious to me that the forest service is being held hostage by some eco-terrorist groups. In the fact that the plan is being presented to the public in the form in which it is.	Comment noted.
10320	22	27	WOC has a number of pressing concerns about the impacts this amendment process will have on wildlife and ecosystem health. We appreciate your consideration of our concerns. We look forward to further participation in this process. Please advise us of any additionally public participation opportunities.	Effects are discussed in Chapter 3 of the Phase I EA.
10320	32	7	I further suggest that local individuals, i.e. birders, historians and other professional areas such as foresters, augment the experts on wildlife with wide field experience and longevity in the Black Hills.	The scientists interviewed were well known in their field and were likely aware of research conducted in the Black Hills, as well as that conducted elsewhere. The quality of those interviewed was such that they could put Black Hills research in the context of the bigger picture.
10320	48	6	Emotional stupidity is the driving force for preservationists. Old growth is dead and dying timber.	This comment is outside the scope of the Phase I analysis.
10320	49	3	More than 6 years ago, not long after the USFS began the process to revise the BHNF's aging 1983 Forest Plan, Biodiversity Associates and others expressed concerns about the fate of these and other species on the Forest. In an attempt to avert an ecological train wreck, we developed an Ecosystem Management Alternative (EMA) designed to protect key habitats while allowing for continued development and intensive management of less sensitive areas comprising roughly 70% of the Black Hills. Then Forest Supervisor Roberta Moltzen broke her promise to analyze the EMA in the Draft EIS as an alternative for the Revised Forest Plan. And the EMA was not seriously considered or properly evaluated in the Final EIS either.	This comment is outside the scope of the Phase I analysis.
10320	49	22	An equally serious concern we have about the interview process is that the	See response to comment #10250.22.25.

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			general public was not given the opportunity to oversee or observe the interviews. In fact, as far as we can tell, no citizens were even given notice of the interview meetings. These problems compound the USFS's failure to record the interviews and take accurate and complete notes. And again it undermines the integrity of the amendment process and erodes the public trust in the Forest Service. Without the opportunity to oversee this key process, there is no way for citizens to know if the experts were given up-to-date and accurate information about the current conditions on the Forest, or whether the interviews were prejudiced or handicapped by unreasonably narrow lines of questioning. From the terse Expert Interview Summary, it appears the experts were not given good information about such important factors as the current amount and distribution of old growth habitat, and it also appears the questions asked were somewhat leading and loaded, presumably to elicit answers the USFS desired (e.g., to support the USFS's wishful belief that there is no need for substantive management changes in the Black Hills).	
10320	52	3	Please don't let the environmental extremists take over management of the Forests. Its going to backfire and everyone will suffer.	Comment noted.
10320	90	6	You have failed miserably in managing the BHNF, with a Soviet style centralized planning style and the upper level pandering to the Sierra Club.	Comment noted.
10320	108	2	I believe it's time we use common sense, here and quit letting the Sierra Club, and other environmental groups control our forest, and our way of life.	Comment noted.
10320	109	1	I know you must try to juggle the hot potato bouncing from local, state and federal governments, multiple use advocates, politicians, neighbors, and of course the extremist wackos;-not an enviable job. While my education and experience in forestry is long outmoded, certain basics still hold course. I tend to agree generally with the position of the S. Dak. Attorney General's office.	Comment noted.
10320	116	6	The 1997 Forest Plan was a good one - let's get it going! Don't cater to the Sierra Club - do what is right and good for the BHNF!	Comment noted.
10320	121	6	Is there anyone (including members of the Sierra Club) who don't utilize wood products somehow in their life? Manage instead of dictate.	This comment is outside the scope of the Phase I analysis.
10320	359	6	Stop the Sierra Club and their radical nonsense or we'll all be wiping our butts with poison ivy and living in plastic houses.	This comment is outside the scope of the Phase I analysis.
10321	453	1	First, we want to thank you and all your local staff for their willingness to meet with us and provide information on some of our concerns. The local staff seems willing to have a desire to work cooperatively with us to address our concerns, but we see little evidence on the ground or in this latest proposal that any progress is being or will be made.	Comment noted.

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10321	453	3	We've noted that we want to preserve what is left of the favorable economic impact a viable forest products industry has historically provided to Meade County. We've noted that the present trend to ever-reduced thinning, road maintenance, and logging also threaten recreation for local residents, grazing opportunities, and even local water supplies. We've made an honest effort to communicate these concerns, and since we started doing so, the situation has worsened.	The Black Hills National Forest will continue to be managed for multiple uses. The EA discusses impacts to timber production and economic effects in Chapter 3.
10400	18	27	When clarification and rewrite of Alternative 2 and 3 take place, we reserve the right to re-evaluate our decision.	Errors in the scoping letter were noted after it was sent out. A Newsletter update with an expanded comment period was sent out in December 2000 to clarify information from the scoping package, and provide additional opportunities for comments. As noted in the October and December Newsletters, additional information regarding the Phase I analysis was available on the Black Hills National Forest website. Additional information was available at the three open houses held to discuss the Phase I Amendment process. Additional documents available on the website included: information on the analysis, the Expert Interview Summary, Preliminary Standards and Guidelines by Alternative, Draft Selection Report for Aquatic MIS, the October 12, 1999 Appeal Decision, Newsletters, and Scoping Questions and Answers.
10410	59	5	In addition to the requirements of the Multiple Use Sustained Yield Act and the National Forest Management Act, Congress has also directed the Forest Service to cooperate with state and local governments concerning certain forest issues. In particular, Congress has requested that the Forest Service work with state and local agencies to address insects, disease and wildfire. 16 U.S.C. 2101 (a) (6) and (7). The Secretary of Agriculture may protect trees and forests from natural and manmade causes to aid in forest fire prevention and control. 16 U.S.C 2104 (a) (3) and can determine the biological, chemical and mechanical measures necessary to prevent, retard, control, or suppress incipient, potential, threatening or emergency insect infestations and disease conditions affecting trees. 16 U.S.C. 2104 (b) (1). Finally, Congress has found that "fire prevention and control on rural lands and in rural communities are of continuing high priority to protect human lives, agricultural crops and livestock, property and other improvements, and natural resources." 16 U.S.C 2106 (a) (3). The Office of Attorney General is concerned that under either Alternative 2 or Alternative 3 fire and insect control efforts between the Forest Service and the State of South Dakota will be further hampered following the Phase I Forest Plan Amendment.	Fuels treatments and insect and disease management activities would continue under any alternative. See responses to comments # 20200.59.3 (regarding fuel treatments) and 51400.59.4 (regarding insect management).
10411	34	2	Since the scoping document did not address either the cultural or economic effects as required by NEPA, we feel that we would be able to help provide and evaluate that unique information in the development of the alternatives. Our contribution to the project would be through information and in-kind service. Under NEPA, we are afforded this opportunity when providing unique expertise with regard to the environmental planning document 1501.6.	Social and Economic effects are discussed in Chapter 3 of the EA. The Black Hills National Forest will continue to be managed for multiple uses. The Deputy Chief identified deficiencies in the Revised Forest Plan that needed to be addressed. Additional management direction is incorporated Alternatives 2 and 3 to assure management options will not be foreclosed during the period needed to re-evaluate the sufficiency of the Revised Forest Plan in maintaining species diversity and

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				viability. Overall the direction would lessen the level of risk for species for which there may be a viability concern by providing greater protection during the interim period, while still providing the opportunity to continue management activities. Management on the Black Hills National Forest will continue to incorporate the Multiple-Use Sustained-Yield Act and the National Forest Management Act requirements of providing for multiple uses of several products and services. Forest management would continue to be a tool used to improve habitat conditions and maintain or enhance vegetative diversity. Payments to Counties from the 25% fund is discussed in Chapter 3 of the EA.
10411	60	3	Crook County, in its 1998 Land Use Plan specifically states that management actions regarding federal lands and natural resource use are important to the County. The entire purpose of the new land use plan is to "establish a process for Crook County to coordinate with federal and state agencies on their proposed actions that may potentially affect the management of private and public land and natural resource use." The county commits to "coordinate on the proposed actions so Crook County citizens may preserve their customs, culture, and economic stability while protecting and using their environment."	Social and Economic effects are discussed in Chapter 3 of the EA. The Black Hills National Forest will continue to be managed for multiple uses.
10413	34	1	After a preliminary review of the Black Hills National Forest Management Plan Amendment scoping document, we ask that the Lawrence County Commissioners be granted Cooperating Agency Status by the Black Hills National Forest, primarily to assist in reviewing the comments as well as to assist in the development of the alternatives.	This comment was addressed in a response letter to Lawrence County Commissioners. The CEQ regulations at 40 CFR 1501.6 and 1508.5 describe opportunities for entities with special expertise with respect to environmental issues or impacts, or jurisdiction by law, to participate as cooperating agencies. We appreciate the information the commissioners may provide with respect to cultural or economic impacts of the alternatives, but we do not believe the commission meets the definition or intent of the regulation concerning cooperating agency status. Social and Economic effects are discussed in Chapter 3 of the EA. The Black Hills National Forest will continue to be managed for multiple uses.
10413	105	1	After a preliminary review of the Black Hills National Forest Management Plan Amendment scoping document, we ask that the Crook County Commissioners be granted Cooperating Agency Status by the Black Hills National Forest, primarily to assist in reviewing the comments as well as to assist in the development of the alternatives. Since the scoping document did not address either the cultural or economic effects as required by NEPA, we feel that we would be able to provide and evaluate that unique information in the development of the alternatives. Our contribution to the project would be through information and In-Kind service. Under NEPA we are afforded this opportunity when providing unique expertise with regard to the environmental planning document 1501.6.	This comment was addressed in a response letter to Crook County Commissioners. The CEQ regulations at 40 CFR 1501.6 and 1508.5 describe opportunities for entities with special expertise with respect to environmental issues or impacts, or jurisdiction by law, to participate as cooperating agencies. We appreciate the information the commissioners may provide with respect to cultural or economic impacts of the alternatives, but we do not believe the commission meets the definition or intent of the regulation concerning cooperating agency status. Social and Economic effects are discussed in Chapter 3 of the EA. The Black Hills National Forest will continue to be managed for multiple uses.
10416	16	1	I believe the forest dept is doing a great job in the Black Hills & we should do our own managing in each area. We will not be able to save all of the	Comment noted.

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			different species on earth so lets just have each forest area do the best & let the "activist" stay out of your way.	
10416	29	1	I believe that the Black Hills National Forest should look for any possible opportunity to provide additionally documentation to the Forest Service's Washington office to satisfy their concerns about species viability and diversity.	Comment noted.
10416	31	2	I believe the BHNF could and should provide new documentation to the Washington office that would satisfy their concerns about species viability and diversity without changing the forest plan.	See response to comment #10240.34.7.
10416	32	1	I feel that the Black Hills National forest should look for opportunities to provide additional documentation to the Chief's Office to satisfy concerns about species viability and diversity and the legality of the 1997 forest plan.	See response to comment #10240.34.7.
10416	41	6	I believe the local forest people could finish this plan in due time, if the politicians in D.C. would leave you alone!	Comment noted.
10416	43	6	Let the forest service planning be done at the local level.	Comment noted.
10416	46	3	Management directives emanating from Washington, D.C. administrators aimed at solving problems either Forest Service wide or within a region will not work because problems within each forest (and perhaps each district within a forest) must be solved within the biological, environmental, economic, and social constraints of the immediate area. Thus, the idea of a forest plan revision for the Black Hills National Forest emanating from a Washington administrator is ludicrous and insulting to professionals employed at the local level. Please help correct these problems within federal land management agencies and return management agencies and return management control to those at the local level.	Comment noted.
10416	52	1	It is our opinion that management of the local forests should be left up to the local Forest Service staff & mgt. As you know the Black Hills of S.D. with many small ranches is considerably different than managing the Rocky Mtn Forests of Montana, Colo & Wyo which have massive Forest land and not a lot of private land interspersed. If the Black Hills Forest service people aren't permitted to do their important job of managing this local area.	Comment noted.
10416	94	6	Please listen to the local BH forest officials.	Comment noted.
10416	96	6	It is time for the local forest supervisor to be in charge of local problems & decisions that are best for the Black Hills.	Comment noted.
10416	390	6	Please continue to "fight." I know your hands get tied by the Administration sometimes, but there's strength in #'s and we're here to help.	Comment noted.
10416	424	1	Lived here all my life. Hate it when rich do gooders lock up my livelihood	Comment noted.

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			and recreational interests. NEED LOCAL CONTROL!	
10416	470	3	Washington D.C. bureaucracy seems limited in perceiving the whole pristine and rural needs. This relates also to how the beetle infestation is being addressed. Forest fires across the country and the recent Jasper fire point out serious problems. Valuable timber will he lost without haste, short term and also long term.	Comment noted.
10416	471	3	If the Forest Service continues to be incapable to any positive action I can see a time coming (soon) when many forest management decisions will be decided locally be state governments rather than by "soviet style central committees" of wildlife managers.	Comment noted.
10416	472	1	It will soon become time for people to disregard Dictator Clinton's decree, and take matters into their own hands.	This comment is outside the scope of the Phase I analysis.
10416	472	5	Management of forest land needs to be done locally, not be in the hands of federal bureaucrats who know or care nothing about local situations. The people need to manage THEIR forest.	Comment noted.
10510	57	7	Also once the Roadless Area Conservation ROD and Rule is made final, any changes to the forests goals and outputs resulting from that, may need to be considered during amendment process.	Comment noted. Any changes to goods and services will be addressed in the Phase II Forest Plan Amendment. If changes do occur, impacts of those changes to the social, economic, biological and physical environments will be considered.
10510	109	3	I believe concentrated coordination of the above would ultimately be beneficial and satisfactory to most factions involved. I have selected reservations about the Roadless Forest statements and policies. You would no doubt get some relief under a new and credible White House administration.	Comment noted. See response to comment #10010.101.1.
10540	17	3	I ask that you: Keep Forest targets as close to the 1997 Forest Plan as possible.	Comment noted. See response to comment #10510.57.7.
10540	49	4	The Revised Forest Plan that was selected for implementation on the Black Hills was essentially a "business as usual" alternative -- a cosmetic make-over of the 1983 Plan that focused largely on maximizing logging, grazing, and other extractive uses while providing little meaningful protection for the species of concern. Disturbingly, the Revised Plan actually reduced protection for certain kinds of wildlife and habitat in the Black Hills. For instance, the previous requirements to maintain at least 5% old growth forest in each watershed and at least 250 acres of old growth per 5,000 acres were eliminated through the Revised Plan thus allowing most watersheds on the Forest to be entirely stripped of all remaining old growth habitat.	This comment pertaining to the alternative that was selected in the 1997 Revised Forest Plan is outside the scope of the Phase I analysis. Late succession is discussed in the 1997 Revised Forest Plan FEIS at pages III-140 through III-143.
10540	60	5	The Forest Plan for the Black Hills National Forest is in place. All proposed actions must be in direct relation to the existing plan. For example, arbitrary changes to the ASQ established by the Forest Plan are not	ASQ is not addressed in the Phase I decision since the timeframe is less than the full planning period. ASQ will be addressed in the Phase II Amendment with full opportunity for public involvement. See also

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			acceptable.	responses to comments #10210.26.1 and 71600.49.79.
10540	126	3	I ask that you: Keep Forest targets as close to the 1997 Forest Plan as possible;	Comment noted.
10540	126	4	I ask that you: Avoid the pitfalls of fulfilling single species scientist 'wish lists' that are not based on any scientific studies in the Black Hills;	Comment noted.
10540	461	3	I ask that you: Keep Forest targets as close to the 1997 Forest Plan as possible;	Comment noted.
10540	461	4	I ask that you Avoid the pitfalls of fulfilling single species scientist 'wish lists' that are not based on any scientific studies in the Black Hills;	Comment noted.
10541	49	5	The USFS then proceeded to authorize and attempt to expeditiously implement the Veteran logging project -- a large commercial timber sale in one of the last remaining roadless areas in the Black Hills -- a special place containing some of the best remaining old growth, interior, and goshawk habitat in the entire Forest. When the USFS rejected our pleas and our administrative appeal seeking withdrawal of this ill-conceived decision, Biodiversity Associates and other concerned parties were forced to file suit in federal court. That suit was settled after the USFS agreed to withdraw the Veteran timber sale, to fix the flaws in the Revised Forest Plan, and to provide modest measures in roughly 25 other timber sales to help reduce the impact on some of the species and habitats of concern. We reluctantly agreed to settle knowing the terms of the settlement were not adequate to fully protect the species in question from the 25 sales. The decision to settle for "less than the minimum necessary" was based on an attempt to reach common ground, and on assurances we would have the opportunity to seek adequate forest-wide protections for the species through the amendments to the revised Forest Plan.	Comment noted. Background information on the Phase I Amendment is provide in Chapter 1.
10542	57	1	The Chief instructed that this interim direction is to remain in effect until the Revised Forest Plan is through a SIGNIFICANT amendment. The USFS is now proposing to prepare a NON-SIGNIFICANT amendment for the Revised Forest Plan that could weaken the Chief's interim direction. We oppose any attempt to weaken the Chief's interim direction.	The Deputy Chief instructed that the interim direction would remain in place "until appropriate adjustments have been made to the Revised Plan in accordance with the...Action Plan." The Phase I Amendment is part of the larger approach to making needed adjustments to the Forest Plan, and provides the procedural requirements which were lacking to implement the Interim Direction. See response to comments #10110.49.85, 10210.112.5 and 10010.81.1 for NFMA significance.
10542	60	6	We as a County support the continued implementation of the Forest Plan, and oppose a disruption in forest plan outputs due to long, drawn out analysis and further planning processes. Grazing, recreation, timber harvest and access need to continue regardless of the amendment process. Continued multiple use of the Black Hills National Forest is vital for forest health and to the communities that surround the Forest.	See response to comment #10010.5.7.
10542	104	2	We oppose the imposition of an amendment that conflicts with the direction	Plan amendments were fully anticipated by NFMA and it's

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			of the forest plan revision. Any changes that the amendment proposes should relate directly back to the forest plan and be handled within the context of the forest plan.	implementing regulations to address changed circumstances and new information. Phase I fully complies with these and other requirements, as will the Phase II effort. See also responses to comments #10210.26.1 and 20210.61.3.
10600	34	5	The county also recognizes that the main purposes for managing the national forests as mandated in the "Organic Act" was "to preserve and protect the forests", "to furnish a continuous supply of timber for the use and necessities of the citizens of the United States", and "to secure favorable conditions of water flows". The first timber offered for sale under this Act in the United States was sold to Homestake Mining Company in Lawrence County in 1899.	The Black Hills National Forest will continue to be managed for multiple uses. See response to comment #10600.61.1.
10600	61	1	The direction outlined in Mr. Furnish's Decision for Appeals requires a basic change in management policy philosophy for the Black Hills National Forest (BHNF). This new management philosophy emphasizes ecosystem management, biological diversity, and species viability as priority management goals for National Forests. While supported by recent rules and executive orders adopted by the current administration, these concepts have no basis in the laws governing in the management of the National Forests as established by Congress.	The Black Hills National Forest will continue to be managed for multiple uses. The Deputy Chief identified deficiencies in the Revised Forest Plan that needed to be addressed. Additional management direction is incorporated Alternatives 2 and 3 to assure management options will not be foreclosed during the period needed to re-evaluate the sufficiency of the Revised Forest Plan in maintaining species diversity and viability. Overall the direction would lessen the level of risk for species for which there may be a viability concern by providing greater protection during the interim period, while still providing the opportunity to continue management activities. Management on the Black Hills National Forest will continue to incorporate the Multiple-Use Sustained-Yield Act and the National Forest Management Act requirements of providing for multiple uses of several products and services. Forest management would continue to be a tool used to improve habitat conditions and maintain or enhance vegetative diversity.
10670	22	26	The interview process arguably violated the Federal Advisory Committee Act (FACA) since the BHNF used this process to seek recommendations from the people outside the agency.	We interviewed the scientists individually to avoid FACA concerns. See also response to comment #10250.112.10.
10670	49	23	Because the expert interviews were used for obtaining recommendations (e.g., on which _guidelines_ are related to viability), we believe the USFS's failure to allow the public to attend and oversee these interview meetings -- and the failure to take full and accurate notes -- constitutes a violation of the Federal Advisory Committee Act (FACA).	See responses to comments #10250.49.21, 10250.112.10 and 10670.22.26.
10700	101	3	The entire scenario that forced the Forest Service and its partners to wade through stacks of paperwork in order to manage the Forest is abominable. Yet no one is paying the consequences for this incompetence other than local Forest Service stakeholders.	Comment noted.
10700	102	3	The entire scenario that forced the Forest Service and its partners to wade through stacks of paperwork in order to manage the Forest is abominable. Yet no one is paying the consequences for this incompetence other than	Comment noted.

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			local Forest Service stakeholders.	
10710	77	6	Doesn't the yearly analysis get expensive? How much support $ does these group "sierra club" help pay for? Timber industry gives you money and the clubs spend it.	Comment noted.
10720	23	3	I think you have done a good job of managing the Hills Forest but you have too many handicaps, to many chief managers in Washington and Denver that don't have a clue on how to manage this unique area, plus those selfish organizations who want to manage plus politics and money!	Comment noted. See response to comment #10010.23.11.
10720	46	2	During nearly one-half century of teaching and research on rangelands, forestlands, and interacting with federal land management agency employees in several western states, two facts have become obvious. First, educated and experienced professionals within the U.S. Forest Service (and BLM) are not longer willing or able to make management decisions crucial to the current and future health and productivity of the land resource. Unfortunately, both agencies have, in recent years, employed persons not educated in management of renewable natural resources, and these persons are often reluctant to make decisions vital to the long-term benefit of the land resources.	Comment noted.
10720	119	6	Help steer the Forest Service out of politics. Steer them back to the forestry of public land.	Comment noted.
10811	456	5	The National Forest Service is spending too many dollars and time studying, when the funds could go for enhancing the natural resources.	Comment noted.
20000	18	17	While we appropriate the sample examples and the possible management implications of the various alternatives, it would have been more helpful to the reader if you had incorporated the potential management implications within each Alternative, rather than as a separate document. A summary table of information broken down by Alternative would have been more helpful than all the wordy, confusing text.	The need for information displayed in different formats was noted from the first comments received. Updated information was sent out early January in a newsletter and was also posted on the Black Hills National Forest website.
20000	18	24	Synthesizing information was difficult, at best. It was unclear to us as to what resources would be impacted, how they would be impacted and what plans and objectives are within Alternatives 2 and 3.	The need for information displayed in different formats was noted from the first comments received. Updated information was sent out early January in a newsletter and was also posted on the Black Hills National Forest website.
20000	49	13	The descriptions of the USFS's preliminary Alternatives are vague and confusing, and are not sufficient to allow citizens to truly understand the differences between the Alternatives.	The need for information displayed in different formats was noted from the first comments received. Updated information was sent out early January in a newsletter and was also posted on the Black Hills National Forest website.
20200	9	2	In the same fashion I understand that due to recent lawsuits compromise must be met, I strongly support the no action alternative one, but for the sake of the timber industry I will support the alternative 2. Although there are several issues that should be met or defined.	Comment noted.
20200	11	3	It is our contention that Alternative 1 should be the preferred alternative as it	Comment noted. See response to comment #10110.49.85.

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			is the byproduct of the original plans that took years of study and millions of dollars to develop. However, we also recognize this document is written from the standpoint of appeasement and therefore, Alternative 1 is presented only as a reference and not as an actual option. In the same vein, we recognize that Alternative 3 is presented as the ridiculous alter ego and also cannot be considered seriously. Therefore, we are addressing the balance of our comments to the content of the conciliatory Alternative 2.	
20200	22	3	If the BHNF adopts an alternative that would weaken the Chief's interim direction in any way, an EIS must be prepared to evaluate how that would impact species viability and distribution. An EIS is also needed to disclose the irreversible commitment of resources that would result from further loss or degradation of habitat allowed under any relaxed interim direction.	See responses to comments #10110.49.85 and 10542.57.1. Effects to biological resources are discussed in Chapter 3. The scientists interviewed noted it is unlikely species viability would be lost in the Phase I time period.
20200	24	1	In regard to your once again proposal to amend the Black Hills Forest Plan, I am totally opposed to your alternative 3 plan, and strongly believe the alternative (1) plan be taken.	Comment noted. See response to comment #10110.49.85.
20200	49	25	None of the preliminary alternatives listed in the scoping materials contain sufficient direction to ensure viable, well-distributed populations of the species of concern on the Black Hills. Alternative 1 is not even legal since it would take no further steps to address the viability concerns of the Revised Forest Plan. While the USFS is obligated to consider a no action alternative, the agency cannot lawfully select Alternative 1 for the Phase 1 amendment. Alternatives 2 and 3 -- while an improvement over Alternative 1 in terms of conservation of key habitats -- are also insufficient to ensure viable, well-distributed populations of the species of concern on the Black Hills.	See the EA, Chapter 3 for the discussion of effects. See also responses to comments #10110.49.85 and 10210.58.2.
20200	56	2	I am not impressed with any of the three proposed alternatives. I believe the amendment should make as few changes to the Revised Forest Plan as possible while still addressing the concerns of the Deputy Chief. Alternative 2 seems to come closest to this, however, it still goes farther than necessary in terms of promoting no management. Even the "no action" alternative seems to reduce forest outputs below the levels outlined in the Revised Forest Plan. How can this be?	The scoping document contained errors clarified in the December update. Alternative 2 was developed to incorporate the Deputy Chief's Appeal Decision Interim Direction. The EA notes estimated outputs under each alternative in Chapters 2 and 3.
20200	57	8	If the USFS considers an alternative that would weaken the Chief's Interim Direction in any way (as Alternative 3 would), an EIS must be prepared to evaluate how that would impact species viability and distribution. An EIS is also needed to disclose the irreversible and irretrievable commitment of resources that would result from further loss or degradation of habitat allowed under the relaxed interim direction.	See responses to comments #10100.61.2, 10110.49.85 10542.57.1 and 20200.22.3.
20200	58	8	The USFS provides no clear preferred alternative, or information clarifying the differences between Alternatives 2 and 3.	At the time of scoping a preferred alternative was not known. Disclosure of a preferred alternative is not required for an EA.
20200	59	3	It appears that both Alternative 2 and Alternative 3 would severely limit the management activities that the Forest Service could carry out to address insect problems and fire management. The Attorney General's Office	The Phase I Amendment would allow for fire management activities regardless which alternative is selected. Changes to fire management risk are minimal based on the analysis period (2-5 years). The

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			believes that which ever alternative is selected it should be modified to allow the Forest Service to carry out effective insect control and fire management activities.	Southwest Guidelines show that moving toward desired forest conditions (diverse structural stages) can decrease risk of catastrophic crown fire in the ponderosa pine and mixed forest species by: 1) maintaining a more open canopy, 2) reducing tree-understory fuels ladders and 3) increasing the growth rate of trees and reducing the length of time that stands are at risk to catastrophic fires. (Reynolds, et. Al. 1992, page 31). A wide range of fuel treatment methods is still available to use in each alternative. See response to comment #51400.59.4.
20210	4	1	Alternative 1 is the best opinion with local expert personnel monitoring and managing local impacts as needed specific to the site and time of management.	Comment noted.
20210	5	3	Alternative one would be best if the plan could be followed, which it hasn't been.	Comment noted.
20210	12	1	I am in favor of (Alternative one) as the no action alternative.	Comment noted.
20210	18	1	Alternative 1:Agree that this no-action alternative would not meet the legal obligations as identified in the October 1999 appeal decision.	Comment noted.
20210	24	3	It is time we put a stop to this action of the SIERRA CLUB and their associates, and adopt alternative (1) proposal to your "interim direction plan".	Comment noted.
20210	61	3	The first alternative is the no-action alternative; it applies the 1997 Forest Plan as written. This alternative has high potential for litigation since the Deputy Chief has already declared it inadequate, and it violates agreements reached in the Beaver Park litigation. The Forest Service includes Alterative 1 for base-line purposes only, and apparently does not seriously consider it for implementation. It is disappointing that a plan developed after seven years of study, a seven million-dollar investment, and full implementation of the NEPA process will not be seriously considered for implementation. Instead we must consider two alternatives that have been hastily assembled over a few months time that will change the emphasis of management for the entire Forest.	The Phase I Amendment Alternative 1 would continue to manage the Forest following the Revised Forest Plan. The Deputy Chief's October 12, 1999 Appeal Decision identified deficiencies in the Revised Forest Plan that needs to be addressed. The Phase I Amendment analysis followed the NEPA process. The Phase I Amendment does not change the overall goals of the Forest Plan of: 1) Protecting basic soil, air, water and cave resources; 2) Provide for a variety of life through management of biologically diverse ecosystems; 3) Provide for sustained commodity uses in an environmentally acceptable manner; 4) Provide for scenic quality, a range of recreational opportunities, and protection of heritage resources in response to the needs of the Black Hills National Forest visitors and local communities; 5) In cooperation with other landowners, strive for improved landownership and access that benefit both public and private landowners; 7) Improve financial efficiency for all programs and projects; 8) Promote rural development opportunities; 9) Provide high-quality customer service.
20210	107	1	We are hoping that all parties can & will accept alternative I and implement the revised forest plan as is. If need be some incorporation of D.C. Furnish direction might be used.	Comment noted.
20210	111	1	Alternative 1 should be the preferred alternative for the phase 1 amendment.	Comment noted.

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			We have spent enough time and money on planning and the Forest Service needs to start doing more on the ground management. I realize however that this will probably not be the chosen alternative.	
20220	11	5	Alternative 2[a] as whole needs to be rewritten to actually specific when it says it will be specific. For instance, the alternative states: "Specifically, existing guidance may be changed to provide for the needs of the northern goshawk, American marten, and individual species of snag-dependent birds and other wildlife." This definition is little more than mumbo jumbo that really says nothing and makes no sense to no good end. It might as well have been written: "Specifically, we might or might not change existing guidance (whatever we deem that to be or not to be), to provide for whatever needs we see fit for any sort of wildlife that we think might or might not need it based on whatever we decide we want to accomplish or what concessions we might needs to make based on whatever lawsuit we might be facing at the time of decision."	See the EA, Chapter 2 for the discussion of alternatives. See also Appendix E of the EA for a listing of revised and new direction proposed under the action alternatives.
20220	32	4	Since Alternative I is illegal, only Alternative II is viable. This should be short and to the point, thus, causing the least impacts to recreation, various permittee's and forest management activities.	See the EA, Chapter 2 for the discussion of alternatives. See the EA, Chapter 3 for the discussion of effects.
20220	34	22	There are many problems, most of which are political, that have occurred over the last two years. We all know that. We need to move past this and truly focus on what is important to both the people who live and play here and the animals and plants that inhabit the Black Hills. We strongly support Alternative Two to the point that it implements the Interim Direction of the Chief's Appeal decision.	Comment noted.
20220	58	3	[T]he State of Wyoming, supports Alternative Two only because it is the only one that is reasonable. Phase I should simply incorporate the interim direction into the plan.	Comment noted.
20220	61	4	Alternative 2 is designed to meet the interim direction. It will reduce timber harvest, reduce grazing, calls for road closures to protect snags from firewood gatherers, and is expected to have positive effects on snails, goshawk, and bats. The impacts of Alternative 2 are ambiguous. How much wood will be removed from the forest each year? How many AUMs of grazing will be eliminated? What will be the impacts on the businesses, people, and communities dependent on National Forest resources?	Anticipated changes to timber harvest, range, social and economic items are discussed in the EA, Chapter 3. See responses to comments #71600.49.78, 71600.99.2, 72110.98.9 and 72500.99.3.
20230	2	1	During the interim period only alternative 3 makes sense.	Comment noted.
20230	17	1	The Black Hills National Forest and the surrounding communities have been through hell! Seven Million Dollars and 7 years to produce the state of the art forest plan, one late record of appeal decision from Washington DC that sabotaged years of planning, one lawsuit, 9 months of negotiation, 100's of thousands of dollars and hours later, we find that the Forest Service wants to make a bad situation worse by creating Alternative 3! This slow	Comment noted. See also response to comment #10210.26.1.

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			tortuous course has GOT TO STOP!	
20230	17	6	Alternative 3 goes too far, is a significant change to the forest plan, and should not even be considered for the Phase I amendment.	Comment noted. See response to comment #10210.112.5.
20230	18	25	Based on information presented and based on our interpretation, the South Dakota Department of Game, Fish and Parks favors Alternative 3 and assumes that Alternative 3 best meets the appeal mandate. Alternative 3 appears to provide for a balance of structural stages, restrict road and timber activities in late-successional spruce communities, provide for protection of residual and replacement of snags for cavity dependent species and have the greatest long-term positive impacts on watersheds.	Comment noted.
20230	27	3	Alternative 3 is unacceptable. I do not support managing the entire Black Hills National Forest for goshawk habitat.	Comment noted. See response to comment #10250.101.16.
20230	32	3	The Alternative 3 is totally unacceptable. This alternative is designed to be the Christmas checklist for wildlife biologists (scientists to further their "private scientific" interests and perpetuate constant review of knowledge for knowledge sake.	Comment noted.
20230	47	1	It appears that Alternative 3, except for the additional road building, is the most scientifically acceptable option. This is based on the legal requirement that the environment is protected - i.e. environment is based on maintaining natural ecosystems & biodiversity.	Comment noted.
20230	50	6	It is extremely difficult to determine how the expected volumes and acres to be treated under the 3 alternatives were determined. They are also very hard to understand. Alternative 3 had the most wildlife protection, and yet will result in the most acres logged and the most miles of new. roads built. How can this be???	Documentation on how expected volumes and acreages were derived can be found in the Phase 1 goshawk Analysis document posted on the Black Hills National Forest web page. The scoping document contained an error on Attachment 3, page 9. This page states that for the landscape analysis 'commercial harvest treatments increased by about 30,000 acres a year.' This figure was incorrect. It should have read 3,000 acres a year. Since the scoping package was sent out, corrections have been made to volumes and acreages for the landscape analysis for both Alternatives 1 and 3. See also response to comment to #71600.99.2 and the EA, Chapter 3. In order to move towards meeting the balance of structural stages for Alternative 3, additional acreage could be treated, depending on how aggressive project level decisions are in moving towards this balance (e.g. what percentage of each structural stage is targeted in project level decisions). This may require additional road work.
20230	58	5	Alternative 2 goes beyond restrictions requested by Furnish and is a significant change to the forest plan. It is not needed to meet the intent of Phase I.	See responses to comments #10210.58.2 and 10240.29.2.
20230	61	5	Alternative 3 is very similar to Alternative 2. An important distinction is that Alternative 3 requires a balance of ponderosa pine structural stage across	The statement in this comment, 'stands with 70% canopy closure or higher will not be treated…' needs clarification from the scoping

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			the landscape to improve prey habitat for the post-fledging goshawks. Basically, this changes the management emphasis of the entire forest to providing habitat for goshawks. To improve goshawk habitat, the Forest Service proposes to essentially eliminate even-aged management of ponderosa pine. Stands with 70% canopy closure or higher will not be treated. Volume removal and residual stand density will not be equal across a stand. Tree removal will focus on "thinning from below" so larger trees will be retained. Basically, the trend will be toward higher density stands with more canopy closure. There will be more thinning in precommercial and product other than log (POL) stands. Again, how much AUMs of grazing will be eliminated and what will be the impacts to businesses, people and communities dependent on National Forest resources?	document. In Attachment 3, pages 11 and 12, a sentence was repeated twice with a wording difference. This wording was first listed as 'During project level analysis, all stands greater than 70% canopy closure may not be proposed for treatment.' Later in the same paragraph, the sentence reads, 'In reality, all stands at 70% canopy closure should not be treated in order to provide a range of canopy closures across the landscape.' The second sentence should contain the word 'may' instead of 'should'. This wording has been corrected for the EA. While 'the trend will be toward higher density stands with more canopy closure' is true for Alternative 3 across the landscape, and for the post-fledging family areas under Alternative 2, management would concentrate on creating irregular shaped patches of different sizes and age classes across the landscape under Alternative 3 and within the known and presumed post-fledging family areas under Alternative 2. Tree regeneration and other younger age classes could be created with small regeneration cuts or through improvement or liberation cuts and would be thinned to achieve fast growth to move them towards the older age classes (larger diameter trees). Older age classes would be managed primarily with thinning (eliminating ladder fuels). The younger age classes would be interspersed among older age classes. The overall effect should be a combination of even- and uneven-aged management to move towards the balance and distribution of structural stages. Additional treatments, including prescribed burning, could be used in conjunction with thinning, to reduce fuel accumulations. The intent of managing for the balance of structural stages is to manage for a low intensity, ground fire regime with large diameter trees, few smaller diameter trees in the understory, with patches of younger trees and openings interspersed across the landscape. For additional information on the scale of treatments, see response to comment #32240.58.9. All alternatives contain both even-aged and uneven-aged management, though the proportions of different treatments and associated road work increase or decrease based on the alternative. See response to comments #31010.112.20, 72110.98.9 , 72500.99.3. and 20220.61.4. No changes are anticipated to AUMs under any alternative. See also responses to comments 72110.98.9 and 72500.99.3 in regard to AUMs and impacts to grazing. See EA, Chapter 3. Impacts from the alternatives to businesses, people and communities dependent on National Forest resources are discussed in the social and economic section in Chapter 3.
20230	99	8	We are very disturbed that the Forest developed and is considering Alternative 3. In our view, Alternative 3 goes far beyond the intended scope of the Phase I amendment, and is inappropriate for consideration based on the limited time available to analyze and review changes of that magnitude. The Settlement Agreement states that "The Phase I amendment shall address the Chief's interim direction contained in the October 12, 1999 decision...".	Comment noted. See responses to comments #10100.99.1, 10542.57.1 and 20300.112.14.

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20230	100	8	We are very disturbed that the Forest developed and is considering Alternative 3. In our view, Alternative 3 goes far beyond the intended scope of the Phase I amendment, and is inappropriate for consideration based on the limited time available to analyze and review changes of that magnitude. The Settlement Agreement states that "The Phase I amendment shall address the Chief's interim direction contained in the October 12, 1999 decision...".	Comment noted. See responses to comments #10100.99.1 and 20300.112.14.
20230	107	2	We find alternative 2 completely unacceptable.	Comment noted.
20230	110	4	Alternative 3 is absolutely not an alternative. It is too much change to the forest plan and should not be considered for the Phase I amendment.	Comment noted.
20230	113	4	I believe Alternative 3 goes too far, it is a significant change to the forest plan, and should not even be considered for the Phase 1 Amendment.	Comment noted. See responses to comments #10210.112.5 and 10220.61.14.
20230	126	1	The Black Hills National Forest and the surrounding communities have been through hell! Seven Million Dollars and 7 years to produce the state of the art forest plan, one late record of appeal decision from Washington DC that sabotaged years of planning, one lawsuit, 9 months of negotiation, 100's of thousands of dollars and hours later, we find that the Forest Service wants to make a bad situation worse by creating Alternative 3! This slow tortuous course has GOT TO STOP!	Comment noted. See response to comment #10210.26.1.
20230	454	5	Alternative 3 goes too far, is a significant change to the forest plan, and should not even be considered for the Phase 1 amendment.	Comment noted. See responses to comments #10210.112.5 and 10220.61.14..
20230	456	3	The proposed Alternative 3 goes too far and will change the forest plan and multiple uses.	Comment noted. See response to comment #10210.107.3.
20230	457	4	Alternative 3 goes too far, is a significant change to the forest plan, and should not even be considered for the Phase I amendment.	Comment noted. See responses to comments #10210.112.5 and 10220.61.14.
20230	458	4	Alternative 3 goes too far, is a significant change to the forest plan, and should not even be considered for the Phase I amendment.	Comment noted. See response to comment 10210.112.5 and 10220.61.14.
20230	461	1	The Black Hills National Forest and the surrounding communities have been through hell! Seven Million Dollars and 7 years to produce the state of the art forest plan, one late record of appeal decision from Washington DC that sabotaged years of planning, one lawsuit, 9 months of negotiation, 100's of thousands of dollars and hours later, we find that the Forest Service wants to make a bad situation worse by creating Alternative 3! This slow tortuous course has GOT TO STOP!	Comment noted. See response to comment #10210.26.1.
20230	474	4	We urge you to delay consideration of Alternative 3 until the analysis for the Phase II amendment.	Comment noted. See response to comment #10240.50.3.
20300	17	2	I ask that you: Develop and select an alternative that provides what was called for in the Chief's 'Interim Direction' if necessary;	Alternative 2 was developed to include the measures identified in the Interim Direction contained in the Appeal Decision.

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20300	19	2	I back continuance of the protection offered by the USFS Chief's Interim Direction for the Black Hills plan, and I don't think any of your alternatives offered in Phase I do that. Please devise a new alternative 4 for the Phase I amendment to incorporate all of the Chief's Interim Direction.	Alternative 2 was developed to include the measures identified in the Appeal Decision. Some items in the Chief's decision are found in existing Forest Service Manual and Handbook direction.
20300	20	4	For the Phase I amendment, the USFS must therefore develop and implement an alternative that has much stronger interim protection that either Alternative 2 or 3. This alternative must, at the very least, provide all of the protections identified in these comments, including direction to allow no further degradation or loss of habitat for the species of concern.	See response to comment #20300.112.15.
20300	22	2	Proposed Alternative 2 and 3 are not adequate to ensure that species of concern in the BHNF will remain viable and well distributed through the interim period or into the future. In particular, both alternatives are inadequate because they fail to account for the current lack of old growth and goshawk nesting habitat, and they fail to account for the significant losses of these key habitats caused by the Jasper Fire. For the Phase I amendment, the BHNF must therefore develop and implement an alternative that has much stronger interim protection than either Alternative 2 or 3. This additional alternative must, at the very least, provide all of the protections identified in our comments below, including direction to allow no further degradation or loss of habitat for the species of concern.	See response to comment #20300.112.15.
20300	35	3	[W]e urge the Forest Service to develop and implement an alternative that has much stronger interim protection than either Alternative 2 or 3: an alternative that allows no further degradation of loss of habitat for the species of concern.	See response to comment #20300.112.15.
20300	36	2	Proposed Alternatives 2 and 3 are inadequate to ensure species viability through the interim period of 2-5 years. The alternatives fail to account for the current lack of old growth, i.e. goshawk nesting habitat, and they fail to consider the losses of key habitat caused by the Jasper Fire. The USFS must instead develop and implement an alternative that insures no further degradation or loss of habitat for species of concern.	See response to comment #20300.112.15.
20300	49	9	[W]e describe an alternative that we feel provides sufficiently strong interim direction to maintain the status quo for the species of greatest concern as well as the most sensitive habitats in the Black Hills. That is, it is an alternative that tries to prevent further loss or degradation of the most essential habitats on the Forest. We ask the USFS to rigorously explore this Status Quo Alternative, and adopt it through the Phase I amendment (unless new evidence comes to light to indicate even stronger direction is needed for the Forest). This alternative should also be evaluated and adopted for the Phase II amendment to the Revised Forest Plan.	See response to comment #20300.112.15.
20300	49	36	[T]he Forest Service must develop and rigorously evaluate new alternatives for the Phase I amendment which incorporate much stronger interim direction to ensure the status of the species of concern is maintained in the	See response to comment #20300.112.15.

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			interim period. The Forest Service must also select one of these alternatives for implementation.	
20300	49	37	The alternative we request be evaluated in the NEPA document and selected for implementation on the BHNF must contain direction to ensure there is no further loss or degradation of habitat for each of the species of concern on the Black Hills (e.g., goshawks, marten, snag-dependent species, land snails of concern, rare plants, creek chub, finescale dace). We believe the following direction will help maintain the status quo. A Status Quo Alternative should be developed and adopted to implemented all of the management direction listed below. Other alternatives based on variations of the following management direction should also be rigorously explored and objectively evaluated in the NEPA document.	See response to comment #20300.112.15.
20300	55	4	Phase I amendment, the USFS must therefore develop and implement an alternative that has much stronger interim protection than either Alternative 2 or 3. This alternative must, at the very least, provide all of the protections identified in these comments, including direction to allow no further degradation or loss of habitat for the species of concern.	See response to comment #20300.112.15.
20300	99	20	We recommend the following:-that the Forest develop a new alternative, as follows:-the new alternative should be designed to achieve the forest plan outputs for timber sales, livestock AUMs, and motorized recreational access. -the new alternative should fully explore the possibility of selecting portions or all of Alternative 1, by providing additional documentation to the Washington Office regarding the sufficiency of the revised forest plan in providing for species viability and diversity.-the new alternative, and the evaluation of all alternatives, should include consideration of social and economic sustainability in equal measure with consideration of species viability and diversity.-the new alternative should contain only the MINIMUM steps necessary to provide species viability and diversity until completion of the Phase II amendment, and in no case, should the new alternative contain direction more restrictive than the Interim Direction.-the new alternative should be designed to maintain current levels of access and outputs other than timber.	Alternatives are discussed in the EA, Chapter 2. This alternative suggestion was considered but eliminated from further detailed study. See also response to comment #10210.58.2.
20300	100	20	We recommend the following:-that the Forest develop a new alternative, as follows:-the new alternative should be designed to achieve the forest plan outputs for timber sales, livestock AUMs, and motorized recreational access. The new alternative should fully explore the possibility of selecting portions or all of Alternative 1, by providing additional documentation to the Washington Office regarding the sufficiency of the revised forest plan in providing for species viability and diversity.-the new alternative, and the evaluation of all alternatives, should include consideration of social and economic sustainability in equal measure with consideration of species viability and diversity.-the new alternative should contain only the MINIMUM steps necessary to provide species viability and diversity until completion of the Phase II amendment, and in no case, should the new alternative contain	Alternatives are discussed in the EA, Chapter 2. This alternative suggestion was considered but eliminated from further detailed study. See response to comment #10210.58.2.

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			direction more restrictive than the Interim Direction.-the new alternative should be designed to maintain current levels of access and outputs other than timber.	
20300	106	2	We can only recommend that the Forest develop a new alternative that would be designed to utilize part or all Alternative #1; by providing additional documentation to the Washington Office illustrating that the revised Forest Plan does provide for species viability and diversity. The new alternative should consider social and economic viability; the importance of achieving the Forest Plan timber sale volume of 83.8 mmbf/year, and be developed to maintain current levels of outputs of other resources. The new alternative should contain direction necessary to provide species viability and diversity until completion of Phase II, but direction should not be more restrictive than stated in Interim Direction.	See the EA, Chapter 2 for the discussion of alternatives. See also response to comment #10210.58.2.
20300	112	14	This EIS must include additional alternatives, including a stronger interim direction alternative (e.g., an Alternative 4) for the Phase I amendment, as well as an alternative that incorporates the mitigation measures in the Veteran/Boulder Settlement Agreement.	The Settlement Agreement stated that the restrictions agreed to in the agreement are not binding precedents for the Phase I or II Amendments, and that nothing in the agreement should be construed as an endorsement of those restrictions. See the EA, Chapter 2 for the discussion of alternatives.
20300	112	15	An alternative based on the Veteran/Boulder Settlement Agreement provisions for protection of imperiled wildlife species during ground-disturbing activities, such as logging, was never presented to the wildlife experts that were interviewed. Therefore, the public will never know their views on these mitigation measures, unless such an alternative is included in a re-initiated EIS process that includes post-scoping re-interviews. Such an alternative must be evaluated as a benchmark, at a minimum, and would include the following provisions: No logging and road construction activities on structural stage 4C and 5 stands. No logging and road construction activities within 1/2 mile of an active or historically active goshawk nest. No logging and road construction activities within 200 feet of known colonies of seven species of land snails considered to be "species of special concern" in the Black Hills. Protections of additional large, mature trees essential for maintaining wildlife populations on the Black Hills--from the largest trees available--on each acre that will be logged, such as a prohibition on logging any trees greater than 18" DBH.	This alternative suggestion was considered but eliminated from detailed study. See Chapter 2 of the EA. Also see response to comment #20300.112.14.
20300	126	2	I ask that you: Develop and select an alternative that provides what was called for in the Chief's 'Interim Direction' if necessary;	See the EA, Chapter 2 for the discussion of alternatives. Alternative 2 was developed to incorporate the Deputy Chief's Interim Direction.
20300	461	2	I ask that you: Develop and select an alternative that provides what was called for in the Chief's 'Interim Direction' if necessary;	See response to comment #20300.126.2.
30112	14	2	I don't know what the timber harvesting will do to the issues mention[ed] above, as long as it doesn't create any more unnecessary roads which could cause further damage to the land with excessive use of these roads for harvesting, with no grass or plants to provide some watershed it may	Activities are designed to minimize erosion and where opportunities arise associated with projects, erosion problems corrected. Roads are limited to what are needed and unnecessary ones eliminated. This comment pertains to the Jasper Value Recovery analysis. A Burned

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			cause some erosion with spring snow melt and spring rains to be considered.	Area Emergency Rehabilitation Team reviewed the fire impacts and did not identify any emergency rehabilitation needs. Effects to resources from proposed management within the Jasper burn are discussed in the Jasper Value Recovery FEIS. This comment is outside the scope of the Phase I analysis.
30140	53	4	I urge an actual program to protect species viability and diversity. To preserve watersheds...To secure a stream conservation program.	Comment noted. See responses to comments #31000.53.1 and 67450.53.3. Securing a stream conservation program is beyond the scope of the Phase I analysis.
30145	10	2	Address the watershed in the Jasper Fire area after the salvage logging is completed by cutting and laying down all un-saleable timber horizontally with the hillside. These will stop the erosion of the land.	The Jasper Fire is not in the scope of the Phase I Amendment analysis. However in unburned sale areas it will not be necessary to lay down all unusable timber horizontally with the hillside. The tops and slash of the trees harvested are being left on site and this will slow down erosion and should be adequate. The Jasper BAER report did not identify a need for emergency rehabilitation measures to protect soil and water resources within the Jasper Fire area.
30146	6	1	Since 1992 I have advocated for many years that water is our most essential resource to be protected. The protection of the associated plant communities, such as mentioned in this management plan are good, don't get me wrong, however, they are secondary to the water quality. Without water management as #1 priority to each of the advocated protection measures, there will not be trees or wildlife to protect!	The Phase I Amendment continues the goals identified in the Forest Plan, including Goal 1: Protect basic soil, air, water and cave resources.
30230	23	2	Having been a part of the adjacent prairie land east of Rapid City, since 1937, I have watched firsthand the changes that have taken place in our farm ground, grazing land, dry draws and timbered areas. Erosion is an ongoing process both here and in the Black Hills. Erosion is one of the processes by which earth renews the surface and we must do all we can to manage this process. I have rattled off trying to express my views of observation and experience. From this earth ever thing came and will return in one form or another!	Comment noted. See response to comment #10010.23.11.
30250	18	20	Table 1 on page 2 indicates an "N" for anticipated negative effect from roads in Alternative 2. This appears to contradict your statement that "Alternative 3 will have less impact on soils" (page 1). Which is it, less impact or greater negative effects?	A direct comparison cannot be made between the statement regarding impacts to soils on page 1 and Table 1 on page 2. Table 1 on page 2 is referring to roads only while the statement on page 1 pertaining to the soils is taking roads and timber into account in that statement. See Chapter 3 of the Phase I EA for effects to soils.
31000	53	1	I urge an actual program to protect species viability and diversity. To preserve watersheds and its plant and animal species and to promote outstanding and fully protected habitats with habitat sanctuary states for the northern Goshawk American Marten, finescale dace, lake chub, brown trout, brook trout and mountain sucker. To manage this national forest as a wildlife, fish, plant habitat sanctuary preserve wilderness.	Ensuring species viability is the driving force of this Forest Plan amendment process. Chapter 1 of the EA states that the purpose and need for the Phase I assessment is to address identified Forest Plan deficiencies which must be corrected to assure that projects implemented during the time period it takes to complete the re-evaluation of species viability and diversity will maintain viable populations of native and desired non-native species. Effects to species are discussed in Chapter 3. Phase I Alternatives 2 and 3 are

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				anticipated to further reduce risk of adverse impacts to species viability and diversity. See response to comment #67450.53.3.
31010	19	4	It seems to me that to ensure viable, well-distributed populations of plants and animals, a proper Phase I amendment would offer the maximum possible interim protections for important species in the Black Hills - like goshawks, marten, rare land snails, snag-dependent species, and rare plants. The service should provide strong protection for these species now, in the short 2-5 year interim period. I am concerned that once scarce habitat is degraded or lost, it may not be possible to recover it. Poor distribution of a species due to lack of suitable habitat can be very difficult to correct once it occurs.	Effects to species is discussed in Chapter 3 of the EA. The 1997 Forest Plan was developed to maintain species viability and diversity. The Deputy Chief in his Appeal Decision identified additional species protection standards should be used during project planning until deficiencies the Forest Plan were corrected. The interim direction measures are incorporated into Alternative 2. Additional measures were identified and incorporated in to Alternative 3 to further reduce risk of adverse impact to species viability and diversity.
31010	36	3	The interim direction should not allow any logging of any old growth (Structural Stage 5) or dense mature forest habitat (Structural Stage 4C) in the Black Hills; too little of this habitat is left, to allow any of the remaining SS-4C and SS-5 habitat to be logged or fragmented by roads.	See responses to comments #31010.112.20 and 31040.55.15.
31010	49	2	In light of the massive alteration of the Black Hills ecosystem it is not surprising there are now serious concerns about the long-term health of populations of various species in the Black Hills. These species include the northern goshawk, pine marten, rare land snails, snag-dependent species, rare plants, unique plant communities (e.g., montane grasslands), large predators such as the black bear and mountain lion, flying squirrels, saw whet owls, the Black Hills red-belly snake, aquatic invertebrates, and several native fish species such as the creek chub and finescale dace (henceforth "species of concern").	Comment noted. See responses to comments #31010.19.4 and 31010.49.8.
31010	49	8	Indeed, once scarce habitat is degraded or lost, it may not be possible to recover it for the foreseeable future. Likewise, once a species' population becomes non-viable or poorly distributed due to lack of suitable habitat, it will be very difficult or impossible to correct. It is better to err on the side of conservatism and adopt strong interim direction now than to adopt weak direction and later regret the habitat that would result during the interim period.	Effects to species and their habitats are discussed in Chapter 3 of the EA. The 1997 Forest Plan was developed to maintain species viability and diversity. The Deputy Chief identified additional management direction to be used during project planning until deficiencies in the Forest Plan are corrected. The interim direction measures are incorporated into Alternative 2. Additional measures were identified and incorporated into Alternative 3 to further reduce risk of adverse impacts to species viability and diversity.
31010	49	47	The Phase I amendment must disallow, during the interim period, any additional even-aged silvicultural prescriptions and any new further road building on the BHNF. These activities are largely responsible for the plight of many of the species of concern in the BHNF. With over 8,000 miles of roads on the BHNF, there is no need for more road building. And there are practicable and less impacting alternatives to shelterwood and clearcut logging methods.	See response to comment #31010.112.20.
31010	51	9	The interim direction, in addition to designating fish Management Indicator Species, also designate other aquatic Indicators such as: aquatic	The Deputy Chief identified a need to designate at least one aquatic species for a Management Indicator Species (MIS).

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			macro-invertebrate (e.g., stoneflies and mayflies), the Northern leopard frog, tiger salamander, beaver, dipper, willow communities, and various aquatic plants. I support all Forest Service decisions to gather more information about the effects of livestock grazing, water development and water depletion, mining, and fishing on wildlife.	Species for whom all life processes occur in the water column were reviewed for the Phase I Amendment. The five species of fish identified for MIS in the Phase I Amendment respond to the Appeal Decision item. The entire list of Forest MIS will be reviewed in Phase II to determine if additional adjustments are needed to address species or habitats and to comply with new regulations.
31010	112	20	The interim direction should disallow any further road building and even aged silvicultural prescriptions during the Phase I interim period. These activities are largely responsible for the plight of many of the species in question. The Revised Plan allows such extensive even-aged harvesting that protection of wildlife resources is completely compromised. Large blocks of interior forest habitat is a significant wildlife resource for neotropical birds; large patches of SS-4C and SS-5 habitat are significant wildlife resources for goshawks and other species; large snags are a crucial wildlife resource for cavity nesting birds; and unroaded security areas are an important wildlife resource for reclusive and human-persecuted species such as the mountain lion and black bear. With over 8,000 miles of roads on the BHNF, there is no need for more road building. And there are alternatives to shelterwood cuts, seed cuts, overstory removals, and patch clearcutting. None of the preliminary alternatives listed in the scoping notice would curtail road building and even-aged logging.	While even-aged logging and road work would not be eliminated, the proportions of different treatments and associated road work increase or decrease based on the alternative. To address even-aged vs. uneven-aged treatments and managing for larger diameter trees, see response to comment #20230.61.5. The EA discusses roads and timber management in Chapter 3. Additional road construction was identified as a possible affect of Alternative 3, based on the Project Sample Group analysis. There is an extensive road network on the Black Hills National Forest. Decisions to construct additional roads, re-route roads that are causing environmental degradation, or to close existing roads in order to better protect snags or big game habitat are made at the project level. This does not change under any alternative. Silvicultural treatment methods would vary by alternative. Alternative 1 would use the preferred system in ponderosa pine that primarily is considered 'even-aged' (shelterwood, overstory removal); Alternative 2 could include more group selection harvesting and under-story thinning in Post-fledging Family Areas (approximately 420 acres surrounding known and presumed goshawk nests). This is to provide for a balance of structural stages as outlined in the interim direction; Alternative 3 would include thinning and some group selection harvesting primarily to provide for a balance of structural stages within watersheds. Other even-aged regeneration methods could be used on a small scale in PFA's in Alternatives 2 and 3 and within watersheds in Alternative 3 outside of PFA's. Alternatives 2 and 3 would not include treatments in spruce forest types during this period to provide additional protection for American marten.
31011	477	2	Nancy is concerned with recreational panning affecting American dipper nesting, which is limited in the Black Hills and finescale dace, which is in two creeks in the Bearlodge Mountains, Ogden Creek and a pond in Spotted Tail Creek.	Recreational (gold) panning activity has the potential to adversely affect dipper habitat. Dippers could be temporarily displaced by the human presence possibly affecting nesting success and in isolated situations dipper nests could be destroyed or isolated reductions in foraging habitat. Panning can adversely affect fish habitat, including the finescale dace. If panning activity occurred in spring months there could be an increased potential for destruction of spawning beds. SDGF&P and Forest Service biologists monitor dipper populations in the Black Hills. Finescale dace are known from limited locations and have been monitored by State fishery biologists. FP Standard 1511 states that recreational panning activities shall be evaluated by a authorized Forest Service official on a case-by-case

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				basis to determine if an operational plan is needed (mitigation). In the Chief's Appeal Decision he recommended that this wording be changed to improve clarity and that a reference to CFR 36, Part 228, Sub-part A be included. This new language would not necessarily provide increased protection from recreational mining activity for dippers, the finescale dace or other wildlife.
31012	30	2	In the 34 years that I have hunted and hiked in the Black Hills National Forest I have seen as much or more animals in areas that was being logged then in other areas.	The Forest Service does recognize the potential for both adverse and beneficial effects of forest management (logging) on wildlife. Comment noted.
31012	49	41	The Phase I amendment must prohibit any logging of old growth (i.e., Structural Stage 5/6) and dense mature forest habitat (Structural Stage 4C) in the Black Hills; there is too little of this habitat left to allow any of the remaining SS-4C and SS-5 habitat to be logged or fragmented by roads.	See response to comment #31040.55.15.
31012	50	12	The scientific review indicates that there is a severe shortage of both population and habitat data for sensitive wildlife species on the Black Hills Forest, as well as that timber harvest can be detrimental to many of these species. Yet the Forest is proposing to proceed ahead with a large timber program. What ever you do before you finally develop Phase II will limit the quality of wildlife habitat in the future. So since so many problems have been identified with timber harvest on wildlife, why are you rushing ahead on insufficient data in order to maintain timber harvest. Why is this harvest the most important program for the Forest, irregardless of the impacts on wildlife?	Congress funds the USFS to produce and harvest timber (product) at a sustainable level while also protecting the biological and social resources for future generations. This mandate does not change with any of the proposed alternatives. What does change is the degree of protection during this interim period. The most current scientific information on habitat needs and population dynamics for ensuring species viability, as well as resource protection, was incorporated into developing Alternatives 2 and 3. Alternative 1 is based on the 1997 Revised Land and Resource Management Plan, which provided these protection levels consistent with the prevailing views at that time.
31012	51	3	[T]he interim direction not allow any logging of old growth forest, including not cutting at all of Structural Stage 5 or dense mature forest habitat Structural Stage 4C;	See response to comment #31040.55.15.
31012	55	19	The interim direction should NOT focus on commercially thinning stands in a purported attempt to make a new stand of large trees 100 years from now. Interim direction should, instead, focus on protecting all remaining habitat in the interim.	Not all species benefit from a single forest condition (e.g. structural stage). Protecting and enhancing habitat for native and desired non-native species on the Forest will occur by providing a diversity of habitats. The Phase I Amendment would continue to provide for diversity of habitats through Forest Plan goals, objectives, and standards and guidelines.
31012	112	19	The interim direction should NOT focus on commercially thinning stands in a purported attempt to make a new stand of large trees 100 years from now. Interim direction should, instead, focus on protecting all remaining habitat in the interim.	See response to comment #31012.55.19.
31015	22	7	With over 8,000 miles of roads on the BHNF, there is no need for more road building. Prohibition of such actions would protect the viability of goshawks, interior forest songbirds, martens, and other forest-dwelling species in the forest.	New road construction will be evaluated at each project level decision. Phase I would maintain patch size of high potential marten habitat and this would not allow roads to be constructed within high potential habitat areas.
31015	55	14	The interim direction should disallow any further road building and even	New road construction will be evaluated at each project level decision

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			aged silvicultural prescriptions during the Phase I. These activities are largely responsible for the plight of many of the species in question. With over 8,000 miles of roads on the BHNF, there is no need for more road building. And there are alternatives to shelterwood and patch clearcutting. None of the preliminary alternatives listed in the scoping notice would do this.	and will consider protections for wildlife as well as soil and water concerns. For response to timber management comments, refer to responses to comments #20230.61.5 and 31010.112.20.
31015	58	11	We request clarification of the statement (page 13) "Amphibians would benefit from increased coordination with State game agencies on release of predatory game fish in areas, on the forest, that are not stocked and that serve as amphibian breeding habitat." The Wyoming Game and Fish Department has the authority and responsibility to manage fish and wildlife populations on and off forest lands, within the State of Wyoming.	Predation on amphibians by fish species introduced into waters of the Black Hills was identified as a detriment to maintaining viable populations for species like the northern leopard frog. In waters that are not recognized by State (SD and WY) agencies as established recreational fishing areas, there would be a more concerted effort to coordinate proposals regarding future introductions of non-native fish into waters located on the Black Hills National Forest and not currently stocked. Both Federal and State agencies realize that they have a responsibility to maintain viable populations and habitats of native, as well as desired non-native, plant and animal species in areas within their jurisdiction.
31020	50	7	We are very concerned about the plans of the Forest to proceed with heavy fragmentation of the landscape with group selection cuts, along with the rationale for this approach. We have reviewed the wildlife review of two alternatives (1-2) by the scientific experts, and could not determine how their recommendations directed this type of harvest. You need to be providing a lot more information to the public so they can understand why you are doing this and make educated responses to your management proposals for their public lands.	Scientists interviewed for the goshawk recommended managing at the landscape level. The reasoning for managing a the landscape level was to account for unknown goshawks that may be nesting in the Black Hills National Forest, but that have not been detected through surveys. The goshawk requires a structurally diverse forest. Alternative 2 provides for known and presumed nesting goshawks across the forest, specifically by managing towards a balance of structural stages in the known and presumed goshawk post-fledging family areas across the Forest. Alternative 3 would incorporate managing for a balance of structural stages in ponderosa pine communities across the Forest. Chapter 3 notes the treatments that would be appropriate to manage for providing a balance of structural stages, following the Southwest Guidelines (Reynolds, et.al. 1992) as a guide. Effects on wildlife from forest fragmentation is discussed in Chapter 3 of the Phase I EA.
31030	18	14	Why only have bird species to represent the analysis in Norbeck?	The eleven bird species listed in Appendix L "Species for Analysis in Norbeck (Wildlife Preserve)" are not considered the only species to be used during project analysis. These species are found in specific vegetative habitat types such as aspen, shrub diversity, forested openings, and mature or dense forest conditions. They were identified to provide consideration for a wider range of habitats. White-tailed deer or the marten could also be used to evaluate effects of proposed management activities in Norbeck.
31030	49	81	For the public to fully understand the nature of the alternatives and their impacts, the USFS must provide a clear and complete description of the affected environment in the EA or EIS prepared for the Phase I amendment. At the least, the Affected Environment chapter of the NEPA document must provide the following information: histogram showing existing patch	See EA, Chapter 3. Affected environment and effects are discussed in Chapter 3 of the Phase I EA. The 1997 Revised Forest Plan FEIS discusses affected environment, by resource, and has been tiered to for the Phase I analysis.

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			size of all SS-4B/C/5 stands	
31030	49	82	For the public to fully understand the nature of the alternatives and their impacts, the USFS must provide a clear and complete description of the affected environment in the EA or EIS prepared for the Phase I amendment. At the least, the Affected Environment chapter of the NEPA document must provide the following information: estimates of the populations size and distribution of each species of concern (e.g., 10-20 nesting pairs of goshawks, 50 pine marten).	See EA, Chapter 3 for discussions of effects. See also response to comment #31030.49.81.
31030	50	4	It is also not clear how you can be certain you are maintaining management options for wildlife during the interim period if more analysis is needed. Don't you need to do this additional analysis before you are certain nonsignficant impacts will not occur?	Impacts to wildlife would be analyzed at the project level, as is done now. However, interim direction and scientific interviews have provided additional direction focused on protecting plant and animal species during this interim period. The primary objective of Alternatives 2 and 3 is to protect preferred habitats through avoidance. Phase II will address the species survey/monitoring methods, frequency, and level of coordination with South Dakota Game Fish & Parks Department, the agency charged with managing and regulating wildlife populations. See also response to comment #10210.58.2.
31030	453	5	The amendments are in response to concerns about Goshawk and Pine Marten populations. First, there should be no assumption that managing for these two specific species is more important than maintaining habitat for all the other species in the Black Hills, or than meeting all the other objectives of the forest plan. Second, we're not convinced that habitat for these species is degraded with commercial harvest and other traditional forest uses. Since coming under management, the extent of the spruce forest in the Black Hills has increased, due to fire suppression. To the extent martens need a spruce habitat, their habitat has improved in the Black Hills.	The purpose and need for the Phase I Amendment was identified in the scoping documents, and is discussed in the EA in Chapter 1. The Phase I and Phase II amendments are in response to the October 12, 1999 Appeal Decision, in which the Deputy Chief identified deficiencies in the Revised Forest Plan that need to be addressed. Management proposed for the Northern goshawk and American marten would also provide additional protection for other species found on the Forest. A discussion of anticipated effects to other species including Management Indicator Species and sensitive species can be found in Chapter 3 of the EA. A review of the effects of the Phase I alternatives was completed and other objectives in the Forest Plan can be met while managing for the native and desired non-native species present on the Forest. Also see Chapter 1 in the EA.
31040	19	5	Your alternatives 2 and 3 seem not to recognize the scarcity of old growth and goshawk nesting habitat - and the big losses in those habitats due to the Jasper Fire. Don't allow any logging of old growth (i.e., structural State 5) or dense mature forest habitat (structural Stage 4C) in the Black Hills; there is so little of it left, it shouldn't be cut up even more with logging and logging roads.	These decisions would be made at the project level. Goshawk nesting habitat is provided under all alternatives. See response to comment #31040.55.15.
31040	20	5	The interim direction should not allow any logging of old growth (i.e., Structural Stage 5) or dense mature forest habitat (Structural Stage 4C) in the Black Hills; there is too little of this habitat left to allow any of the remaining SS-4C and SS-5 habitat to be logged or fragmented by roads.	See response to comment #31040.55.15.
31040	35	1	Predator Conservation Alliance represents more than 1500 members	Comment noted. See responses to comments #10210.58.2 and

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			from this region and nationwide who highly value the presence of native predators on the Black Hills National Forest, including the northern goshawk and the American marten. Toward this end, we urge you to revise the forest plan such that it best maintains and protects forested habitat for these species, as well as grasslands and aquatic habitat necessary to maintain and restore ecological integrity across the landscape.	31030.453.5.
31040	49	27	The interim direction in Alternatives 2 and 3 is not based on actual habitat conditions of the Black Hills, but upon the generic management guidelines developed for far less impacted landscapes -- to prevent populations from getting into trouble. However, the Black Hills is one of the most (if not the most) heavily logged and roaded National Forests in the country, and species are already in trouble in this ecosystem. In such a highly impacted landscape, where population viability is already a serious concern and were habitat is already so marginal (e.g., near complete lack of old growth and interior forest habitat), much stronger management direction is clearly needed.	Comment noted. See response to comment #10110.49.85.
31040	51	2	I am asking you to ensure that any amendments you make do provide the maximum possible interim protections for all wildlife species of concern on the Black Hills. Coming from someone who has camped and hiked the Hills for many years, I feel the critical point is that the amendment protect all old growth species. I am concerned about the viability of all snag-dependent species, and in particular species such as goshawks, martens, rare land snails, and rare plants. My request to the Forest Service, since you are the responsible stewards of our National Forests, is that you protect the habitat these species need. Once a species' population loses fitness or becomes non-viable or poorly distributed due to lack of suitable habitat, it will be very difficult to correct the situation. Whatever action you take should include clear direction to stop degradation or loss of habitat for these species of concern.	See responses to comments #10110.49.85 and 31010.49.8.
31040	55	2	FCC and NFPA oppose any attempt to weaken the Chief's interim direction. To ensure viable, well-distributed populations, the Phase I amendment should offer the maximum possible interim protections for the species of concern on the Black Hills (including goshawks, marten, rare land snails, snag-dependent species, and rare plants). Responsible stewardship also demands that the Forest Service provide strong protection for these species in the short 2-5 years interim period because one scarce habitat is degraded or lost, it may not possible to recover it for the foreseeable future. Likewise, once a species' population becomes non-viable or poorly distributed due to lack of suitable habitat, it is very difficult to correct.	See responses to comments #10110.49.85 and 31010.49.8.
31040	55	15	To ensure viability of goshawks, interior forest song birds, martens, and other forest-dwelling species on the Black Hills, the Phase I amendment must include direction to prevent any further logging (regardless of method)	None of the alternatives advocate logging or prescribe burning in areas designated as ‘late succession’ (old growth) or in areas approaching near a late succession condition (4C). These ‘forest stand’ treatments

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			or burning of old growth (Structural Stage 5) or "mature dense" forest (SS-4C) habitat. None of the preliminary alternatives listen in the scoping notice would do this.	are decisions made at the project level. The Forest Plan Objectives 207 & 208 addresses managing for at least 5 % of the forestland base for late succession. The interim direct specifically addressed not 'reducing patch size' of late succession habitats occupied, or likely to be occupied by the American marten. This would apply to spruce dominated habitats. In ponderosa pine forest types the habitat needs of the northern goshawk, brown creeper, and other species are considered prior to any project decision.
31040	112	6	We oppose any attempt to weaken the Chief's interim direction. To ensure viable, well-distributed populations, the Phase I amendment should offer the maximum possible interim protections for the species of concern on the Black Hills (including goshawks, marten, rare land snails, snag-dependent species, and rare plants). Responsible stewardship also demands that the Forest Service provide strong protection for these species in the short 2-5 years interim period because one scarce habitat is degraded or lost, it may not possible to recover it for the foreseeable future. Likewise, once a species population becomes non-viable or poorly distributed due to lack of suitable habitat, it is very difficult to correct.	See responses to comments #10110.49.85 and 31010.49.8.
31040	470	1	As a hiker, I see the benefits of controlled burns and proper thinning to increase wildlife habitat. Untouched areas have thick canopy, pine needle fuel build up, few deer trails, and little if any deer browse.	Comment noted. Fire and fuel treatments would continue under any of the Phase I Alternatives.
31040	477	4	Nancy asked if the Forest Service is protecting all the plants, little rare plants, fish, dipper? Does everyone know where finescale dace, dipper, plants are?	It is not possible to protect all the plants, little rare plants, fish and dippers that may exist on the Forest. All locations of specific plants, fish and dippers are not known. Surveys are completed and information is input into databases identifying where sensitive species occur. Databases maintained by the States are also used as a source of information used when developing management proposals. The 1997 Revised Forest Plan includes direction to conserve Sensitive species, and some species for which there is a concern, and related. Under the Phase I Amendment alternatives some standards and guidelines are revised, and new direction added where the Deputy Chief identified deficiencies to further reduce risks to sensitive species and species of concern. Changes to the Forest Plan are included in Appendix E of the Phase I Amendment EA. See also response to comment # 31011.477.2
31042	11	8	In the context of Alternative 2, we have a great deal of difficulty with the asserted concept of "high potential for occupancy". The entire management action generated form this assertion is fundamentally a source of unparalleled controversy. It is an assertion that can be called into litigation from either side at any time and justified either way. It sets up the legal avenues to tie up far more resource land base in court than is necessary to actually maintain for a given "species viability". Therefore, we ask the Alternative be written to only include "known habitat" that is verifiable. It must be remembered the species in question are not endangered and therefore, the principal management is for the	For the marten, Interim Direction says "All vegetation management projects should be designed to prevent further decrease in patch size of late-succession forests within areas currently occupied by martens or with a high probability for occupancy. Seek opportunities to increase connectivity of such areas." Terms such as 'high probability for occupancy' and 'increase connectivity' had to be defined. Scientific literature on marten habitat requirements was reviewed. Marten scientists reviewed our selection criteria of marten habitat. Chapter 2 includes a table listing characteristics of stands with high potential for marten occupancy. By maintaining areas of high potential for

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			preservation of the species and not for the regeneration of the species.	occupancy, as well as areas known to be occupied by marten, risks to marten populations would be reduced until the Phase II analysis is complete.
31042	49	39	The Phase I amendment must prohibit proposed activities on the BHNF if it is determined the activities may impact even one individual from the population of any species of concern on the Black Hills. This direction is necessary because when viability is a serious concern, impacting even one individual could impact the entire population and could contribute to in extirpation from the Forest.	A Biological Assessment/Biological Evaluation was completed for the Phase I Amendment. The finding for sensitive species was "May affect individuals, but is not likely to result in a loss of viability on the Planning Area, or cause a trend towards Federal Listing or a loss of species viability range wide". See Phase I EA Appendix G.
31042	49	79	For each alternative, how implementing the interim direction would affect the availability of merchantable sawtimber, and thus, how each alternative would reduce the annual Allowable Sale Quantity on the BHNF; this assessment must also account for the reduction in sawtimber caused by the Jasper Fire and past, present, and planned timber sales. If the USFS considers an alternative that would weaken the Chief's Interim Direction in any way (as Alternative 3 would), an EIS must be prepared to evaluate how that would impact species viability and distribution. An EIS is also needed to disclose the irreversible and irretrievable commitment of resources that would result from further loss or degradation of habitat allowed under the relaxed interim direction.	Changing the Allowable Sale Quantity is not part of the Phase I Amendment process. Review of the long-term sustained-yield capacity at the forest level is an issue to be addressed in Phase II of the Forest Plan Amendment process. The Jasper Fire occurred after the Phase I efforts were underway. The Forest identified a need to analyze the 83,500 acres Jasper Fire effects and management appropriate for that area given the changed conditions in a separate effort. The Jasper Rapid Assessment Team Report and the Jasper Fire Value Recovery Final Environmental Impact Statement (FEIS) are complete and available on the Black Hills National Forest website. The Deputy Chief's interim direction has been incorporated into Alternatives 2 and 3. See Phase I EA Chapter 2. See also response to comment #10110.49.85 The Jasper Fire is discussed in the cumulative effects section of the Phase I EA, see Chapter 3. Volume estimates for each of the alternatives is listed in Table 2-6. See also responses to comments #10110.49.85, 71400.11.4, 71600.99.2, 71600.49.78 and 20200.22.3.
31042	50	9	NEC has raised objections about the Forest's delineation of structural stages for 9 years, including in our appeal of the Revised Forest Plan. Yet there appears to be no intent by the Forest to address this problem. Instead, you appear to be proceeding with amendments to the Forest Plan without looking at the serious problems that exist with the structural stage definitions. You cannot manage wildlife habitat for viability unless you correct this problem.	During the Phase I analysis, it was not possible to incorporate recommendations for the northern goshawk the existing forest structural stage guidelines. A 'cross-walk' system was created to move our existing structural stage data into a Vegetation Structural Stage (VSS) system used in Reynolds et al. 1992, Management Recommendations for the Northern Goshawk in the Southwestern U.S. Some adaptations regarding tree diameter and species were made to account for Black Hills conditions. These new structural stage definitions and rationale are available on the Black Hills Forest web site in the document titled 'Phase I Goshawk Analysis'.
31042	55	13	Given the serious concerns over the viability and distribution of goshawk, marten, land snails of special concern, and snag-dependent species in the Black Hills, the Phase I amendment must prohibit any degradation in habitat and any decrease in habitat capability for these species. (The Revised Plan currently allows projects to be implemented even if they reduce habitat capability down to the 40% level - an arbitrary figure that does not ensure well-distributed, viable populations). None of the preliminary alternatives listed in the scoping notice would do this.	See response to comment #31010.49.8.

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31042	99	15	The Forest has not adequately considered the contributions to species viability and diversity of the nearly 260,000 acres of forested lands in the Black Hills National Forest that are not considered Suitable and Available.	The Revised Black Hills Land and Resource Management Plan, FEIS describes in detail all Region 2 sensitive species (that occur in the Black Hills) and analyzed potential habitat for each species across the entire forest. This information was incorporated by reference for the Phase I analysis.
31042	100	15	[T]he Forest has not adequately considered the contributions to species viability and diversity of the nearly 260,000 acres of forested lands in the Black Hills National Forest that are not considered Suitable and Available.	See response to comment #31042.99.15.
31042	110	3	I believe the Black Hills National Forest should supply the Washington Office with species viability and diversity to satisfy their concerns without changing the forest plan.	There is a current lack of precise knowledge of what a viable population is for many of the species in question. This forest is working toward providing this information but it will take time. The Phase II process, which is underway, is designed to satisfy population viability concerns. This process will use conservation assessments, more intensive monitoring and pre-project surveys to accomplish the level of documentation required. See responses to comments 10600.61.1 and 10210.26.1.
31042	112	18	Given the serious concerns over the viability and distribution of goshawk, marten, land snails of special concern, snag-dependent species in the Black Hills, the Phase I amendment must prohibit any degradation in habitat and any decrease in habitat capability for these species. (The Revised Plan currently allows projects to be implemented even if they reduce habitat capability down to the 40% level-an arbitrary figure that does not ensure well-distributed, viable populations). None of the preliminary alternatives listed in the scoping notice would do this.	See response to comment #31010.49.8.
31042	113	1	The Black Hills should provide new documentation to the Washington Office to satisfy the concerns about species viability and diversity, without changing the forest plan.	See responses to comments #10210.26.1 and 31042.110.3.
31042	454	3	Ideally, the BHNF should provide documentation to the Washington Office to satisfy their concerns about species viability and diversity, without changing the forest plan.	See responses to comments #10210.26.1 and 31042.110.3.
31042	456	2	Addition documentation from the Black Hills National Forest, addressing the concerns about species viability and diversity, without changing the forest plan, needs to be presented.	See responses to comments #10210.26.1 and 31042.110.3.
31042	457	2	Ideally, the BHNF should provide documentation to the Washington Office to satisfy their concerns about species viability and diversity, without changing the forest plan.	See responses to comments #10210.26.1 and 31042.110.3.
31042	458	2	Ideally, the BHNF should provide documentation to the Washington Office to satisfy their concerns about species viability and diversity, without changing the forest plan.	See responses to comments #10210.26.1 and 31042.110.3.
31042	474	1	We are concerned about how the proposed amendments to the forest plan will affect future management of the Black Hills National Forest.	Social and Economic effects are discussed in Chapter 3 of the Phase I EA. See also responses to comments #10010.81.1 and 31042.110.3.

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			We are also very concerned about the proposed alternatives outlined in your October 27, 2000 letter and the potential effects of those alternatives on businesses and communities throughout the Black Hills. We encourage you to provide additional documentation to satisfy concerns about species viability and diversity.	
31043	49	38	The Phase I amendment must prohibit any reduction of habitat capability or quality for each of the species of concern on the Black Hills (goshawks, marten, snag-dependent species, land snails of concern, rare plants, creek chub, finescale dace). The Revised Plan currently allows projects to be implemented even if they reduce habitat capability to the 40% level -- an arbitrary figure that will not ensure well-distributed, viable populations.	See responses to comments #31010.49.8 and 31042.49.39.
31043	49	68	The creek chub and finescale dace should also be designated as BHNF Sensitive Species through the Phase I amendment.	Review and changes to the Region 2 sensitive species list is done by the Regional Forester. There is not a separate Black Hills NF sensitive species list. Changing the R2 Sensitive Species list is beyond the scope of this document. The finescale dace and lake chub are proposed as aquatic Management Indicator species (MIS) for the Black Hills. Please review the Selection Report: Aquatic Management Indicator Species for the Black Hills National Forest, available on the BHNF web site, for more information on selection criteria for the entire list of BHNF aquatic MIS.
31044	18	9	Agree for interim purposes. Alternative 2 and 3 are identical. Agree that the Plan should "Consider cavity nesting species when determining appropriate salvage treatments in fire burned and beetle outbreak areas." However, we strongly suggest that the language be re-worded to say "cavity dependent species". For example, mammals dependent upon snags for young rearing or cover may not technically be considered "nesters".	Comment noted. See guideline 2301 in Appendix E.
31044	22	4	Given the serious concerns over the viability and distribution of goshawk, marten, land snails of special concern, and snag-dependent species in the Black Hills, the Phase I amendment must prohibit any degradation in habitat and any decrease in habitat capability for these species.	See responses to comments #31010.49.8 and 31042.49.39.
31044	49	40	The Phase I amendment interim direction should NOT focus on conducting vegetation treatments under the guise of attempting to improve habitat in the future (e.g., trying to produce a stand of larger trees 50 years from now by commercially thinning stands now). Interim direction should, instead, focus on protecting all remaining habitat in the interim. Managing to provide better habitat in the future should only be allowed if it is shown the contemplated management activities will not impact the species of concern or otherwise degrade any of their habitat in the interim period.	The focus of the Phase I amendment and the alternatives proposed is to reduce the 'level of risk' to specific species where there may be population viability concerns while continuing forest management actions as described in the Revised Forest Plan. Interim direction never intended to halt forest management activities. See also response to comment #10210.50.8.
31044	49	43	The Phase I amendment must provide direction to ensure well-distributed	The three alternatives proposed would vary in the 'level of risk' to the

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			habitats of need across the BHNF for the species of concern. It would be inappropriate and indefensible for the USFS to issue direction to protect habitats only in isolated or limited locations (e.g., known goshawk nests).	species of concern. Alternatives 2 and 3 include additional direction to ensure well-distributed habitats of need are provided across the Forest for the species of concern identified in the 1999 Appeal Decision. See Phase I EA Chapter 2 for discussions on the measures included in the alternatives and see Appendix E for a full listing of the changes and additions to the standards and guidelines proposed by alternative. See Phase I EA Chapter 3 for discussion of effects from the alternatives.
31044	49	45	To allow for the possible future loss of old growth, interior forest, and goshawk nesting habitat caused future large-scale disturbances (e.g., catastrophic fires), the Phase I amendment must provide direction to maintain more than the minimum amount of habitat believed necessary to sustain viable, well-distributed populations of the species of concern on the Forest. The estimate of how much more habitat to maintain should be based on estimates of expected size and frequency of catastrophic events.	See responses to comments #31010.49.8 and 31040.55.15.
31044	49	65	The Phase I amendment must provide strong direction to protect and improve the condition of streams and other aquatic habitats and conserve the populations of sensitive aquatic invertebrates in the Black Hills. The urgent need for such direction is clear from various studies. Additional direction is needed in the Phase I amendment to address stream fragmentation, over-utilization of water, restoration of willow and beaver communities, introduction of non-native species to aquatic systems, and to ensure viable, well-distributed populations of dippers, beavers, and other species associated with aquatic systems.	The EA discusses effects to watershed and fisheries resources in Chapter 3. Part of the purpose of Phase I Amendment is to assure that the Forest maintains its options pertaining to species until the re-analysis of species viability and diversity is completed. Aquatic management indicator species will be added with this amendment, and proper and necessary protection will be put in place for these species. The issues brought up here will be further addressed in the Phase II analysis.
31044	50	16	NEC has requested through the years that specific wildlife habitat plans be clearly defined and implemented on a landscape level. Such habitat planning is clearly indicated, as well, by your panel of various scientists. Yet you will not do any of this habitat planning at this time. Your promises that it will done later are just that-empty promises. Given the failure of the Forest to consider public concerns about wildlife over the last decade, we have little faith that you will follow through on your promise to do this type to planning in the future. There is also the problem of continued degradation to wildlife habitat during the interim period even if you do complete this planning. We believe this planning should be done right now. There is enough habitat information on wildlife to develop some pretty good habitat plans. Why can't you just do this?	The Phase I process has reviewed species specific Conservation Assessments as they exist. Writing specific wildlife habitat plans is beyond the scope of the Phase I analysis, but will be addressed in the Phase II analysis of the Forest Plan re-evaluation. Assessments for the Phase II effort are currently underway. See also response to comment #10210.50.8.
31045	3	4	For snag dependent species, I would very much appreciate reviewing your reference material, which provides specific information on the exact snag requirements for the species under consideration. What snag species are these figures based on? Considering the restrictions (road closures, prohibited fuel cutting) that have been or will be enforced I believe it is important to provide the "forest-users" with a list of snag species that are of concern. In addition, data that supports the FS very	Reference material used to determine snag requirements for cavity dependant species included: Barclay, Robert M.R. and R. Brigham (editors). 1996. Cunningham, James B. et al. 1980; Dixon, R.D. and V.A. Saab. 2000; Hay, Douglas B. and Marcel Guntert. 1983; Pierson, E.D. et al. 1999; Reynolds, Richard T. et al. 1992. Sydeman, W. J. and Marcel Guntert. 1983. Wisdom, M.J. et al. 2000; Expert Interview Summary. 2000. Please refer to Wildlife Specialists Report for citation

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			specific figures on snags per acre as well as size requirements, for those species, should be noted. Closures of established roads that have been implemented to-date, to protect snags from firewood cutting, appear questionable.	information. There are many wildlife species that utilize dead and dying trees (snags) in the Black Hills. Studies conducted on the black-backed woodpecker, northern three-toed woodpecker, Lewis' woodpecker, pygmy nuthatch, bats, and northern flying squirrel have shown that these and other species are strongly associated with large diameter snags. The revised Forest Plan was determined to be inadequate to meet this apparent need. In order to begin as soon as possible to provide for these species dependant on large diameter snags, firewood restrictions were put in place (effective 1/2000). Since that time, a major storm event (4/2000) caused thousands of trees to break creating many additional snags. However, these new snags are generally small in diameter and not suitable as future nesting/roosting habitat for the species listed. The Jasper fire also created many large diameter snags. Some of these may be removed during timber recovery actions (Jasper Fire FEIS). These additional fire killed trees will, for the most part, be of short duration, (5-10 years). Insects continue to kill trees, large and small diameter. These events can be localized in areas not readily accessible to firewood cutting. In these cases, there is not a 'snag shortage'. However, in areas that are near population centers (Rapid City, Spearfish, Sundance, Custer, Hill City, etc.) snag densities are below current Forest Plan snag standards. The desire is to have adequate snag densities scattered across the landscape, and continue to do so over time.
31045	5	1	For snag dependent species. I believe from my trips in the hills that the only way you can get the number of snags you want is to kill living trees. Have you ever surveyed areas to see what the naturally occurring number is. I believe your number is extremely high and could only occur after a forest fire which seems to be a preferred option. The motivation seems to be the prime motivation here since I'm sure it would be the case throughout the unburned portion of the forest.	See response to comment #31045.3.4.
31045	11	10	We address the closing of areas and roads or the protection of snags as unacceptable. There are alternatives such as signing for the prevention of cutting snags that have not been fairly offered in the alternative [2]. It is our contention the solution does not lay in denial of access especially when that denial disregards the equally valid recreational and other practical uses of the forest. That is not to mention how such blanket closures compromise the ability of fire fighters, life safety, and other management personnel to affect their purpose. This "blanket" statement represents little more than a blanket concession to the very environmentalist extremists that have caused this ransom document in the first place. With proper management and enforcement, both access and snags can be effectively preserved and we ask these statements of closure identification be stricken from the alternative [2].	Under Alternatives 2 and 3 (Guideline 2304) road closures for snag protection could be considered for areas where demonstrated loss of snags occurs due to firewood cutting. Project area analysis would indicate needs for road closures, in addition to snag protection measures already in place. Alternative 3 maintains the direction in the current Forest Order restricting the cutting of standing dead trees.
31045	18	10	Agree that the Plan should prohibit cutting of standing dead trees for	Snag protection (firewood cutting restrictions, road closures) are

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			fuelwood. We suggest that there be provisions for road closures adjacent to certain snags to protect snags from easy human access. We also suggest that there be implementation of monitoring specific snags for wildlife use and provisions for law enforcement.	provided for with Phase I alternatives. Law enforcement of these provisions would also occur as manpower allows. Monitoring of snags is currently accomplished during project level analysis. The Phase II re-evaluation process is expected to further define the number, density and size of snags required to meet snag dependent species viability needs.
31045	20	7	To maintain a viable, well-distributed populations of snag-dependent species such as the pygmy nuthatch, the interim direction must provide for recruitment of large snags by preserving large GREEN trees; this should be done by establishing a diameter limit that prohibits the logging of any live trees larger than 18 inches DBH.	Phase I would provide for large diameter green tree (snag) replacement sufficient to meet the Interim Direction (Alternative 2). Alternative 3 is expected to meet standards set forth in the Interim Direction. Direction includes providing for 25 percent of the replacement trees to be 20" dbh , or from the largest class available.
31045	34	18	The interim directions instruct the USFS to leave more snags. We are perplexed with this direction. Over the last several years we have seen numerous major weather events, prescribe and wild fires, that have created a wealth of snags. In addition, new BHNF regulations are prohibiting the cutting of any of these snags for firewood. It is very evident that we now have more snags that what was in the early 1990's when the inventory information was collected for the 1997 LRMP.	See response to comments #71410.108.1 and 31045.3.4.
31045	35	6	To maintain viable, well-distributed populations of snag-dependent species, we urge the Forest Service to protect large green trees, and specifying minimum diameters to ensure compliance.	See response to comment #31045.20.7.
31045	36	5	The interim direction must provide for the existence of large snags for snag-dependent species, in the form of large green trees. This means that the logging of any live trees larger than 18 inches DBH must be prohibited.	See response to comment #31045.20.7.
31045	49	57	To ensure viability of snag-dependent species in the Black Hills, the Phase I amendment must provide for continuing recruitment of snags from currently green trees (not just protection of existing dead snags). Recruitment is important in the Black Hills because many snags left in logged areas are either blown down or cut down by fire wood gatherers. The Chief's interim direction does not provide for adequate snag recruitment of snags from live, green trees.	Phase I would provide for large diameter green tree (snag) replacement sufficient to meet the Interim Direction (Alternative 2). Alternative 3 is also expected to meet standards set forth in the Interim Direction.
31045	49	58	To maintain viable, well-distributed populations of species that depend upon very large snags, such as the pygmy nuthatch and saw whet owl, the Phase I amendment must provide for recruitment of large snags by preserving large green (live) trees. In particular, to provide large snag habitat, the Phase I amendment must establish a diameter limit that prohibits the logging of any live, damaged, or dead trees larger than 18 inches DBH. This protection is reasonable and should be provided, at the very least, through the Phase I amendment for the "interim" period until the USFS takes a hard look at this problem and figures out more carefully how many large live trees must be retained for recruiting large snags needed by nuthatches, etc. A diameter limit is also the most practical way of addressing the large	See response to comment #31045.20.7.

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			tree and large snag habitat needs. (The USFS has learned this all to well from trying to implement the Veteran Settlement Agreement large tree provisions.)	
31045	51	6	The interim direction protect the old growth component of remaining large snags by preserving existing large, green trees larger than 18 inches DBH.	See response to comment #31045.20.7.
31045	55	7	To maintain viable, well-distributed populations of snag-dependent species such as the pygmy nuthatch, the interim direction must provide for recruitment of large snags by preserving large GREEN trees; this should be done by establishing a diameter limit that prohibits the logging of any live trees larger than 18 inches DBH.	See response to comment #31045.20.7.
31045	55	26	To ensure viability of snag-dependent species in the Black Hills, the Phase I amendment must provide for continuing recruitment of snags from currently green trees (not just protection of existing dead snags). Recruitment is important in the Black Hills because many snags left in logged areas are either blown down or cut down by fire wood gatherers. The Chief's interim direction does not provide for snag recruitment of snags from live trees.	See response to comment #31045.20.7.
31045	55	28	Given the shortage of large snags (important for the pygmy nuthatch & saw whet owl), the Phase I amendment must prohibit the logging of all live trees larger than 18 inches DBH so these trees can eventually become large snags. None of the proposed alternatives would do this. At the very least, this protection is reasonable and should be provided through Phase I amendment of the "interim" period until the USFS takes a hard look at this problem and figures out more carefully how many large live trees must be retained for recruiting large snags needed by nuthatches, etc.	See response to comment #31045.20.7.
31045	99	13	We recommend that the current process for meeting snag objectives on a watershed basis be incorporated into the selected alternative to provide the maximum amount of flexibility in meeting snag objectives.	The current snag model used to meet Forest Plan snag standards is not expected to be used in future project level planning under any alternative. Even if Alternative 1 is selected, pre-activity surveys and models to estimate green tree retention for future snags have improved (refer to document titled 'Landscape Level Snag and Green Tree Retention Modeling'). Alternatives 2 and 3 would require snags of larger diameter and density. Alternative 3 is expected to meet future snag needs due to the increased emphasis on maintaining additional large diameter green trees across the landscape and no snag simulation modeling would be necessary. Restrictions on cutting snags as firewood is part of Alternative 3. Closing roads to address areas with snag deficiencies would be an option under all alternatives and decided at the project level. Meeting snag objectives across the watershed is incorporated in Alternatives 2 and 3.

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31045	100	13	We recommend that the current process for meeting snag objectives on a watershed basis be incorporated into the selected alternative to provide the maximum amount of flexibility in meeting snag objectives.	See response to comment #31045.99.13.
31045	112	31	The Revised Plan direction to leave a few additional seed trees in a shelterwood cut is unlikely to meet Forest Plan snag requirements over time, and certainly inadequate to meet actual wildlife needs of snag-dependent species. Under a natural mortality regime, the Forest Service would have to leave roughly five times as many seed trees (closer 50-60) leave trees per acre rather than 11-15) to provide the Plan's minimal snag requirements. Even higher amounts of leave trees would be needed to meet the Chief's Interim direction, calling into question the appropriateness of even-aged logging at all. Given the increased exposure of snags in seed cuts and overstory removals to windthrow, these snags are unlikely to stand as long as the recruitment assumptions suggest, again calling into question current logging prescriptions on the BHNF.	The Appeal Decision determined that the revised Forest Plan may not adequately provide for snags over time. Alternatives 2 and 3 provide for additional project level mitigation and silvicultural direction to provide for sufficient snags and large diameter green trees left as snag recruitments during this Phase I period. The Phase II re-evaluation process is expected to further define the number, density and size of snags required to meet snag dependent species viability needs.
31045	112	32	To maintain viable, well-distributed populations of snag-dependent species such as the pygmy nuthatch, the interim direction must provide for recruitment for large snags by preserving LARGE GREEN TREES. Given the shortage of large snags (important for the pygmy nuthatch and saw whet owl), the Phase I amendment must prohibit logging of all live trees larger than 18 inches DBH so these trees can eventually become large snags. None of the proposed alternatives would do this. At the very, this protection is reasonable and should be provided through the Phase I amendment for the "interim" period until the Forest Service takes a hard look at this problem and figures out more carefully how many large live trees must be retained for recruiting large snags needed by nuthatches, etc. To ensure viability of snag-dependent species in the Black Hills, the Phase I amendment must provide for continuing recruitment of snags from currently green trees (not just protection of existing dead snags). Recruitment is important in the Black Hills because many snags left in logged areas are either blown down or cut down by fire wood gatherers. The Chief's interim direction does not provide for snag recruitment of snags from live trees.	See response to comment #31045.20.7.
31049	22	5	Guideline 3201 should not be removed from the Revised Plan as the BHNF is proposing. The Guideline reads: "Habitat capability for species currently at or below 50 percent...should not be decreased by more than 10 percent due to the project." The Chief recognized this language was problematic because there is no floor(lower limit) so the BHNF could, project after project, continually reduce habitat until capability approaches 0%. Rather than being deleted, Guideline 3201 should, instead, be made a standard with a hard floor of 40% (consistent with other provisions of the Forest Plan).	This item needed additional clarification. The purpose behind replacing Guideline 3201 with additional management direction is for some of the reasons mentioned. A 10% reduction in 'habitat capability' per project area, or maintaining a minimum 'viability threshold' as a means to maintain viable populations are not soundly supported by scientific research. The primary problem is that errors in the way the model calculated habitat effectiveness were identified after the Revised Forest Plan was written caused the model to exaggerate habitat effectiveness values for big game (deer/elk) in various Management Emphasis Areas (5.4, 5.1, etc.). The HABCAP model will be reviewed and tested in depth during Phase II. It will be decided at that time if this model, or another model, is suited to be used as a tool to assess habitat effectiveness or species viability. Phase II will evaluate continued use of the minimum 'habitat effectiveness thresholds'

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				for elk and deer. These are not 'viability' thresholds.
31050	22	24	The Chief's Forest Plan appeal ruling requires the Black Hills to "Treat all environmentally protective guidelines in the Revised Plan as standards unless doing so would conflict with other interim direction..." The BHNF's description of its proposed Phase I direction, however, adds a couple of qualifiers to this important direction: "Guidelines identified as environmentally protective related to species viability will be treated as Standards until the Phase II effort is completed." The Chief's Interim Direction was not limited just to those guidelines that are "related to species viability". Moreover, there is no discussion in the scoping materials as to which guidelines will be "identified as environmentally protective" by the BHNF and how such guidelines will be identified. The Phase I amendment must treat all guidelines that affect wildlife habitat as "standards".	See response to comment #31050.49.31.
31050	49	31	It appears Alternatives 2 and 3 would, in some respects, actually provide weaker interim direction than that ordered by the Chief. For instance, the Chief's Forest Plan appeal ruling requires the Black Hills to "Treat all environmentally protective guidelines in the Revised Plan as standards unless doing so would conflict with other interim direction...." The USFS's description of its proposed Phase I direction, however, adds a couple of qualifiers to this important direction: "Guidelines identified as environmentally protective related to species viability will be treated as Standards until the Phase II effort is completed." The Chief's Interim Direction was not limited just to those guidelines that are "related to species viability". Moreover, there is no discussion in the scoping materials as to which guidelines will be "identified as environmentally protective" by the USFS and how such guidelines will be identified. The Phase I amendment must treat all guidelines that affect wildlife habitat as "standards."	General Interim Management Direction states: "Treat all environmentally protective guidelines in the Revised Plan as standards unless doing so would conflict with other interim direction….." Appendix E of the EA contains a listing of guidelines to be treated as standards. Some "environmentally protective" projects designed to correct poor road placement in 'water influence zones' could now harm established aquatic animals and plants. The intent of the Chief's interim direction is not to decrease future options regarding managing for species viability during this Phase I period.
31050	49	44	The Phase I amendment must treat all guidelines that affect wildlife habitat as standards to help avoid any further impacts to the species of concern in the BHNF. It is inappropriate to only treat a select set of guidelines as standards.	See response to comment #31050.49.31.
31050	49	46	Guideline 3201 should not be removed from the Revised Plan as the USFS is proposing. The Guideline reads: Habitat capability for species currently at or below 50 percent ... should not be decreased by more than 10 percent due to the project. The Chief recognized this language was problematic because there is no floor (lower limit) so the USFS could, project after project, continually reduce habitat until capability approaches 0%. Rather than being deleted, Guideline 3201 should, instead, be made a standard with a hard floor of 40% (consistent with other provisions of the Plan).	See response to comment #31050.22.5.
31050	55	29	Guidelines 3201 should not be removed from the Revised Plan as the	See response to comment #31050.22.5.

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			Forest Service is proposing. The Guideline reads: Habitat capability for species currently at or below 50 percent...should not be decreased by more than 10 percent due to the project. The Chief recognized this language was problematic because there is no floor(lower limit) so the Forest could, project after project, continually reduce habitat until capability approaches 0%. Rather than being deleted, Guideline 3201 should, instead, be made a standard with a hard floor of 40% (consistent with other provisions of the Plan).	
31050	55	33	The Chief's Forest Plan appeal ruling requires the Black Hills to "Treat all environmentally protective guidelines in the Revised Plan as standards unless doing so would conflict with other interim direction..." The Forest Service's description of its proposed Phase I direction, however, adds a couple of qualifiers to this important direction: "Guidelines identified as environmentally protective related to species viability will be treated as Standards until the Phase II effort is completed." The Chief's Interim Direction was not limited just to those guidelines that are "related to species viability". Moreover, there is no discussion in the scoping materials as to which guidelines will be "identified as environmentally protective" by the Forest Service and how such guidelines will be identified. The Phase I amendment must treat all guidelines that affect wildlife habitat as "standards".	See response to comment #31050.49.31.
31050	112	25	Guidelines 3201 should not be removed from the Revised Plan as the Forest Service is proposing. The Guideline reads: Habitat capability for species currently at or below 50 percent...should not be decreased by more than 10 percent due to the project. The Chief recognized this language was problematic because there is no floor(lower limit) so the Forest could, project after project, continually reduce habitat until capability approaches 0%. Rather than being deleted, Guideline 3201 should, instead, be made a standard with a hard floor of 40% (consistent with other provisions of the Plan).	See response to comment #31050.22.5.
31050	112	26	The Chief's Forest Plan appeal ruling requires the Black Hills to "Treat all environmentally protective guidelines in the Revised Plan as standards unless doing so would conflict with other interim direction..." The Forest Service's description of its proposed Phase I direction, however, adds a couple of qualifiers to this important direction: "Guidelines identified as environmentally protective related to species viability will be treated as Standards until the Phase II effort is completed." The Chief's Interim Direction was not limited just to those guidelines that are "related to species viability". Moreover, there is no discussion in the scoping materials as to which guidelines will be "identified as environmentally protective" by the Forest Service and how such guidelines will be identified. The Phase I amendment must treat all guidelines that affect wildlife habitat as "standards".	See response to comment #31050.49.31.
31070	3	1	It appears that none of the alternatives will satisfy all of the requirements for species viability and diversity.	Ensuring species viability is the driving force of this Forest Plan amendment process. Chapter 1 of the EA states that the purpose and

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				need for the Phase I assessment is to address identified Forest Plan deficiencies which must be corrected to assure that projects implemented during the time period it takes to complete the re-evaluation of species viability and diversity will maintain viable populations of native an desired non-native species. Effects to species are discussed in Chapter 3. Phase I Alternatives 2 and 3 are anticipated to further reduce risk of adverse impacts to species viability and diversity. See also response to comment #10210.50.8.
31070	3	2	Alternative 2 appears to come closest to this objective as well as taking into consideration other multiple uses of the Forest.	Comment noted.
31070	11	7	The definition in Alternative 2 needs to include clarity of exactly how many of a specific species is enough to justify the special management for that species. Under the guidelines spelled out in the way Alternative 2 is currently written, the entire Black Hills National Forest could well be decided to be the breeding grounds of a specific bird and thereby closed for any other use of resource.	Interim direction and the Phase I amendment is concerned with maintaining species viability for all wildlife and plants that occur in the Black Hills. The Forest would continue to be managed for multiple use purposes. Some restrictions could apply in specific situations in order to meet the intent of reducing risk to wildlife and plant species. See responses to comments #10010.101.1 and 10240.27.1.
31070	20	3	Proposed Alternatives 2 and 3 are not adequate to ensure the species of concern in the BHNF will remain viable and well-distributed through the interim period or into the future. In particular, both alternatives are inadequate because they fail to account for the current lack of old growth and goshawk nesting habitat, and they fail to account for the significant losses of these key habitats caused by the Jasper Fire.	During the Phase I interim period late succession or goshawk nesting habitat would not be altered by timber harvest. Catastrophic events like the Jasper fire will continue to play an unpredictable role in the evolution of the Black Hills ecosystem. Alternatives 2 and 3 are designed, based on interim direction and scientific expert comments, to adequately mitigate adverse effects to sensitive species during the Phase I period.
31070	49	26	The Black Hills populations of some of the species -- including the goshawk, marten, and rare land snails -- are currently neither viable nor well distributed on the Forest. Alternatives 2 and 3 would allow some impacts to occur to these species and their habitats during the interim period.	Alternatives 2 and 3 are designed, based on interim direction and scientific expert comments, to adequately mitigate adverse effects to sensitive species during this phase I period. See response to comment #31042.49.39.
31070	49	28	[T]he Chief's 1999 interim direction (the basis for Alternatives 2 and 3) did not consider the significant habitat loss caused by the Jasper Fire that occurred this year. This included the loss of at least 9 goshawk nest territories and several colonies of snail species of special concern. The Chief's interim direction was also based on the Revised Plan and the associated programmatic EIS -- documents prepared using USFS data on stand conditions from the early 1990's. In the years since then, significant additional losses and impacts to the habitats of concern (e.g., SS-4C) have occurred.	The Jasper fire caused a dramatic change in the landscape of over 79,400 acres of National Forest lands. The loss of goshawk nest stands is noted in Chapter 3. The Jasper Value Recovery Draft EIS discloses impacts as well. Assessments and evaluations, thus far, have shown no need to immediately change Forest Plan management direction in the Jasper area. This will be reviewed during the Phase II process.
31070	49	74	For the proposed action and each alternative evaluated in the NEPA document, the following effects must be evaluated as potential direct, indirect, and cumulative and cumulative impacts of the actions under consideration. For each species of concern in the Black Hills, the NEPA document must fully assess and disclose any possible changes in population size or distribution that could result from implementation of	See EA, Chapter 3 for effects discussions. See also response to comment #10210.50.8.

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			any of the alternatives.	
31070	49	76	For each of the alternatives, the NEPA document must fully assess how natural processes could affect the Forest and the species of concern. For each of the alternatives, the NEPA document must fully assess how suppression or control of natural processes could affect the species of concern and their habitats (e.g., gradual reduction in snags).	See EA, Chapter 3 for effects discussions. The Revised Forest Plan Biological Evaluation, located in Appendix H of the 1996 FEIS, discusses effects of management on sensitive species.
31070	50	15	We could not understand how you will measure the environmental impacts of each alternative for various wildlife species in a quantitative manner. Will this be done, and if not, how can the public have confidence in your analysis.	Environmental impacts would be addressed at the project level. The purpose of this programmatic Phase I amendment is to base future projects on the best science available at this time. See response to comment #10210.58.8.
31070	54	2	The proposed alternatives 2 & 3 are not adequate to ensure the species of concern in the Black Hills National Forest will remain viable & well distributed through the interim period or into the future.	See response to comment #31010.53.1.
31070	55	35	If the USFS considers an alternative that would weaken the Chief's Interim Direction in any way (as Alternative 3 would), an EIS must be prepared to evaluate how that would impact species viability and distribution. An EIS is also needed to disclose the irreversible and irretrievable commitment of resources that would result from further loss of degradation of habitat allowed under the relaxed interim direction.	See responses to comments #20200.57.8 and 20200.22.3.
31070	58	7	We don't believe enough specific information on each alternative is included in these documents to adequately assess the impacts and/or benefits to fish and wildlife.	See response to comment #31010.49.8.
31070	112	4	From the expert interview summary(hereinafter, "Interviews"), it is clear that the effectiveness of mitigation actions proposed for imperiled species is not known. It is unlikely the Forest will produce more old forests in the next five years. However, the Phase I amendment can ensure that existing mature and old forests are maintained. This would preserve management options until a more thorough analysis can be conducted during the Phase II Amendment (Interviews at 91).	None of the alternatives advocate logging or prescribe burning in areas designated as 'late succession' (old growth) or in areas approaching near a late succession condition (4C). These 'forest stand' treatments are decisions made at the project level. The Forest Plan Objectives 207 & 208 addresses managing for at least 5 % of the forestland base for late succession. The interim direct specifically addressed not 'reducing patch size' of late succession habitats occupied, or likely to be occupied by the American marten. This would apply to spruce dominated habitats. In ponderosa pine forest types the habitat needs of the northern goshawk, brown creeper, and other species are considered prior to any project decision. Somewhat with Alternative 2, and to a larger degree Alternative 3 the 'late succession' percentage may increase slightly when compared to Alternative 1.
31080	49	73	For the proposed action and each alternative evaluated in the NEPA document, the following effects must be evaluated as potential direct, indirect, and cumulative and cumulative impacts of the actions under consideration. For each species of concern on the Black Hills (see previous discussions), the NEPA document must fully assess any and all habitat loss or degradation that would be allowed under each of	See EA, Chapter 3 for effects discussions.

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			the alternatives.	
31080	49	75	For the proposed action and each alternative evaluated in the NEPA document, the following effects must be evaluated as potential direct, indirect, and cumulative and cumulative impacts of the actions under consideration. For each of the alternatives, the NEPA document must fully assess how natural processes could affect the Forest and the species of concern.	See EA, Chapter 3 for effects discussions.
31080	112	13	If the Forest Service considers an alternative that would weaken the Chief's Interim Direction in anyway (as Alternative 3 would), an EIS must be prepared to evaluate how that would impact species viability and distribution. An EIS is also needed to disclose the irreversible and irretrievable commitment of resources that would result from further loss or degradation of habitat allowed under the relaxed interim direction.	See response to comment #20200.22.3.
31200	18	18	Sometimes within the same section and same paragraph, you switch between the words "decrease" and "increase". It would have been easier to the reader if you had stayed consistent within the same paragraph and just used one word or the other. (Example: Fisheries, page 5, paragraph 5).	Comment noted. An updated newsletter was sent out in December 2000 to clarify information from the original scoping letter.
31230	3	5	On page 5, second paragraph (Attachment 3)- "removal of trees that intercept and remove water from the water table through evapotranspiration"; what tree species? Almost all trees fall into the category of removing soil moisture through evapotranspiration. The comments in the third paragraph, first sentence, are almost a contradiction to those that are made in this paragraph.	Comment noted. Errors in the scoping letter were noted after it was sent out. A Newsletter update with an expanded comment period was sent out in December 2000 to clarify information from the scoping package.
31230	18	22	Define "near streams".	For the preliminary review, provided with scoping package, the "near streams" referred to areas within 100 feet of streams. This distance was used as a measure to derive effects to fisheries.
31240	5	4	In the concern over fisheries please consider native species and consider noxious weed eradication needs along streams as well.	Aquatic Management Indicator Species include native species. The Forest Plan includes direction for noxious weed treatments. These would remain under any of the Phase I Alternatives.
31240	22	19	While we support MIS status for the fish species, this status alone does not guarantee protection; strong new management direction (with restrictions on land uses and water development, etc.) is needed in the Phase I amendment. The Phase I amendment must provide direction for maintaining the viability and improving the distribution of imperiled native fish on the forest. Of particular concern is the lake chub which was formerly common in streams of the Black Hills but is now limited to Deerfield Reservoir and perhaps only one nearby stream (in the vicinity of McIntosh Fen). This population is neither viable nor well distributed. The fine scale dace and mountain sucker are also in need of better management direction.	Refer to the Selection Report: Aquatic Management Indicator Species for the Black Hills National Forest, available on the BHNF web site, for more information on selection criteria for the entire list of BHNF aquatic MIS. The lake chub, mountain sucker and finescale dace are identified for MIS for the Black Hills NF. Alternatives 2 and 3 would improve habitat for these species during the Phase I period. The SDGF&P Dept stocks many of the creeks and large water bodies with non-native fish to support a highly valued recreational commodity. Changing this long established tradition is beyond the scope of Phase I. However, the SDGF&P Dept. is aware of the publics concerns regarding the native fish and amphibian populations and discussions and coordination efforts with them on this matter is ongoing.

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31241	49	64	The Phase I amendment must provide direction for maintaining the viability and improving the distribution of imperiled native fish on the Forest. Of particular concern is the lake chub which was formerly common in streams of the Black Hills but is now limited to Deerfield reservoir and perhaps only one nearby stream (in the vicinity of McIntosh Fen). This population is nether viable nor well-distributed. The finescale dace and mountain sucker are also in need of better management direction. Designating these species as MIS is not enough; strong new management direction (with restrictions on land uses and water development, etc.) is needed in the Phase I amendment.	See response to comment #31240.22.19.
31250	3	6	In table #1, fisheries should have also been evaluated. Alt. 2 would have rated as positive to both alt. 1 & 3. Perhaps this is not correct as it is stated that water yield would be less for alt. 2 than for alt. 3. On page five (attachment 3), the conclusion is that there are fewer impacts to the fisheries with implementation of alt. 2 than with alt. 1 or 3. How can this be if alt. 2 has less potential for water yield?	The EA clarifies the impacts to fisheries in Chapter 3. The scoping letter information was based on many factors, including water yield. Water yield is just one variable and although there would be a reduction in water yield for Alternative 2, it would not be noticeable, detectable or measurable on the ground, except possibly in the small watersheds.
31250	18	21	Take the following three statements:"30% increase of acres harvested with Alternative 3 compared to Alternative 3 compared to Alternative 1" (page 4, paragraph 1)."There would be fewer acres disturbed near streams in Alternative 3 (16%) (page 5, paragraph 3). "There is not much of an increase of timer volume (4%) under Alternative 3 compared to 1" (page 5, paragraph 5). We interpreted those statements as: "With Alternative 3, there will be an increase in harvested acres throughout the whole forest except in areas near streams. However, those acres harvested will have less volume removed via log trucks and consequently, less log traffic." If that is true, why didn't you synthesize this information for the reader? If it is not true, what do you mean?	Errors in the scoping letter were noted after it was sent out. A Newsletter update with an expanded comment period was sent out in December 2000 to clarify information from the scoping package. As noted in the October and December Newsletters, additional information regarding the Phase I analysis was available on the Black Hills National Forest website. Additional information was available at the three open houses held to discuss the Phase I Amendment process. Additional documents available on the website included: information on the analysis, the Expert Interview Summary, Preliminary Standards and Guidelines by Alternative, Selection Report for Aquatic MIS, the October 12, 1999 Appeal Decision, Newsletters, and Scoping Questions and Answers.
31310	35	8	We support the proposed direction regarding aquatic Management Indicator Species (MIS), yet we also urge the USFS To designate non-fish aquatic MIS necessary to indicate other effects of management activities (including livestock grazing water development and depletion, mining, water quality and fishing.	Refer to the Selection Report: Aquatic Management Indicator Species for the Black Hills National Forest, available on the BHNF web site, for more information on selection criteria for the entire list of BHNF aquatic MIS.
31340	18	13	Should include the American Dipper as an indicator of high water quality and healthy aquatic invertebrate communities.	See responses to comments #31340.18.15 and 31340.19.6.
31340	18	15	Minor changes to the list of MIS, particularly adding one or more aquatic MIS, and removing appropriate MIS, and removing inappropriate MIS such as black bear: We agree that aquatic species should be included and we would like to review which species you are considering. We agree that the black bear can be removed. However, we would like to review the list of MIS in its entirety. For example why not list the American Dipper, a Black Hills resident and an indicator of high water quality? List ruffed grouse for indication of aspen and hardwood community health.	The current list of MIS was selected during the revised Forest Plan process. The appeal decision directed establishment of aquatic MIS (interim direction). Removing the black bear from the MIS was based on the general habitat requirements for that species and the fact that they are not present (in the wild) in the Black Hills. Any other changes to the BHNF MIS list will be addressed during Phase II.

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31340	19	6	It's a good idea to designate the 5 fish species you mention as aquatic Management Indicator Species, but there should also be non-fish species used as indicators - like stoneflies and mayflies, frogs and salamanders, beavers, dippers, willow communities and aquatic plants. All those can alert managers to effects of a variety of activities including grazing, mining, fishing, water development, etc.`	In the October Appeal Decision the Deputy Chief identified a need to designate at least one aquatic species for a Management Indicator Species (MIS). Species for whom all life processes occur in the water column were reviewed for the Phase I Amendment. The five species of fish identified for MIS in the Phase I Amendment respond to the Appeal Decision item. The entire list of Forest MIS will be reviewed in Phase II to determine if additional adjustments are needed to address species or habitats and to comply with new regulations. Refer to the Selection Report: Aquatic Management Indicator Species for the Black Hills National Forest, available on the BHNF web site, for more information on selection criteria used.
31340	20	9	I support the USFS's proposal to designate the five fish species (lake chub, finescale dace, brook trout, and mountain sucker) as aquatic Management Indicator Species (MIS). Through the Phase I amendment, however, the USFS must also designate non-fish aquatic MIS including aquatic micro-invertebrate (e.g., stoneflies and mayflies), the Northern leopard frog, tiger salamander, beaver, dipper, willow communities, and aquatic plants that may indicate other effects of management activities (including livestock grazing, water development/depletion, mining, water quality and fishing).	See response to comment #31340.19.6.
31340	22	18	We supports the BHNF's proposal to designate the five fish species (lake chub, fine scale dace, brown trout, brook trout, and mountain sucker) as aquatic Management Indicator Species(MIS). Through the Phase I amendment, however, the BHNF must also designate non-fish aquatic MIS including aquatic macro-invertebrate, the Northern leopard frog, tiger, salamander, beaver, dipper, willow communities, and aquatic plants that may indicate other effects of management activities (including livestock grazing, water development/depletion, mining, water quality and fishing).	See response to comment #31340.19.6.
31340	22	21	Since the health of large predator populations provides information about activities on the forest, the Phase I amendment should also designate the mountain lion as an MIS ad Sensitive Species on the Black Hills.	The mountain lion is listed as a threatened species by South Dakota Game, Fish and Parks Department, and is listed as a big game trophy animal by the Wyoming Game and Fish Commission. It was not selected as a Management Indicator Species for the revised Forest Plan. It was not selected as an MIS for the Phase I amendment because mountain lions are more of an indicator of healthy deer herds. The Forest MIS list will be reviewed in detail during the Phase II analysis.
31340	47	3	My most significant concerns include the selection of aquatic mis species. Long before the fish (MIS) species are indicating change there will be change in water chemistry, aquatic insect species, and physical features of the stream including temperatures, silitation, turbidity, etc. It is important that the base ecological/limnological condition be documented before any significant disturbance is introduced to the watershed.	See response to comment #31340.19.6.
31340	49	67	Through the Phase I amendment, however, the USFS must also designate non-fish aquatic MIS including aquatic macro-invertebrate (e.g., stoneflies	See response to comment #31340.19.6.

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			and mayflies), the Northern leopard frog, tiger salamander, beaver, dipper, willow communities, and aquatic plants that may indicate other effects of management activities (including livestock grazing, water development or depletion, mining, water quality and fishing). Other aquatic MIS alternatives should also be considered in the Phase I NEPA document.	
31340	51	8	The interim direction, in addition to designating fish Management Indicator Species, also designate other aquatic Indicators such as: aquatic macro-invertebrate (e.g., stoneflies and mayflies), the Northern leopard frog, tiger salamander, beaver, dipper, willow communities, and various aquatic plants.	See response to comment #31340.19.6.
31340	55	9	FCC and NFPA support the Forest Service's proposal to designate the five fish species (lake chub, finescale dace, brown trout, brook trout, and mountain sucker) as aquatic Management Indicator Species (MIS). Through the Phase I amendment, however, the Forest must also designate non-fish aquatic MIS including aquatic macro-invertebrate (e.g., stoneflies and mayflies), the Northern leopard frog, tiger salamander, beaver, dipper, willow communities, and aquatic plants that may indicate other effects of management activities (including livestock grazing, water development/depletion, mining, water quality and fishing).	See response to comment #31340.19.6.
31340	112	41	We support the Forest Service's proposal to designate the five fish species (lake chub, finescale dace, brown trout, brook trout, and mountain sucker) as aquatic Management Indicator Species (MIS). Through the Phase I amendment, however, the Forest must also designate non-fish aquatic MIS including aquatic macro-invertebrate (e.g., stoneflies and mayflies), the Northern leopard frog, tiger salamander, beaver, dipper, willow communities, and aquatic plants that may indicate other effects of management activities (including livestock grazing, water development/depletion, mining, water quality and fishing).	See response to comment #31340.19.6.
31341	55	30	The Phase I amendment must provide direction for maintaining the viability and improving the distribution of imperiled native fish on the Forest. Of particular concern is the lake chub which was formerly common in streams of the Black Hills but is now limited to Deerfield reservoir and perhaps only one nearby stream (in the vicinity of McIntosh Fen). This population is nether viable nor well-distributed. The finescale dace and mountain sucker are also in need of better management direction. Designating these species as MIS is not enough; strong new management direction (with restrictions on land uses and water development, etc.) is needed in the Phase I amendment.	See response to comment #31240.22.19.
31341	112	40	The Phase I amendment must provide direction for maintaining the viability and improving the distribution of imperiled native fish on the Forest. Of particular concern is the lake chub which was formerly common in streams of the Black Hills but is now limited to Deerfield reservoir and perhaps only one nearby stream (in the vicinity of McIntosh Fen). This population is nether	See response to comment #31240.22.19.

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			viable nor well-distributed. The finescale dace and mountain sucker are also in need of better management direction. Designating these species as MIS is not enough; strong new management direction (with restrictions on land uses and water development, etc.) is needed in the Phase I amendment.	
31343	49	66	We applaud the USFS for proposing to designate as aquatic Management Indicator Species (MIS) for the Black Hills the five fish species -- the lake chub, finescale dace, brown trout, brook trout, and mountain sucker. We believe this is a defensible and useful set of fish MIS. We therefore support the agency's proposal to designate these MIS through the Phase I amendment process.	Comment noted. See response to comment #31340.19.6.
31343	49	69	The need for aquatic invertebrate MIS is particularly important in light of the findings of Huntsman, Baumann, and Kondratieff (1999). McCafferty (1990) also recognized the unusual diversity of aquatic macro-invertebrates in the Black Hills: The Black Hills region is important biogeographically since, as will be discussed below, it contains one of the most unusual mixes of mayfly faunal elements found in North America. Black Hills records represent the extreme range margin for 13 of the 19 species [of Ephemeroptera] listed. The Black Hills represent the easternmost limits for certain western species. Four eastern species have westernmost limits in the Black Hills. Through the Phase I amendment, some of these aquatic species should be listed both as MIS and as Sensitive Species for the BHNF.	See response to comment #31340.19.6.
31430	13	1	After studying the proposed Alternatives for the Black Hills Forest Plan I would have to support the #2 alternative. The NWTF chapters are still disappointed that there is no emphasis on wild turkeys in Forest management. You put dead snag protection as a priority, but no thought about Turkey hunting is the fastest growing hunting to turkey hunters nationwide. Almost half of the turkey hunters in the Black Hills are non-residents. And yet with all this interest and economical impact in the Black Hills area, the Forest Service pays no attention. We are frustrated.	The turkey is a desired wildlife species. All alternatives provide for turkeys and turkey roost trees. Alternative 1 (FP guideline 3205) addresses turkey roost tree groups. This would be treated as a Standard with Alternative 2 and 3. In addition, there would be an emphasis on retaining additional large diameter pine trees for snag recruitments and for structural diversity with Alternatives 2 and 3. These trees would provide additional turkey roosting habitat. The FP objectives to maintain areas of 'open forest', meadows, hardwood communities and down woody material provide foraging, and nesting habitat. Dense forested areas are also important for wintering habitat. These habitat attributes would remain with all alternatives.
31440	57	2	The ensure viable, well-distributed populations, the Phase, I amendment should offer the maximum possible interim protections for the species of concern on the Black Hills (including goshawks, marten, rare land snails, snag-dependent species, and rare plants). Responsible stewardship also demands that the USFS provide strong protection for these species in the short 2-5 year interim period because once scarce habitat is degraded or lost, it may not be possible to recover it for the foreseeable future. Likewise, once a species' population becomes non-viable or poorly distributed due to lack of suitable habitat, it is very difficult to correct.	See responses to comments #10110.49.85 and 31010.49.8.

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31441	57	3	Proposed Alternatives 2 and 3 are not adequate to ensure the species of concern in the BHNF will remain viable and well-distributed through the interim period or into the future.	See response to comment #31010.49.8.
32015	22	15	The Phase I amendment must include direction based on the expert interviews, including a prohibition on building roads in: (1) potential marten habitat; and (2) in "areas identified as important connectivity corridors for marten, canopy closure density.	Alternatives 2 and 3 are essentially the same with respect to the American marten. No roads would be constructed within areas considered potential marten habitat. No actions (including timber harvest and road construction) that could change the micro-climate of stands adjacent to marten habitat or of areas identified as connectivity habitat would occur in Alternatives 2 and 3 during this Phase I (5-year) period.
32030	11	9	It also needs to be noted the American marten was only recently introduced into the Black Hills National Forest in cooperation with local sportsman and organizations. Since it's introduction, the American marten has faired well under current management efforts. It seems extreme to turn the tables of the successful management plan responsible for that introduction. It must also be remembered that we are talking about a species that may or may not be indigenous to the region in the first place. We see no justification in the choice of this particular animal in the appeasement process.	In an effort to maintain future management options and comply with Interim Direction during this Phase I period, the Forest will use a conservative approach in protecting 'high potential' marten habitat and not conduct actions that may hinder managing for a viable marten population. In order to accomplish this, Forest data, scientific experts and all marten literature from the Rocky Mountain Region were used to define potential marten habitat (for Black Hills conditions). Alternatives 2 and 3 would maintain all habitat identified as high potential marten habitat during this Phase I period. Phase II will address the feasibility of maintaining a viable marten population over time. In addition, the Forest must manage for introduced species as well as native species.
32030	473	2	The mountain lion should not even be considered as it is not native to this forest.	Comment noted. The Forest must manage for both native and non-native species.
32040	5	5	Does it make sense to manage forest for the marten? I have never seen one.	See response to comment #32030.11.9.
32040	34	15	We also question the need to manage for marten. Again, it appears their numbers are increasing since their introduction in the 1970's. It is suggested the marten is dependent on spruce forest types. Since the amount of spruce continues to increase due to the exclusion of fire and the natural progression of succession in our higher and wetter sites there appears to be no need to specifically manage for this species.	See response to comment #32030.11.9.
32040	49	56	The Phase I amendment must include direction based on the expert interviews, including (1) a prohibition on building roads in potential marten habitat, and (2) in "areas identified as important connectivity corridors for marten, maintain canopy closure and density (i.e., do not thin)."	Comment noted. See response to comment #32015.22.15.
32040	99	11	Interim Direction seeks to guide Forest Service activities "in areas currently occupied by marten or with high potential for occupancy." Ruggiero states on page 33 of the Expert Interview Summary that "the forests definition includes more areas than what marten typically use, and therefore, the term would be more appropriately stated as 'potential habitat", rather than 'higher potential habitat'" In Interview Team Conclusions, the team repeatedly	The wording of the Interim Direction "….or (forests) with a high potential for occupancy (by martens)." needed clarification. Scientific literature on marten habitat, and existing records of marten locations in the Black Hills were used to determine a liberal definition of 'potential marten habitat'. It covers areas with spruce forest and includes habitat attributes (snags, large down woody debris) that contribute to forest

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			refers to "potential" marten habitat rather than "high potential". This shift seems to carry through to the Project Sample Group Definitions, where even structural stage 3B White Spruce stands are considered to have a "high potential for marten occupancy". This suggests that whatever protective measures are eventually adopted by the Forest Service, they will be applied over a greater area than necessary. The Project Sample Group Definitions for Alternatives 2 & 3 contains the following direction: "Maintain microclimate conditions within areas of high potential for marten occupancy. Interpretation: no harvest in high potential habitat." (emphasis added). So it appears that under both alternative 2 and alternative 3 the Forest Service will be restricting more activities than directed by the Chief and will be doing so over a greater area. While we may have expected this under alternative 3, we are dismayed to see it in alternative 2.Such a restriction also seems unwarranted in light of the research cited in the Biological Assessment/Biological Evaluation of the Forest Plan Revision. "Koehler et al. (1975) suggested that low intensity fires or selective logging on mesic sites where the residual canopy was at least 30 percent may not be adverse.	understory structure favorable for marten occupancy. The definition addressed fragmentation and maintaining microclimate conditions in these areas so not to chance affecting areas that could be occupied. This definition was critiqued during scientific expert interviews and was considered comprehensive enough so not reduce habitat with a 'high potential for marten occupancy' during this Phase I period. This definition is displayed in Chapter 2 and further described in the Project Sample Group Definitions (refer to web site for this literature). Since Alternative 2 implements the Interim Direction it was necessary to use this definition. The definition does not change in Alternative 3.
32040	99	12	These authors outlined forest use considerations compatible with marten management. First, there should be late successional winter habitat on mesic sites with at least 30 percent canopy cover. Second, created openings within suitable habitat should be less than 300 feet wide. Third, diverse forest communities are preferred through the long term over large, homogeneous mature forests because they yield an array of food resources and provide sustainable habitats. "The prohibition on harvest can also be questioned from the standpoint of forest floor structure. It is accepted that forest floor structure is very important to marten, to the point that Aubry recommended that it be included in the definition of high potential habitat. It was also note by Raphael that "in the Black Hills, marten likely use large slash piles". Given this information, it would make more sense to manage the high potential habitat by creating stand and forest floor structure conducive to the marten rather than by prohibiting activities which could be used to create those conditions.	There was evidence from the expert interview process and indirectly from the Interim Direction that during the Phase I period the best approach would be to not conduct timber harvesting in areas identified as high potential marten habitat. This would provide the widest array of options for future management for the marten.
32040	100	11	Interim Direction seeks to guide Forest Service activities "in areas currently occupied by marten or with high potential for occupancy." Ruggiero states on page 33 of the Expert Interview Summary that "the forests definition includes more areas than what marten typically use, and therefore, the term would be more appropriately stated as 'potential habitat", rather than 'higher potential habitat"' In Interview Team Conclusions, the team repeatedly refers to "potential" marten habitat rather than "high potential". This shift seems to carry through to the Project Sample Group Definitions, where even structural stage3B White Spruce stands are considered to have a "high potential for marten occupancy". This suggests that whatever protective measures are eventually adopted by the Forest Service, they will be applied over a greater	See response to comment #32040.99.11.

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			area than necessary.[T]he Project Sample Group Definitions for Alternatives 2 & 3 contains the following direction: "Maintain microclimate conditions within areas of high potential for marten occupancy. Interpretation: no harvest in high potential habitat." (emphasis added)So it appears that under both alternative 2 and alternative 3 the Forest Service will be restricting more activities than directed by the Chief and will be doing so over a greater area. While we may have expected this under alternative 3, we are dismayed to see it in alternative 2.Such a restriction also seems unwarranted in light of the research cited in the Biological Assessment/Biological Evaluation of the Forest Plan Revision. "Koehler et al. (1975) suggested that low intensity fires or selective logging on mesic sites where the residual canopy was at least 30 percent may not be adverse.	
32040	100	12	These authors outlined forest use considerations compatible with marten management. First, there should be late successional winter habitat on mesic sites with at least 30 percent canopy cover. Second, created openings within suitable habitat should be less than 300 feet wide. Third, diverse forest communities are preferred through the long term over large, homogeneous mature forests because they yield an array of food resources and provide sustainable habitats. "The prohibition on harvest can also be questioned from the standpoint of forest floor structure. It is accepted that forest floor structure is very important to marten, to the point that Aubry recommended that it be included in the definition of high potential habitat. It was also note by Raphael that "in the Black Hills, marten likely use large slash piles". Given this information, it would make more sense to manage the high potential habitat by creating stand and forest floor structure conducive to the marten rather than by prohibiting activities which could be used to create those conditions.	See response to comment #32040.99.12.
32043	22	14	To provide for a viable, well-distributed population of pine marten in the Black Hills, the Chief's interim direction should not be changed (i.e., prevent further decrease in patch size of late-successional forests within areas currently by martens or with high potential for occupancy"). The scoping notice suggests the alternatives the BHNF is proposing for the Phase I amendment (Alt. 2 and Alt. 3) would only "prevent decrease in patch size" of late-successional white spruce of ponderosa pine stands with a significant white spruce component. Such stands occur on only a small fraction of the forest, and marten in the BHNF do inhabit forested areas dominated by ponderosa pine with little or no spruce. The Phase I amendment should adopt the Chief's direction, word-for word, for the marten and clarify that even ponderosa pine stands with little or no spruce should not be fragmented or suffer reduced path size. This will also protect interior forest songbird populations.	Habitat with “high potential for (marten) occupancy” was defined using information based on research conducted in the Rocky Mountain region. All white spruce dominated stands were identified as marten habitat in an attempt to include potential habitat and go with a liberal definition for this Phase I process so that future management options are maintained. This definition was critiqued by scientific experts and found to be acceptable. Ponderosa pine dominated stands were not identified as high potential marten habitat. To make sure that ‘late succession patch size’ was not reduced, mixed spruce/pine stands adjacent to spruce stands were included as high potential (marten) habitat. Chapter 2 displays a table for high potential marten habitat. Alternatives 2 and 3 would follow the full intent of the Deputy Chief's Interim Direction during this Phase I period. An ongoing study of marten in the Black Hills has to date, provided no information that would contradict this assessment of potential marten habitat.

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32043	49	54	To provide for a viable, well distributed population of pine marten in the Black Hills, the Phase I amendment should adopt the Chief's interim direction for marten (i.e., prevent further decrease in patch size of late-successional forests within areas currently occupied by martens or with high potential for occupancy").	See response to comment #32043.22.14.
32043	55	21	To provide for a viable, well distributed population of pine marten in the Black Hills, the Chief's interim direction should not be changed (i.e., "prevent further decrease in patch size of late-successional forests within areas currently occupied by martens or with high potential for occupancy"). The scoping notice suggests the alternatives the Forest Service is proposing for the Phase I amendment (Alt. 2 and Alt. 3) would only "prevent decrease in patch size" of late-successional white spruce or ponderosa pine stands with a significant white spruce component. Such stands occur on only a small fraction of the forest, and marten in the BHNF do inhabit forested areas dominated by ponderosa pine with little or no spruce. The Phase I amendment should adopt the Chief's direction, word-for-word, for the marten and clarify that even ponderosa pine stands with little or no spruce should not be fragmented or suffer reduced patch size. This will also protect interior forest songbird populations (Crompton only observed the full complement of such birds in the Black Hills in unlogged patches larger than 1000 hectares). In addition, the Phase I amendment must include direction based on the expert interviews, including (1) a prohibition on building roads in potential marten habitat, and (2) in "areas identified as important connectivity corridors for marten, maintain canopy closure and density (i.e., do not thin)."	See response to comment #32043.22.14.
32043	112	22	To provide for a viable, well distributed population of pine marten in the Black Hills, the Chief's interim direction should not be changed (i.e., "prevent further decrease in patch size of late-successional forests within areas currently occupied by martens or with high potential for occupancy"). The scoping notice suggests the alternatives the Forest Service is proposing for the Phase I amendment (Alt. 2 and Alt. 3) would only "prevent decrease in patch size" of late-successional white spruce or ponderosa pine stands with a significant white spruce component. Such stands occur on only a small fraction of the forest, and marten in the BHNF do inhabit forested areas dominated by ponderosa pine with little or no spruce. The Phase I amendment should adopt the Chief's direction, word-for-word, for the marten and clarify that even ponderosa pine stands with little or no spruce should not be fragmented or suffer reduced patch size. This will also protect interior forest songbird populations (Crompton only observed the full complement of such birds in the Black Hills in unlogged patches larger than 1000 hectares). In addition, the Phase I amendment must include direction based on the expert interviews, including "do not build roads in potential marten habitat", and "do not thin within connecting corridors" (Interviews at 40).	See response to comment #32043.22.14.
32044	9	4	As for dealing with marten issue, I do not understand how sound logs laying on the floor of the forests are going to create nesting areas when even I know they would rather den in a hollow log, also planning for future	Sound logs provide for marten prey habitat, as well as future nest habitat for marten. Interim Direction included direction to reduce risk for a viable marten population on the Black Hills NF. In order to identify

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			home sites for the martin seems far fetched considering how they may not want to move to the neighborhood that is being provided for them in this plan. Also there is no limit to their possible habitats. All this for a species we are not even sure belongs in the Black Hills.	habitats, Forest data, scientific experts and marten literature from the Rocky Mountain Region were used to define potential marten habitat (for Black Hills conditions). Alternatives 2 and 3 would maintain all habitat identified as potential marten habitat during this Phase I period. Phase II will address the feasibility of maintaining a viable marten population over time.
32046	18	7	American Marten, page 5:Alternative 2 and 3 are presently the same except Alternative 3 includes provisions for no new roads. We agree that new roads should not be built as they would add to forest fragmentation within late-successional forests. However, we suggest language to restrict reconstruction of old roads, trails and tracks as well.	Alternatives 2 and 3 are essentially the same, with respect to the American marten. No roads would be constructed within areas considered potential marten habitat. No actions (including timber harvest and road construction) that could change the micro-climate of stands adjacent to marten habitat or of areas identified as connectivity habitat would occur in Alternatives 2 and 3 during this Phase I (5-year) period.
32050	18	8	American Marten, page 5:Agree for interim purposes. Alternatives 2 and 3 are identical. With either Alternative 2 or 3, how do you propose to monitor marten presence and travel corridors for this interim period? Although the interim period is short, how will you know if the chosen alternative and its respective forest management practices have made any type of impact on marten habitat.	Monitoring would be conducted during project level analysis. Marten surveys in project areas with marten habitat (as defined) were begun last year (2000). Currently, a study (by SDSU) is looking at marten habitat preferences and an estimate of how many individuals are present in the Black Hills. This study should be completed in the next year or two. During the scientific interviews the discussion was directed as to what do the animals need during this interim period to not only protect individuals but also increase the confidence that viable populations would be protected. The primary objective of Alternatives 2 and 3 is to mitigate preferred habitats through avoidance. Phase II will address the species survey/monitoring methods, frequency, and level of coordination with South Dakota Game Fish & Parks Department, the agency charged with managing and regulating wildlife populations.
32050	99	10	While we understand that Alternative 3 is meant to go beyond the protective measures prescribed in the Chief's Interim Direction (ID) by including suggestions gleaned from the expert interviews, it appears that protective measures for the marten in Alternative 2 also exceed those specified in the ID. To the extent that Alternative 2 was intended to implement the guidelines contained in the ID, we feel that the additional protection is unwarranted.	Interim direction left some 'holes' in terms of adequately defining marten habitat. In the course of scientific literature review, scientific interviews and relating this information to Black Hills conditions, a workable definition of marten habitat was made. This single definition was then applied to the Interim Direction (Alternative 2), and determined appropriate for Alternative 3.
32050	100	10	While we understand that Alternative 3 is meant to go beyond the protective measures prescribed in the Chief's Interim Direction (ID) by including suggestions gleaned from the expert interviews, it appears that protective measures for the marten in Alternative 2 also exceed those specified in the ID. To the extent that Alternative 2 was intended to implement the guidelines contained in the ID, we feel that the additional protection is unwarranted.	See response to comment #32050.99.10.
32140	15	1	I support the proposed actions, specifically Alternative 2, with the exception of the removal of the black bear from the list of MIS. I disagree that the black bear is an "inappropriate MIS", regardless if they presently occur in the Black	Conversations with SDGF&P biologists have assured this forest that the State will not reintroduce black bear to the Black Hills. The Black Hills has experienced continual growth of private land development

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			Hills National Forest or not. The fact is that the black bear is on the list of South Dakota's threatened & endangered species, and the Black Hills contain much suitable habitat for bear. It is not unrealistic to suggest that sometime in the future, an effort might be attempted to re-introduce the black bear to its historic range in the Black Hills, therefore appropriate measures would be taking to ensure that the black bear habitat be protected.	increasing interface issues within and surrounding the Black Hills. Since the black bear is a habitat generalist, it would benefit from habitats used by other MIS (deer, turkey, goshawks, marten, etc.). The black bear would benefit from large areas of berry producing shrub species and areas with few roads. These are habitat features that deer and elk also benefit from. The decision was also made to limit overlap in MIS
32140	22	20	The BHNF is proposing to delete the black bear from MIS list based on an assertion this species has been extirpated from the Forest. There have been recent sightings of black bear (with cubs) in the Black Hills. Regardless of these sightings, the Phase I amendment should provide direction to restore this species to the forest and designate it as a Black Hills Sensitive Species.	See response to comment #32140.15.1.
32140	49	70	We object to the USFS's proposal to delete the black bear from the MIS list based on an assertion this species has been extirpated from the Forest. There have been recent sightings of black bear (with cubs) in the Black Hills. Regardless of these sightings, the Phase I amendment should provide direction to restore this species to the Forest, retain it as an MIS, and designate it as a Black Hills Sensitive Species (shifting from its current non-protective classification as species of special interest).	See response to comment #32140.15.1.
32140	49	71	Since the health of large predator populations provides information about activities on the Forest, the Phase I amendment should also designate the mountain lion (which does currently exist in the Forest) as a Sensitive Species on the Black Hills (the lion is currently listed only as a species of special interest on the Forest).	See response to comment #31340.22.21.
32140	55	31	The Forest Service is proposing to delete the black bear from the MIS list based on an assertion this species has been extirpated from the Forest. There have been recent sightings of black bear (with cubs) in the Black Hills. Regardless of these sightings, the Phase I amendment should provide direction to restore this species to the Forest and designate it as a Black Hills Sensitive Species.	See response to comment #32140.15.1.
32140	55	32	Since the health of large predator populations provides information about activities on the Forest, the Phase I amendment should also designate the mountain lion (which does currently exist in the Forest) as an MIS and Sensitive Species on the Black Hills.	See response to comment #31340.22.21.
32140	112	42	The Forest Service is proposing to delete the black bear from the MIS list based on an assertion this species has been extirpated from the Forest. There have been recent sightings of black bear (with cubs) in the Black Hills. Regardless of these sightings, the Phase I amendment should provide direction to restore this species to the Forest and designate it as a Black Hills Sensitive Species.	See response to comment #32140.15.1.
32140	112	43	Since the health of large predator populations provides information about activities on the Forest, the Phase I amendment should also designate the mountain lion (which does currently exist in the Forest) as an MIS and	See response to comment #31340.22.21.

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			Sensitive Species on the Black Hills.	
32210	37	6	Why not ask - Why do we have the wildlife we have after 90 YRS of intensity MGNT? The animals adapt. I have seen the goshawk numbers rise in the last 26-27 YRS - What have we done to harm them?	While apparently secure globally, the goshawk is currently listed on the Rocky Mountain Regional Forester's Sensitive Species list. Actions on the Black Hills NF that would move the species towards possible listing by the Fish and Wildlife Service are prohibited. The Interim Direction provided direction to reduce the risk of adversely affecting the Black Hills goshawk population (Alternative 2). Interviews with acknowledged goshawk scientists expanded on this course of action (Alternative 3) that would begin moving the Black Hills ponderosa pine landscape towards producing both nesting and prey base habitat for the goshawk, and there is every reason to believe that other wildlife species would also benefit. These recommendations are based on the Management Recommendations for the Northern Goshawk in the Southwestern U.S. (Reynolds et al. 1992), also a predominately ponderosa pine habitat type.
32212	22	10	To compensate for the loss of goshawk habitat caused by the Jasper Fire, which eliminated 9 out of 10 known goshawk nest territories in the burn area, the Phase I amendment must protect additional goshawk habitat elsewhere on the BHNF. This is crucial because only 10-15 pairs of goshawks have been found on the BHNF in recent years --not a viable or well-distributed population--and much of the remaining high quality goshawk nesting/post-fledgling area (PFA) habitat is not currently protected and could be logged during the interim period. The Chief's interim direction was issued before the fire and therefore does not address this important issue. Through Phase I amendment, the BHNF has the authority and responsibility to suspend logging plans on other parts of the Forest and to give protective designation to dense patches of mature and older forest habitats as a way of compensating for the significant loss of goshawk habitat. None of the proposed alternatives would do this.	The Jasper fire affected approximately 7% of the Black Hills National Forest. While no specific 'new goshawk habitat' areas have been designated as a result of the Jasper fire, Phase I will conserve existing nesting habitat under Alternatives 2 and 3. Alternative 3 would further enhance and provide for nesting habitat across the landscape. A more comprehensive analysis of goshawk habitat needs will be completed for the Phase II Amendment. See also response to comment #32212.49.50.
32212	49	50	The Phase I amendment should also prohibit logging existing goshawk habitat under the guise of creating future goshawk habitat.	All alternatives protect (known) goshawk nesting habitat. Alternatives 2 and 3 further reduce the risk to adversely affecting goshawk nesting habitat and work to improve goshawk prey habitat. Alternative 3 would do this at the landscape scale. Efforts to improve "future" goshawk habitat are explained in Alternative 3 by working to create a more diverse and structural balance in pine forests.
32212	55	5	The interim direction should not allow any logging of old growth (i.e., Structural Stage 5) or dense mature forest habitat (Structural Stage 4C) in the Black hills; there is too little of this habitat to allow any of the remaining SS-4C and SS-5 habitat to be logged or fragmented by roads.	See response to comment #31040.55.15.
32212	112	27	The interim direction should not allow any logging of old growth (i.e., Structural Stage 5) or dense mature forest habitat (Structural Stage 4C) in the Black Hills; there is too little of this habitat left to allow any of the remaining SS-4C and SS-5 habitat to be logged or fragmented by roads.	See response to comment #31040.55.15.

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			To ensure viability of goshawks, interior forest song birds, martens, and other forest-dwelling species on the Black Hills, the Phase I amendment must include direction to prevent any further logging (regardless of method) or burning of old growth (Structural Stage 5) or "mature dense" forest (SS-4C) habitat. None of the preliminary alternatives listed in the scoping notice would do this.	
32214	55	20	The Phase I amendment must provide direction to protect additional goshawk nesting and PFA habitat on the Forest to compensate for the significant loss of such habitat that resulted from the recent Jasper Fire (83,500 acres burned, eliminating 9 to 10 known goshawk nest territories in the burn area). The Chief's interim direction was issued before fire and therefore does not address this important issue. Through the Phase I amendment, the Forest Service has the authority and responsibility to suspend logging plans on other parts of the Forest--and to give protective designation to dense patches of mature and older forest habitat as a way of compensating for the significant loss of goshawk habitat. None of the proposed alternatives would do this.	See responses to comments #32212.22.10 and 32212.49.50.
32214	112	21	The Phase I amendment must provide direction to protect additional goshawk nesting and PFA habitat on the Forest to compensate for the significant loss of such habitat that resulted from the recent Jasper Fire (83,500 acres burned, eliminating 9 to 10 known goshawk nest territories in the burn area). The Chief's interim direction was issued before fire and therefore does not address this important issue. Through the Phase I amendment, the Forest Service has the authority and responsibility to suspend logging plans on other parts of the Forest--and to give protective designation to dense patches of mature and older forest habitat as a way of compensating for the significant loss of goshawk habitat. None of the proposed alternatives would do this.	See responses to comments #32212.22.10 and 32212.49.50.
32214	112	24	The Jasper Fire burned nearly 10% of the Forest, including a significant percentage of the known goshawk habitat and nest stands on the Black Hills. The goshawk population on the Forest before the Jasper Fire--consisting of "viable, well-distributed" threshold. The Chief of the Forest Service has agreed this is the case in his ruling on our appeal of the BHNF Revised Forest Plan. Because the goshawk population in the Black Hills was neither viable nor well distributed before the Jasper Fire, it is even less so now, and any further loss or degradation of goshawk habitat is clearly unlawful. Moreover, because the Jasper fire eliminated about 5,000 acres of nesting and PFA habitat and burned 9 of the 10 known goshawk nest territories across a significant portion of the Forest, the viability issue must be addressed before any further loss of goshawk habitat can even be considered, must less authorized. At a minimum, the Forest should set aside high quality goshawk habitat elsewhere on the Forest to offset the loss of goshawk habitat from the fire and proposed salvage logging. This will help maintain the status quo until the viability issue is fully addressed forest-wide in the Phase II Amendment. In addition, the cumulative impacts of the 83,500 acre	The Jasper fire affected approximately 7% of the Black Hills National Forest. While no specific 'new goshawk habitat' areas have been designated as a result of the Jasper fire, Phase I will conserve existing nesting habitat under Alternatives 2 and 3. Alternative 3 would further enhance and provide for nesting habitat across the landscape. A more comprehensive analysis of goshawk habitat needs will be completed for the Phase II Amendment. See also response to comment #32212.49.50.

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			Jasper Fire and any related salvage logging activities must be considered in developing the interim direction.	
32230	3	3	There appears to be a great deal to concern for the northern goshawk. Will the FS conduct a survey to determine the location of known nest sites? This is in special reference to date and area restrictions. Has this species been designed as threatened?	The northern goshawk is not listed as threatened. See responses to comments #32210.37.6 and 32230.22.11.
32230	11	6	In the first place, under the current conditions and management in the Black Hills, the Goshawk has and is thriving! It is not endangered and compromise on this issue only need prospectus defined on how to prevent it from becoming endangered. That includes the need to define clearly what "providing species viability" means to the management of areas concerned. Specifically that means 50 pairs of goshawk? 100 pairs? What regard to that particular species of bird, the study also should include the entire range of Goshawk and the particular impact the Black Hills National Forest has in that perspective. Since the Goshawk typical range includes basically everything between Canada and Mexico, we would assume "providing for species viability" in the Black Hills National Forest should prove a minimal change from current planning if any.	Providing a specific number of breeding goshawk pairs needed to maintain a viable population in the Black Hills has not been determined. The scientific interviews for this Phase I process were not designed to accomplish this. The purpose of the Interim Direction is to reduce the risk of adverse effects on the goshawk from land management actions while the issue of maintaining species viability (Phase II) is resolved.
32230	22	11	The Phase I amendment must require protection of the "best available" goshawk nesting habitat, in 30 acre or larger patches, as the Chief instructed. Deleting the "best available" or "30 acres or larger" language is unacceptable and scientifically indefensible.	Interim Direction states “In all cases, protected acreage will include 180 acres best suited for nesting habitat within 1/2 mile of historically active or currently active nest.” There is no intention to do otherwise, except in cases where better suitable habitat is found outside of that 1/2 mile. The Southwest guidelines note that nests are best located approximately 1/2 mile from each other (Reynolds, et al, 1992). It would be more environmentally protective for the goshawk to protect the “best” habitat in the goshawk territory.
32230	22	12	For the Black Hills, it is inappropriate to use the goshawk management guidelines developed for the southwest United States (Region 3) for two reasons. First, the Black Hills is subject to much harsher weather than the southwest region, so nest stands and PFAs should contain greater percentages and larger patches of mature dense forest habitat to help provide thermal protection for young birds. Second Region 3's guidelines were largely based on the assumption that goshawk prey species were limiting so that managing the southwest's forests for high prey abundance would benefit goshawks. However, in the BHNF, there is no evidence prey is limiting; and, in fact, the USFS's "habitat capability" modeling indicate prey species are currently abundant and will remain abundant throughout the foreseeable future (i.e., well beyond the entire interim period). This kind of habitat that is limiting in the Black Hills is suitable nesting and PFAs which consists largely of dense stands of older trees. It would be wrong and scientifically indefensible to reduce stand density and age class when there is such a dire shortage of old growth habitat in the Black Hills. This is one reason why Alternative 3 is unacceptable.	The expert interviewees did suggest that a ‘long term solution [in managing for the northern goshawk] is to look at historic conditions and the range of natural variability (tree pattern and distribution) and prey compositions, and that ‘the process used in developing the Southwest Guidelines be used to develop management guidelines for the Black Hills (Black Hills Expert Interview Summary 2000, page 79). Information in the expert interview summary also suggests that the Black Hills ‘bas[e] our management on the Southwest goshawk guidelines in the interim period.’ They also suggested that ‘the Southwest guidelines might provide valuable assistance regarding the distribution of age classes’ (Black Hills Expert Interview Summary 2000, page 79). The vegetation structural stages outlined in the Management Recommendations for the Northern Goshawk in the Southwestern United States (Reynolds, et. al 1992) were adapted for the Black Hills in terms of diameter classes (see EA). These classes, with the percentage of the balances listed for the post-fledging family areas and the foraging areas apply what the expert interviewees suggested to do

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				in the Black Hills.
32230	34	14	There is also a question of whether there were any goshawks present when Black Hills was settled. Early ornithologist's information shows no evidence of any goshawks in the Black Hills. The goshawk is not a bird that is easily overlooked due to its aggressiveness and loud calls. If it were here it would have been noticed. We believe the goshawk has naturally immigrated into the Black Hills since the early 1900's and has been building its populations ever since.	Comment noted.
32230	49	29	Concerning the goshawk interim direction, both Alternatives (2 and 3) appear to be based on the goshawk management guidelines developed for the Southwest United States (Region 3). However, it is inappropriate to use the SW guidelines for goshawks in the BHNF because the Black Hills is subject to much harsher weather than the southwest region. This implies goshawk nest stands and post fledging areas (PFAs) should much contain greater percentages and larger patches of older, dense forest habitat to help provide thermal protection for nests, eggs, eyes birds, and fledgling goshawks. In addition, the SW guidelines were largely based on the assumption that goshawk prey species were limiting so that managing the SW Forests for high prey abundance would benefit goshawks. However, in the BHNF, there is no evidence prey is limiting, and, in fact, the USFS's "habitat capability" modeling indicate prey species are currently abundant and will remain abundant throughout the foreseeable future (i.e., well beyond the entire interim period).	See response to comment #32230.22.12.
32230	49	35	We found it impossible to evaluate and comment on the adequacy of the November 16, 2000 draft Phase I Goshawk Analysis prepared by Tom Silvey and Ellen Jungck. This is because that document was written in terms of Vegetation Structural Stage (VSS) 1-6 classification scheme used in the SW Region rather than the Structural Stage 1-5 classification scheme used in the BHNF. The draft EA and proposed Amendment should provide a clear description of what the VSS stages are and how the relate to the SS classification stages used on the BHNF and in the Region 2 Resource Information System (RIS) database. Without this information, it will not be possible for citizens to truly understand the alternatives and any proposed goshawk management direction based on the VSS classifications.	While not explicitly stated in the Phase I Goshawk Analysis document (Draft, November 16, 2000), there is a correlation with the Regional Structural stage definitions and the 6 classes represented provided in the tables and text of this document. The explicit link requested will be incorporated into the final version of the Phase I Goshawk Analysis document. The Phase I EA, Appendix E glossary additions includes a crosswalk between the structural stage classifications. Although a different structural stage classification scheme was used during the goshawk analysis process, this scheme was translated into Regional Structural Stage codes for interdisciplinary team project sample group analysis as described in the Phase I Goshawk Analysis assessment.
32230	50	10	We note that the scientific review on goshawk management included a number of recommendations that are not listed in any of your alternatives. Do you intend to ignore these recommendations for the goshawk and if so, how can you assume nonsignficant impacts will occur?	Forest specialists reviewed the recommendations from the scientists and recommendations appropriate for the Phase I Amendment were incorporated into the development of the Alternatives. For Alternative 3, Guidelines 2303, 2304A, 2304B, 2306, 3114 (treated as a standard), and Standards 2301A&B, 2301C, 2301D, 2302, 3108, 3109, and 3111 were all incorporated to meet recommendations made through interim direction and by interviewees for northern Goshawk. Alternative 2 incorporates many of the same guidelines and standards, with the main difference being that the balance of structural stages will be

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				provided for the post-fledging family areas of active or historically active nests (Guideline 3114). Chapter 2 notes a refinement to Alternative 2 was made after the interviews, which addresses the concern for providing goshawk nesting habitat across the Forest. In Alternative 3, the balance of structural stages would be provided on the ponderosa pine forested portion of the landscape (Guideline 3114b), as well as for post-fledging family areas of active or historically active nests. Guideline 2304a, to provide a balance of structural stages in PFA's, will also be incorporated into Alternative 2. These recommendations change how silvicultural prescriptions would be applied. See response to comments #20230.61.5 and #32240.58.9. The Interim Direction (Alternative 2) was reviewed by scientists that have studied northern goshawks. While the scientists thought it was more protective for the goshawk then current Forest Plan direction (Alternative 1), it still lacked a landscape approach to goshawk management. This landscape approach is the basis for Alternative 3. Using the 'Management Recommendations for the Northern Goshawk in the Southwestern US' for guidance and adapting the Vegetation Structural Stages (VSS) to Black Hills capabilities a landscape approach for managing ponderosa pine vegetation for increased structural diversity is proposed with Alternative 3.
32230	55	18	For the Black Hills, it is inappropriate to use the goshawk management guidelines developed for the Southwest United States (Region 3) for two reasons. Second, the SW guidelines were largely based on the assumption that goshawk prey species were limiting so that managing the SW Forests for high prey abundance would benefit goshawks. However, in the BHNF, there is no evidence prey is limiting, and, in fact, the USFSs "habitat capability" modeling indicate prey species are currently abundant and will remain abundant throughout the foreseeable future (i.e., well beyond the entire interim period). The kind of habitat that is limiting in the Black Hills is suitable nesting and post fledging areas (PFAs) which consists largely of dense stands of older trees. It would be wrong and scientifically indefensible to reduce stand density and age class when there is such a dire shortage of old growth habitat in the Black Hills.	See response to comment #32230.22.12.
32230	61	6	The most significant changes to the Forest Plan revolve around the issue of northern goshawk viability. Is it justifiable to change the entire direction of the BHNF management based upon the educated guesses of three scientists when the status of the goshawk does not indicate such actions are warranted? In the interview notes, Reynolds indicated that he "did not know the status of Black Hills goshawk populations in relation to the potential population, or what is needed for viable population." Reynolds also cautioned that the Southwest model might not fit the Black Hills, yet all of the comments appear to be based on the Southwest model. As recently as 1998, the US Fish and Wildlife Service issued an Administrative Finding on a petition to list the Northern Goshawk in the contiguous western United States on the Endangered Species list. Based on the best scientific	The most significant changes between the Phase I alternatives is with the management related to northern goshawk. All alternatives would provide for viable goshawk populations for the Phase I period. Alternatives 2 and 3 would reduce risk of adverse effects from management activities to the goshawk (Phase I EA, Chapter 3). The potential population and what is needed for a viable population of goshawks within the Black Hills is not known. The experts interviewed were conservative, due to lack of precise information. It is known that the goshawk uses a variety of structural stages. The Deputy Chief included included interim direction for managing for a balance of structural stages in the known goshawk post-family fledging areas. This direction was added to in Alternative 2 to include presumed goshawk

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			information available at that time for areas including the Black Hills of South Dakota, the FWS did not find evidence of a declining population trend for goshawks. In addition to stating that listing is not warranted, the findings indicated: "The current distribution approximates the historical distribution of nesting goshawks, and there is no evidence of any significant curtailment of the species' habitat or range is occurring. The Service found that while goshawks frequently use stands of old-growth and mature forest as an important component of its nesting habitat, overall the species appears to be a forest habitat generalist in terms of the variety and ages of forest types it uses to meet its life history requirements; goshawks use patches of mature habitat to meet nesting requirements within a mosaic of habitats in different age classes."	post-family fledging areas. Recommendations from the experts to manage for a balance of structural stages across the landscape were incorporated into Alternative 3. Both Alternatives 2 and 3 would provide patches of larger diameter stands that are suitable for goshawk nesting, as well as providing for a variety of structural stages within ponderosa pine forested areas that would be suitable for foraging.
32230	61	7	The report associated with the finding concluded that in South Dakota the distribution of the species is similar to its historical range. The population of goshawks has probably declined due to habitat changes since pre-settlement times; however, there is no evidence of extirpation or current on-going population declines. The South Dakota Natural Heritage Program gives the Northern Goshawk a global ranking of G5 or "demonstrably secure" while indicating it may be potentially rare in parts of its range. If the global population is "demonstrably secure", how can species viability be threatened?	See response to comment #32230.61.6.
32230	101	10	I ask that you consider: Promoting Goshawk and other necessary research specifically in the Black Hills.	The Forest is currently working with the Rocky Mountain Regional Office to have a written assessment completed for the Northern goshawk. This effort is underway as part of the information and data collection for the Phase II analysis.
32230	102	10	I ask that you consider: Promoting Goshawk and other necessary research specifically in the Black Hills.	See response to comment #32230.101.10.
32230	112	30	In the BHNF, there is no evidence prey is limiting, and, in fact, the Forest Service's "habitat capability" modeling indicate prey species are currently abundant and will remain abundant throughout the foreseeable future (i.e., well beyond the entire interim period). The kind of habitat that is limiting in the Black Hills is suitable nesting and post fledging areas (PFAs) which consists largely of dense stands of older trees. It would be wrong and scientifically indefensible to reduce stand density and age class when there is such a dire shortage of old growth habitat in the Black Hills. This is one reason why Alternative 3 is unacceptable.	Comment noted. Alternative 3 was based on information provided during the scientific interviews with acknowledged goshawk researchers and would use a landscape scale approach focused on maintaining structural diversity in the pine forest. Where nesting, PFA and foraging habitat were well distributed and continually available over time for the goshawk.
32231	473	3	The goshawks has more nesting sights than in the early 1900 hundreds as there is more trees now than ever has been in the Hills area.	Comment noted.
32231	475	2	Does anybody really listen to our side!? Goshawks are not in danger! Evolution occurs!	Comment noted.
32240	9	3	Establishing a forest plan for the benefits of species that are not in danger, but are thriving in the Black Hills seems to be extreme. But I understand that certain groups think that is the only acceptable way to manage a forest. Some restrictions need to be addressed with this plan as it is written, the	See response to comment 32230.61.6.

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			goshawk environments could literally take over the hills.	
32240	29	5	Alternative 3 is unacceptable. I do not support managing the entire Black Hills National Forest for goshawk habitat.	Comment noted.
32240	31	3	Alternative 3 is out of the question. Managing the entire BHNF for goshawk habitat is wrong.	Comment noted.
32240	34	13	It appears that Goshawk management will take precedence over all other types of management needs. This will significantly impact other favorite game species such as elk and deer. We do not believe the Southwest Guidelines for the Goshawks are appropriate in the Black Hills. The Black Hills is a much more diverse and dynamic forest than the Kaibab National Forest.	Other wildlife such as deer and elk would benefit from the younger structural stages. See also responses to comments #10010.101.1 and 10250.101.6.
32240	35	5	To compensate for the loss of goshawk habitat caused by recent fires, we urge the Forest Service to protect and restore additional goshawk habitat to ensure this small population does not suffer any further declines due to logging and roads.	See response to comment #32212.22.10.
32240	36	4	The Phase I amendment must ensure additional goshawk habitat in the BHNF to compensate for the loss of such habitat by the Jasper Fire. Only 10to 15 pairs of goshawks have been sighted in recent years, and their habitat is not protected and might be logged under the alternatives presented.	See response to comment #32212.22.10.
32240	49	55	The scoping notice suggests the alternatives the USFS is proposing for the Phase I amendment (Alt. 2 and Alt. 3) would only "prevent decrease in patch size" of late-successional white spruce or ponderosa pine stands with a significant white spruce component. Such stands occur on only a small fraction of the forest, and marten in the BHNF do inhabit forested areas dominated by ponderosa pine with little or no spruce. The Phase I amendment should adopt the Chief's direction, word-for word, for the marten and clarify that even p.pine stands with little or no spruce should not be fragmented or suffer reduced patch size. This will also protect interior forest songbird populations (Crompton only observed the full complement of such birds in the Black Hills in unlogged patches larger than 1000 hectares).	See response to comment #32040.99.11, 32040.99.12 and 32412.49.53.
32240	55	3	Proposed Alternatives 2 and 3 are not adequate to ensure the species of concern in the BHNF will remain viable and well-distributed through the interim period or into the future. In particular, both alternatives are inadequate because they fail to account for the current lack of old growth and goshawk nesting habitat, and they fail to account for the significant losses of these key habitats caused by the Jasper Fire.	See response to comment #10210.58.2, 32212.22.10 and 31010.19.4..
32240	55	17	For the Black Hills, it is inappropriate to use the goshawk management guidelines developed for the Southwest United States (Region 3) for two reasons. First, the Black Hills is subject to much harsher weather than	See response to comment #32230.22.12.

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			the southwest region, so nest stands and post fledging areas (PFAs) should contain greater percentages and larger patches of mature dense forest habitat to help provide thermal protection for young birds.	
32240	58	9	On Page 5 of Attachment 2, it is stated; "Design treatments to enhance prey species habitat by maintaining vegetative diversity and achieving a balance of structural stages in Ponderosa pine forested portion of the landscape". This statement is vague compared to the analogous statement under Alternative 2.In addition, there is no indication of the important consideration of the scale at which habitat enhancements may benefit goshawks. Information on scale should be provided and habitat enhancements should be planned at that scale.	Page 5 of Attachment 2 of the October 27, 2000 scoping document states that 'the main difference between Alternative 2 and 3 is that Alternative 2 applies the balance of structural stages to the post-fledging family area, while Alternative 3 applies the balance of structural stages across the landscape. Seventh level watersheds (between 5,000 and 10,000 acres in size) were used for analysis for Alternative 3, because their size falls within the size of a goshawk home range described in the Southwest Guidelines (Reynolds, et. al 1992). Expert interviewees suggested 'creating irregular shaped patches of different sizes and age classes across the landscape' (Black Hills Expert Interview Summary 2000, page 78). For additional information, see response to comment #20230.61.5. Chapter 2 notes a refinement to Alternative 2 was made after the interviews with the scientists and scoping. The refinement is incorporated in a Forest Supplement to the Forest Service Manual 2670. Effects to goshawks are discussed in Chapter 3 of the Phase I EA.
32240	112	29	For the Black Hills, it is inappropriate to use the goshawk management guidelines developed for the Southwest United States (Region 3) for three reasons. First, the Black Hills is subject to much harsher weather than the southwest region, so nest stands and post fledging areas (PFA's) should contain greater percentages and larger patches of mature dense forest habitat to help provide thermal protection for young birds. Second, the BHNF has adopted a completely inadequate tree size classification scheme, in which all trees larger than 8" DBH are lumped into SS-4. Large trees needed for goshawk nesting and PFA areas would grow to 20-30 dbh. These number of tree-diameter are tracked much more adequately by the SW guidelines, which use a larger number of tree-diameter classes. Those SW guidelines should be converted to percentages of trees in each size-class, which would then make it starkly clear that goshawk habitat on the BHNF must be left undisturbed in order to move towards these larger diameter tree sizes as quickly as possible, while maintaining existing large trees to the greatest extent. Left unlogged, ponderosa pine on the Black Hills will routinely grow to 30" dbh. And third, the SW guidelines were largely based on the assumption that goshawk prey species were limiting so that managing the SW Forests for high prey abundance would benefit goshawks.	The Southwest guidelines were used as a guide to define the balance of structural stages for ponderosa pine. Differences in conditions between the Black Hills and the Forests of the Southwest were noted. The 'cross-walk' between the Region 2 structural stage information and the vegetative structural stages in the revised tree size classes is described in the Glossary additions. Whether forage or cover habitat is a limiting factor would depend on the specific area. See response to comment #32230.22.12.
32241	20	6	To compensate for the loss of goshawk habitat caused by the Jasper Fire, the Phase I amendment must protect additional goshawk habitat elsewhere on the BHNF. This is crucial because only 10-15 pairs of goshawks have been found on the BHNF in recent years--not a viable or well-distributed	See response to comment #32212.22.10.

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			population, and much of the remaining high quality goshawk nesting/PFA habitat is not currently protected and could be logged during the interim period.	
32241	49	14	When speaking of goshawk direction, just what does the USFS mean by phrases like applying the balance of structural stages to the post fledging area (description of Alternative 2 goshawk direction) versus applying the balance of structural stages across the watershed? Biodiversity Associates was intimately involved in the appeal of the Revised Forest Plan (in particular, we wrote the section of the appeal concerning goshawk viability); we were intimately involved in the Veteran/Boulder lawsuit and discussions that led to the settlement agreement; and we have extensive knowledge of the goshawk scientific literature and the Southwest Region Goshawk Management Guidelines. Even so, we don't even know what the USFS means when it says Alternative 3 would apply the balance of structural stages across the watershed. Does it mean the USFS intends to spread the 180 acres of best suitable goshawk habitat across the entire watershed? What constitutes a balance of structural stages? What percentages of each age/size/density class are you talking about? If we can't understand what the USFS is proposing here, you can be sure other citizens -- who have no knowledge of the appeal, the lawsuit, or goshawk studies -- will be even more clueless.	See Chapters 2 and 3 of the Phase I EA. See also response to comment #32230.49.35.
32241	49	30	The kind of habitat that is limiting in the Black Hills is suitable nesting and post fledging areas (PFAs) which consists largely of dense stands of older trees. It would be wrong and scientifically indefensible to reduce stand density and age class when there is such a dire shortage of old growth habitat in the Black Hills. This is one reason why Alternative 3 is unacceptable.	See response to comment #32212.49.50.
32241	49	33	Alternative 2 provides no direction to provide a distribution of habitats across the Forest for the goshawk or other species of concern. It is not enough to only provide 180-200 acres of goshawk habitat in the select areas where goshawk nests are currently known to exist. This is because many of the existing/known nest stands have already been logged and are no longer suitable for goshawk use. Protecting these areas alone will not ensure a viable, well-distributed population. In addition, the current goshawk population (according to the Chief and based on our own assessment) is neither viable nor well distributed. Therefore, additional habitat must be provided across the Forest. Since Alternative 2 will not do this, it is unacceptable and indefensible.	Interim Direction provided the basis for Alternative 2. A refinement to Alternative 2 was made in response to the scientist interviews and scoping. The refinement is to assume presence of sensitive species where survey information is lacking and appropriate habitat exists. This direction includes providing for presumed goshawk post-fledging family areas across the Forest. See alternative discussions in Chapter 2, and effects discussion in Chapter 3.
32241	49	34	Alternative 3 purportedly does include direction to provide a balance of structural stages over entire forest for goshawks. However, we feel even Alternative 3 will not provide an adequate distribution of old growth and mature dense forest habitat -- for foraging and replacement nest stands, and fledging areas -- needed by goshawks and other species on the Forest. This is because Alternative 3 does not explicitly require protection	Recommendations made during the scientific interviews were reviewed, along with the SW goshawk management Guidelines (Reynolds, 1992). The cross-link between the Structural Stages 4C and 5 to the Vegetation Structural Stage (VSS) 5 and 6 is provided in the Phase I EA Appendix E, under the Glossary additions. Alternative 2 would work to provide for known and presumed goshawk

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			of an adequate amount of SS-4C or SS-5 habitat to be maintained in each watershed. Moreover, even if the SW goshawk management guidelines were applicable to the Black Hills, most watersheds on the Forest (except a few roadless areas) will not contain enough SS-4C or SS-5 to meet the SW guideline minimum requirements at any time during the interim period.	post-fledging family areas across the forest. Nesting habitat would be provided across the forest through managing the known and presumed post-fledging family areas. Alternative 3 would work to provide a balance structural stages in pine cover types across the landscape level. See Phase I EA, Chapter 3 for effects discussions for goshawk. See the Phase I Biological Assessment/Biological Evaluation in Appendix G for Additional discussion of goshawk.
32241	49	42	The Phase I amendment must provide interim direction to conserve the habitats in greatest need for the species of concern on the BHNF. For instance, the interim direction should not provide direction to emphasize habitat for goshawk potential prey species that might utilize young and open habitats when the only significant problem facing goshawks on the Forest is the dire shortage (and extremely limited distribution) of old growth and mature dense forested habitat for nesting, fledging, and foraging.	See response to comment #32210.37.6.
32241	49	48	To compensate for the significant loss of goshawk habitat caused by the 83,500 acre Jasper Fire, including the loss of 9 known goshawk nesting territories, the Phase I amendment must provide direction to protect additional goshawk habitat elsewhere on the BHNF. This is crucial because only 10-15pairs of goshawks have been found on the BHNF in recent years -- not a viable or well-distributed population, and much of the remaining high quality goshawk nesting/PFA habitat is not currently protected and could be logged during the interim period. This can be done by establishing additional old growth landscape Management Areas, RNAs, wildlife habitat areas, etc. Through the Phase I amendment, the USFS has the authority and responsibility to suspend logging plans on other parts of the Forest -- and to give protective designation to dense patches of mature and older forest habitat as a way of compensating for the significant loss of goshawk habitat. It would be inappropriate and irresponsible to wait 5 years for the Phase II amendment because some of the habitat in question could be logged or otherwise lost during the interim period. The Chief's interim direction was issued before the Jasper Fire and, therefore, the Chief's interim direction does not address this important issue.	See response to comment #32212.22.10.
32241	49	49	The Phase I amendment must require protection of the best available goshawk nesting habitat, in 30 acre or larger patches, as the Chief instructed. Deleting the best available or 30 acres or larger language is unacceptable and scientifically indefensible. The best available criterion must also apply to foraging and PFA habitat generally. Determination of best available habitat must be based on actual goshawk needs or preferences. For instance, the Phase I amendment should not allow the goshawk habitat requirements to be met by simply retaining older forest stands left along roads and on steep slopes, where logging is inappropriate or impracticable and where goshawks are not likely to actually utilize the stands.	See response to comment #32230.22.11.

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32241	49	51	The 180-acre habitat requirement of the Chief's interim direction is inadequate given how little high quality goshawk nesting/PFA habitat remains on the forest and given the harsh climate conditions in this ecosystem. At least one alternative for interim direction should require protection of 360 acres of the best available habitat in each nest area and PFA (combined 500 acre area).	See response to comment #32241.49.34.
32241	49	52	The Phase I amendment must provide direction to ensure a good distribution of goshawk habitats (i.e., SS-4C/5) across the entire Forest. Providing only 5-10% SS-4C/5 in each watershed is not sufficient. The Phase I amendment should include direction to require at least 20% SS-5 (old growth) and at least 20% SS-4C be maintained and distributed in each watershed on the BHNF for foraging and replacement nest/PFA habitat. Where this is not enough SS-4C and SS-5 to meet these minimums, the Phase I amendment should require the best available SS-4B habitat to be retained and managed (i.e., left alone) to become SS-4C and eventually SS-5.	All Alternatives would protect existing nesting territories and provide for nest replacement stands. Alternative 2 would provide for known and presumed goshawk nesting habitat across the Forest. Alternative 3 would provide nesting habitat through managing towards providing a balance of structural stages across the landscape. See Phase I EA Chapter 2 for alternative discussions, and Chapter 3 for effects discussions. Additional information on goshawk is located in the Phase I Biological Assessment/ Biological Evaluation, Appendix G of the Phase I EA. See also response to comment #32241.49.34.
32242	18	2	"Change the requirement for 180 acres of nest stands and replacement nest stands to be located within one-half mile of known nest sites." Alternative 2 further states "...where appropriate habitat exists". Does that mean that where appropriate habitat does NOT exist within one-half mile, there are no management restrictions within that nest stand and the Forest Service does not have to maintain nest stands nor replacement nest stands for goshawks? Please further develop the intent of the two alternatives, as we do not understand.	See response to comment #32230.22.11.
32242	18	3	If we interpreted Alternative 3 correctly, we support that you provide for management of known nest stands AND provide for a replacement nest stand within one-half mile of a known nest. We [are] not advocating managing the entire forest for goshawk habitat whether goshawks occur or not, but rather, manage for KNOWN nesting sites and provide for adjacent replacement stands.	That is correct. Alternative 3 would also manage for structural diversity within ponderosa pine communities on a landscape scale.
32242	51	4	The interim direction compensate for the loss of goshawk habitat caused by the Jasper Fire, by setting aside goshawk habitat elsewhere on the Forest.	See response to comment #32212.22.10.
32242	55	6	To compensate for the loss of goshawk habitat caused by the Jasper Fire, the Phase I amendment must protect additional goshawk habitat elsewhere on the BHNF. This is crucial because only 10-15 pairs of goshawks have been found on the BHNF in recent years-not a variable or well-distributed population, and much of the remaining high quality goshawk nesting/PFA habitat is not currently protected and could be logged during the interim period.	See response to comment #32212.22.10.
32242	55	16	The Phase I amendment must require protection of the "best available" goshawk nesting habitat, in 20 acre or larger of patches, as the Chief	See response to comment #32242.18.2.

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			instructed. Deleting the "best available" or "30 acres of larger" language is unacceptable and scientifically indefensible.	
32242	112	28	To compensate for the loss of goshawk habitat caused by the Jasper Fire, the Phase I amendment must protect additional goshawk habitat elsewhere on the BHNF. This is crucial because only 10-15 pairs of goshawks have been found on the BHNF in recent years--not a viable or well-distributed population, and much of the remaining high quality goshawk nesting/PFA habitat is not currently protected and could be logged during the interim period. The Phase I amendment must require protection of the "best available" goshawk nesting habitat in 30 acre or larger patches, as the Chief instructed. Deleting the "best available" or " 30 acres or larger" language is unacceptable and scientifically indefensible.	See response to comment #32212.22.10.
32244	18	4	Agree that the Plan can change the disturbance time restriction from September 30 to August 31. Literature indicates that young goshawks generally fledge by the end of August. However, should additional research to the Black Hills find otherwise, the Plan should allow for the dates to be adjusted accordingly.	The goshawk disturbance dates were revised after the scientific expert interviews and on observed nesting/fledging behavior of goshawks in the Black Hills. If new information/observations find that the new dates are not completely protective of fledging success then they can be revised.
32244	58	10	The difference in dates for disturbance restrictions around goshawk nests between Alternatives 2 and 3 should be explained.	See response to comment #32244.18.4.
32245	18	5	"Changing the balance of structural stages across a watershed rather than within fledgling habitat (Alternative 2)." At what watershed levels are you proposing? Define "fledgling habitat" as to size, vegetation, prey, etc. The difference in acres and habitat between the two alternatives could be dramatically different dependent on watershed level. We cannot comment on a preferred Alternative for this issue until you further define "watershed" and "fledging habitat".	Alternative 3 proposes using landscapes, generally between 5,000-10,000 acres. This is consistent with information on goshawk home range size. Fledging habitat is defined (Reynolds, et al.1992) as approximately 420 acres that surround the nest stand. The 'Management Recommendations for the Northern Goshawk in the Southwestern US; GTR-RM-217 is available. The Phase I EA discusses the difference in potential treatments for the alternatives in Chapter 3.
32260	18	6	With either Alternative 2 or 3, how do you propose to monitor goshawk presence and nesting success for this interim period? Although the interim period is short, how will you know if the chosen alternative and its respective forest management practices have made any type of impact on goshawk habitat?	Pre-project goshawk surveys are conducted, and surveys will continue for the known historic nests for activity. Species assessments for the Phase II analysis are underway and will provide additional information regarding goshawks, along with ongoing monitoring. An agreement with the Rocky Mountain Bird Observatory is underway to gather information of several bird species, including goshawk, to begin in the summer of 2001. The Forest will continue to work in coordination with South Dakota Game Fish & Parks Department, the agency charged with managing and regulating wildlife populations.
32260	18	26	We are most concerned about the language of Alternative 2 regarding goshawks and providing for replacement stands "...where appropriate habitat exists" (Alternative 2). This statement needs further clarification as to intent and future timber management.	The "best suited" habitat for (goshawk) nesting would be selected (180 acres) as potential nesting or replacement nesting habitat to counter loss of existing nest stands. The selection of this "best suited" habitat would be found as close to the active or historically active nest as possible, and within 1/2 mile where feasible. See also Appendix E of the EA, and Guideline 3109. In addition to providing replacement nest stands for known nests, Alternative 2 would provide for presumed post-fledging family areas across the Forest.

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32260	35	2	PCA opposes any weakening of the Forest Service Chief's interim direction. Proposed Alternatives 2 and 3 are not adequate to ensure the species of concern in the BHNF will remain viable and well-distributed because they fail to account for the lack of old growth and goshawk nesting habitat.	See responses to comments #10110.49.85 and 31010.49.8.
32260	49	32	While we agree there is a need to provide for goshawk foraging and nest/PFA replacement habitat across the Forest, we feel neither Alternative 2 nor Alternative 3 would maintain an adequate amount of quality goshawk habitat on the BHNF.	Comment noted. See response to comment #32241.49.34.
32260	112	17	The proposed Alternatives 2 and 3 are not adequate to ensure the species of concern in the BHNF will remain viable and well-distributed through the interim period or into the future. In particular, both alternatives are inadequate because they fail to account for the current lack of old growth and goshawk nesting habitat, and they fail to account for the significant losses of these key habitats caused by the Jasper Fire.	See responses to comments #10210.58.2, 31010.19.4 and 32212.22.10.
32312	22	13	The woodpecker experts interviewed for the Phase I amendment emphasized the importance of allowing large-scale, stand replacing fires and beetle infestations to occur in the Black Hills to maintain viable, well-distributed populations of woodpeckers. (Expert Interview Summary, page 90). The Phase I amendment must provide interim direction to allow for these processes. In particular, the Phase I amendment must establish direction to maintain snags in the Jasper Fire area instead of eliminating snags in a salvage logging operations.	Large-scale disturbances such as the Jasper fire are impossible to predict. Allowing fires like Jasper to 'run their course' and not implement fire suppression action in the Black Hills where large areas of private lands are interspersed with National Forest land would not be responsible land management and could be legally challenged. Large-scale fire and insect disturbances will continue to occur at irregular intervals and will be addressed on a case-by-case basis. Refer to the Jasper Value Recovery FEIS for specifics on snag mitigation, based on site characteristics in the area. Woodpecker species habitat needs have been incorporated into Alternatives 2 and 3. Specific direction to allow large-scale disturbance processes is beyond the scope of the Phase I amendment.
32314	49	59	To maintain viable, well-distributed populations of woodpeckers on the BHNF, the Phase I amendment must provide direction for allowing large-scale, stand replacing fires and beetle infestations to occur in the Black Hills. The pressing need for such management direction was explained by the experts who were interviewed by the USFS. See Expert Interview Summary, page 90.In particular, the Phase I amendment must establish direction to maintain snags in the Jasper Fire area (i.e., the same area the USFS is now trying to hammer with a massive salvage logging project).	See response to comment #32312.22.13.
32340	55	27	To maintain viable, well-distributed populations of woodpeckers on the BHNF, the woodpeckers experts interviewed for the Phase I amendment emphasize the importance of allowing large-scale, stand replacing fires and beetle infestation to occur in the Black Hills. (Expert Interview Summary, page 90). The Phase I amendment must provide interim direction to allow for these processes. In particular, the Phase I amendment must establish direction to maintain snags in the Jasper Fire area.	See response to comment #32312.22.13.
32340	112	23	To maintain viable, well-distributed populations of woodpeckers on the BHNF, the woodpecker experts interviewed for the Phase I amendment	See response to comment #32312.22.13.

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			emphasized the importance of allowing large-scale, stand replacing fires and beetle infestations to occur in the Black Hills (Interviews at 90). The Phase I amendment must provide interim direction to allow for these processes. In particular, the Phase I amendment must provide interim direction to allow for these processes. In particular, the Phase I amendment must establish direction to maintain snags in the Jasper Fire area (i.e., the same area where the Forest Service is now proceeding with a massive salvage logging project).	
32350	112	33	The Phase I scoping notice continues to ignore the forestwide shortage of quality snag habitat on the Black Hills National Forest, and the totally unscientific basis on which recruitment snag levels are projected. The Forest has never demonstrated that leaving high snag density areas such as occur within the Jasper Project will not be advantageous to cavity-dependent wildlife. Failure to allow such natural processes continues to disrupt the historical ecological balance on the Black Hills, where a high standing dead component was widely reported by early explorers. The Expert Interview Summary for the LRMP Amendment of October, 2000, concludes that "because fire can create habitat for woodpeckers and other cavity dependent species, it would benefit them to LIMIT OF FOREGO SALVAGE in landscapes where habitat is limited." (Interview at 91, emphasis added). The Chief's October 12, 1999, Ruling on our Forest Plan Appeal concluded that the entire BHNF is an area of concern for cavity-dependent species, calling any proposed salvage operation into question. Once again, a full EIS is needed to evaluate these significant impacts to woodpeckers and other wildlife species: The experts indicated the importance of allowing large scale, stand replacement fires and beetle information to occur over space and time. These events are stochastic in nature, and are not only unpredictable, but may have dramatic effects to other species and natural resources. Because the scientists did not define the necessary size or frequency of these events, and immediate negative consequences to species viability are unknown, these issues should be addressed in the Phase II Amendment (Interviews at 92.)Continued on comment # 44.	Allowing large scale, stand replacing fires and beetle occurrences to run their 'natural course' is not acceptable in a Forest with as high a private land interface as is the case in the Black Hills. The proposed snag standards in Alternative 2 and 3 are satisfactory in providing habitat for woodpeckers and other cavity dependent wildlife during the Phase I period. This is based on Interim Direction and the Expert Interviews. See also response to comment #32312.22.13.
32350	112	44	Rather than assessing these potential "dramatic effects", the Forest once again is proposing massive timber salvaging without knowing the impacts of its actions. The Phase I Amendment must include the direct, indirect, and cumulative impacts of the Jasper Fire and post-fire salvage activities on the viability of wildlife species forest-wide, in a comprehensive EIS, before any large-scale activities are authorized.	Salvage efforts for the Jasper Fire have been analyzed in the April 2001 Jasper Value Recovery FEIS. Cumulative effects of the reasonably foreseeable actions, including the value recovery effort, are discussed in Chapter 3 of the Phase I EA.
32412	49	53	To provide for diversity and ensure the full complement of interior forest songbirds is sustained on the BHNF, the Phase I amendment must prohibit logging in all remaining unlogged (i.e., not logged in past 50 years) patches that are at least 1000 hectares in size as recommended by Crompton	None of the alternatives propose logging or prescribe burning in areas designated as 'late succession' (old growth). Site specific treatments are decisions made at the project level. The Forest Plan Objectives 207 & 208 addresses managing for at least 5 % of the forestland base

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			(1994). If less than 10 such patches remain, the Phase I amendment must prohibit logging in all remaining unlogged (i.e., not logged in past 50 years) patches that are at least 500 hectares in size.	for late succession. The interim direction specifically addresses not 'reducing patch size' of late succession habitats occupied, or likely to be occupied by the American marten. This would apply to spruce dominated habitats. In ponderosa pine forest types the habitat needs of the northern goshawk, brown creeper, and other species are considered prior to any project decision. Somewhat with Alternative 2, and to a larger degree Alternative 3 the 'late succession' percentage may increase slightly when compared to Alternative 1.
32810	22	16	The Phase I amendment must provide strong interim direction to protect all known or suspected colonies of land snails of special concern (currently there are 7 varieties of land snail that have been identified by Frest and Johannes).Some of these rare snails (e.g., Pahaspa Mountain snail) are believed to occur nowhere else in the world. The Phase I amendment must therefore adopt direction prohibiting livestock grazing, logging, road construction, prescribed fire, use of chemicals (e.g., dust palliative, pesticides, insecticides, etc.), and other ground-disturbing activities within 100-200 meters of known or suspected colonies of snails of special concern on the Black Hills. Road building and other activities must not be allowed if they dry up springs or seeps, or otherwise result in hotter, drier microclimate in a snail colony of concern.	See response to comment #32831.49.61.
32810	55	22	The Phase I amendment must provide strong interim direction to protect all known or suspected colonies of land snails of special concern (there are 7 varieties of land snail that have been identified by Frest and Johannes (who, by the way, were not interviewed by the USFS and who have stated that these snails should be listed as threatened or endangered species). Some of these rare snails (e.g., Pahasapa Mountain snail) are believed to occur nowhere else in the world. The Phase I amendment must therefore adopt direction prohibiting livestock grazing, logging, road construction, prescribed fire, use of chemicals (e.g., dust palliative, pesticides, insecticides, etc.), and other ground-disturbing activities within 100-200 meters of known or suspected colonies of snails of special concern on the Black Hills. Road building and other activities must not be allowed if they dry up springs or seeps, or otherwise result in a hotter, drier microclimate in a snail colony of concern.	See response to comment #32831.49.61.
32810	112	34	The Phase I amendment must provide strong interim direction to protect all known or suspected colonies of land snails of special concern (there are 7 varieties of land snail that have been identified by Frest and Johannes (who, by the way, were not interviewed by the USFS and who have stated that these snails should be listed as threatened or endangered species). Some of these rare snails (e.g., Pahasapa Mountain snail) are believed to occur nowhere else in the world. The Phase I amendment must therefore adopt direction prohibiting livestock grazing, logging, road construction, prescribed fire, use of chemicals (e.g., dust palliative, pesticides, insecticides, etc.), and other ground-disturbing activities within 100-200 meters of known or suspected colonies of snails of special concern on the Black Hills. Road	See response to comment #32831.49.61.

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			building and other activities must not be allowed if they dry up springs or seeps, or otherwise result in a hotter, drier microclimate in a snail colony of concern.	
32830	22	17	The Phase I amendment must also include direction based on the expert interviews with Frest and Johannes which, at this time, it does not do.	See response to comment #32831.49.61. Future snail management guidelines would be an aspect of Phase II.
32831	49	61	Phase I must also require thorough inventories for land snails in project areas before ground-disturbing activities are allowed. None of the USFS's preliminary alternatives would provide such protection.	All alternatives would conserve habitat for all the 'species of special concern' (includes 2- Regionally sensitive species plus 5- 'species of concern') listed in the 1993 Frest Land Snail Report. The Phase I process is guided by Interim Direction. Interim Direction states conditions for pre-activity are sensitive species surveys. For ongoing grazing activities it states: "Ensure that all known colonies of sensitive snail species (Cockerell's striate disc and Cooper's Rocky Mountain snail) are protected from adverse effects of livestock use and other management activities." This is in addition to the conservation of the five 'species of special concern' and is our Alternative 2. Alternative 3 is the same as Alternative 2 but would extend this protection to include any new colonies for the snail species of concern identified in an upcoming 2001 land snail report. See Guideline 3103 in Appendix E of the Phase I EA.
32831	55	23	Phase I must also require thorough inventories for land snails in project areas before ground-disturbing activities are allowed. None of the proposed alternatives would do this.	See response to comment #32831.49.61.
32831	112	35	Phase I must also require thorough inventories for land snails in project areas before ground-disturbing activities are allowed. None of the proposed alternatives would do this.	See response to comment #32831.49.61.
32840	49	60	The Phase I amendment must provide strong interim direction to protect all known or suspected colonies of land snails of special concern (not just the 2 Sensitive snail species). In particular, the Phase I amendment must adopt direction prohibiting livestock grazing, logging, road construction, prescribed fire, use of chemicals (e.g., dust palliative, pesticides, insecticides, etc.), and other ground-disturbing activities within 100-200 meters of known or suspected colonies of snails of special concern on the Black Hills. Road building and other activities must not be allowed if they dry up springs or seeps, or otherwise result in a hotter, drier microclimate in a snail colony of concern.	See response to comment #32831.49.61.
32840	49	72	Only two BHNF land snails of special concern are currently listed as Sensitive Species on the Black Hills. The other species of concern should also be designated as Sensitive Species through the Phase I amendment. Given the fact that each of these taxa is particularly sensitive to management activities (including logging, road construction, fire, livestock grazing, trampling, etc.), the USFS should also use the Phase I amendment to designate all of the snails of special concern as MIS on the Black Hills.	All 7 snail species identified in the 1993 (Frest) Land Snail Report are considered 'species of concern' and during this Phase I period and will be afforded mitigation protection from possible adverse effects of land management activities. Adding species to the Region 2 Sensitive Species list is beyond the scope of the Phase I amendment.

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33030	18	16	There are no specific plant species listed [as MIS] other than plant communities. Why not?	The designation of Black Hills National Forest wildlife and plant species as Management Indicator Species was addressed in the 1997 Revised Forest Plan FEIS (Appendix A-64). Plants that were selected as MIS were to demonstrate responses to management and are found on page II-42 of the 1997 Revised Forest Plan. Ideally, MIS are distributed at the landscape scale, serve to define a given habitat or ecosystem type, and are generally easy to monitor. Most, if not all, of the sensitive plant species on BHNF are distributed sporadically across the forest in specific micro-site habitats. Their distribution patterns make them difficult to survey and monitor, and therefore, were not determined to be appropriate MIS.
33040	19	3	I'd like to see the Phase I amendment require a half in impacts form livestock grazing and other activities like ORV use on sensitive or rare species of plants in the Black Hills. I understand many areas where rare or unusual plant communities occur are already known to the USFS. Please design an amendment that would provide the buffers around rare plant areas to prohibit harmful activities there. Also protect the montane grasslands to avoid seeing them further degraded during this interim period - give them the required 1/2 mile buffer.	The current status and population viability of sensitive plant species in the Black Hills was a key issue in the Forest Plan Appeal Decision issued October 12, 1999, wherein the Revised Plan did not fully meet all aspects of the intent and requirements of the NFMA and its implementing regulations at 36 CFR 219. The current conservation strategy for Black Hills sensitive species is to provide protection for sensitive species and their habitats until more specific information from research is obtained. The purpose of the Phase I Amendment (incorporating Phase I Standards and Guidelines) is to address deficiencies in the Forest Plan to provide that projects implemented during the evaluation interim period of 2-5 years (evaluation period for the Phase II Decision) will maintain management options (which may or may not include buffer zones) for populations of sensitive plants. The ecological requirements for sensitive plant species in the Black Hills will be examined further during this evaluation period so that any further needs for mitigation and conservation measures for sensitive plants can be identified. The following management objectives, standards and guidelines address protection and mitigation for sensitive plant species and their habitats: 103-108, 201, 205, 213-216, 221, 230-232, 302, 1102-1106, 1108, 1112-1115, 1201-1209, 1301-1306, 1505, 1506, 1516, 2107, 2201-2207, 2411, 2501, 2504-2506, 3104, 3106, 3107, 3210-3212, 3214, 4105, 4301-4308, 9107, 9108, 1.1A-2101, 1.1A-2103, 3.1A-all, 4.2A-2101, 4.2B-1201, 5.4A-3205, 5.4A-3206 and 5.4A-3208.
40120	35	4	We are concerned about the logging of old growth and dense mature forest habitat due to the scarcity of this habitat within the Black Hills.	See Chapter 3 of the EA for additional information. Project sample group analysis predicts no change old growth for ponderosa pine or white spruce with the implementation of Phase I Amendment.
40300	34	11	It is also important the Forest Service decision makers only consider the experts testimony as recommendations and not as orders. There were many contradictions in the management needs of the different species evaluated. What might be advantageous for one would be detrimental to	See response to comment #10250.112.10.

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			another. Many of their conclusions were prefaced with could or may which does not lead to definitive approaches to management.	
40300	34	12	The interview process was also biased towards finding reasons not to manage the vegetation. For example, the degree of management effect on page 147of the Expert Interview Summary was proportioned inappropriately. Minor impact was defined as affecting less than 1% of the habitat; Moderate was defined as affecting from 1% to 10% of the habitat; and Widespread was defined as affecting greater than 10% of the habitat. We find this assessment very biased and constraining toward over estimating the affective area impact. It would seem that moderate impact would be somewhere around 10% to 40% and widespread would be greater than 40%.	An activity that effects 10% of the habitat available to a species is thought to be a fairly common occurrence on the landscape for that species. We wanted to distinguish between those activities that were common in a species habitat and those that occurred only occasionally. The discussions in the interviews were not only based on the degree of effects, but also on the direction of effect. A strongly negative effect on 11% of the habitat is more noticeable than a neutral effect on 90% of the habitat.
40300	34	20	We also believe the 5% old growth figure that was quoted extensively throughout the Expert Interviews is incorrect and led to erroneous conclusions by the experts. the 1997 plan reserves over 10% of the forest at Late Successional. In addition there is also much more undesignated old growth that is being reserved in each project area. This needs to be analyzed and corrected.	Discussions about old-growth forest centered on objectives, standards and guidelines in the Forest Plan and what those means to a species. Scientists assumed that the 5% objective for old growth could be attained, even if more than 5% exists at this time. The scientists comments were often based on the “Century of Change” document that was prepared as part of the RNV for the Forest Plan. This RNV information was provided to the scientists prior to the interviews.
40320	50	11	A major concerns that surfaced in the scientific reviews was the lack of large trees as well as late successional habitat. It is difficult to understand how these problems can be corrected with more logging. This is never addressed in your alternative proposals.	See response to comments #20230.61.5 and 40120.35.4.
40500	61	8	The approach to forest management described in Alternatives 2 and 3 is disconcerting. Will the ecosystem support these changes? Ponderosa pine grows naturally in even-aged stands; it invades environmentally suitable sites after disturbance. Periodic disturbance, such as natural periodic fire, kills the youngest smallest trees and allows the larger trees to survive thus retaining the even-aged structure of the stand. Uneven-aged management encourages a variety of age and size classes within a stand; this structure is most likely to occur in a ponderosa pine stand that has not been influenced by fire, insects or thinning for a long time.	See response to comment #20230.61.5.
41100	49	62	The Phase I amendment must include direction to halt impacts to sensitive species of plants and rare plant communities in the Black Hills from livestock grazing and other activities. The USFS's preliminary alternatives do not provide any such direction. Many areas where rare plants and unusual communities occur are already known to the USFS. The Phase I amendment must provide buffers around rare plant areas to prohibit harmful activities such as grazing and ORV use.	See response to comment #33040.19.3.
41400	22	22	The Phase I amendment must include direction to halt impacts to sensitive	See response to comments #33040.19.3 and 41400.35.7. RNA's will

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			species of plants and rare plant communities in the Black Hills from livestock grazing and other activities. The proposed alternatives do not provide any such direction. Many areas where rare plants and unusual communities occur are already known to the BHNF. The Phase I amendment must provide buffers around rare plant areas to prohibit harmful activities such as grazing and ORV use. The highly imperiled montane grasslands (G1S1 plant communities) in the Black Hills must also receive full protection under the Phase I amendment to ensure they are not further degraded in the interim. The BHNF has the authority and the responsibility to designate the highest quality mountane grasslands as Research Natural Areas as part of the Phase I amendment. They must protect these areas with a 1/2-mile buffer. None of the proposed alternatives would do this.	be addressed on the Phase II analysis.
41400	35	7	We urge the Forest Service to protect the scarce and imperiled montane grasslands within the Black Hills by designating them Research Natural Areas.	Research Natural Area evaluation and designation are not within the scope of the Phase I Amendment process and is to take place during Phase II. Higher ranked (TNC ranking system) montane grasslands have been surveyed and will be evaluated during the Phase II process for suitability as a Research Natural Area (refer to Forest Service Manual 4063). The BHNF is not required to designate these areas as RNAs, and part of the analysis process can include consideration of these areas for other management designation, or management direction that could include specific mitigation and protections for these areas. Copies of Marriott's montane grassland survey can be requested from the State of South Dakota (Marriott, Hollis. February 25, 2000. Survey of Black Hills Montane Grasslands. Unpublished report prepared for the Wildlife Division of the South Dakota Department of Game, Fish and Parks. 60 pp.).
41400	49	63	The highly imperiled montane grasslands (G1S1 plant communities) in the Black Hills must also receive full protection under the Phase I amendment to ensure they are not further degraded in the interim. The USFS has the authority and the responsibility to designate the highest quality montane grasslands as Research Natural Areas as part of the Phase I amendment. They must protect these areas with a 1/2 mile no-ground disturbance buffers (e.g., no logging, road construct, off-road vehicle travel, etc.) None of the proposed alternatives would do this. Given the damage that is occurring to these special areas, together with their highly imperiled status, it is not acceptable to wait 5 years for the Phase II amendment to protect these areas.	See response to comment #41400.35.7.
41400	55	24	The Phase I amendment must include direction to halt impacts to sensitive species of plants and rare plant communities in the Black Hills from livestock grazing and other activities. The proposed alternatives do not provide any such direction. Many areas where rare plants and unusual communities occur are already known to the Forest. The Phase I amendment must provide buffers around rare plant areas to prohibit harmful activities such as	See response to comment #33040.19.3.

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			grazing and ORV use.	
41400	112	36	The Phase I amendment must include direction to halt impacts to sensitive species of plants and rare plant communities in the Black Hills from livestock grazing and other activities. The proposed alternatives do not provide any such direction. Many areas where rare plants and unusual communities occur are already known to the Forest. The Phase I amendment must provide buffers around rare plant areas to prohibit harmful activities such as grazing and ORV use.	See response to comment #33040.19.3.
42400	58	12	We certainly support management decisions that will lead improved watershed stability, enhanced vegetation conditions and riparian vegetation development. One method to help achieve these goals is to develop strategies to enhance aspen and willow regeneration along stream channels. This will encourage re-colonization by beaver. Benefits from beaver can include the desired conditions listed above, as well as providing for late season flows, and creating additional fish habitat and fishing opportunities.	The Phase I Amendment continues the goals identified in the Forest Plan, including Goal 2: Provide for a variety of life through management of biologically diverse ecosystems. Riparian restoration activities would continue under the Phase I Amendment.
50000	52	2	I'm concerned that both the Pine Beetles and the wild fires will destroy all our private property as well as the Forest. We've been affected by the pine beetles and had to cut some of our trees. Thank God the fires didn't get close to us.	The threat of wildfire is ever present when living in and near a forested environment. The Black Hills is made up predominately of ponderosa pine with short fire return intervals. Phase I allows for a full range of existing fuel treatment methods. Phase I also allows for the treatment of smaller diameter material that serve as ladder fuels. See responses to comments #51400.59.4 and 50300.91.6.
50100	34	16	The scoping letter indicates the proposed management strategies will make our Black Hills National Forest older and heavier stocked. The public needs to know this is no uncertain terms. This will increase both the wildfire severity and spread rate. Your scoping statement on fire was insufficient and played down the risk.	The analysis in Phase I indicated minimal changes in stands moving toward high risk. This is because the analysis period of Phase I is 2-5 years. The shift in structural stages in the PSGs was minimal. See EA, Chapter 3 for effects to fire. The Southwest Guidelines show that moving toward desired forest conditions (diverse structural stages) can decrease risk of catastrophic crown fire in the ponderosa pine and mixed forest species by: 1) maintaining a more open canopy, 2) reducing tree-understory fuels ladders and 3) increasing the growth rate of trees and reducing the length of time that stands are at risk to catastrophic fires. A range of fuel treatment methods is still available to use in each alternative
50100	61	11	While this continuous accumulation of woody biomass may be considered sensitive species habitat, it is also increased fuel. Another term for the uneven-aged stand structure containing trees of different sizes classes, age classes and closed canopies is ladder fuel. Ladder fuels increase the potential for small fires to become stand-replacing wildfires due to torching and crowning. The cost and complexity of fighting fires across the BHNF are likely to increase over time given, the rapidly escalating fuel loading and fuel structure. The previously mentioned scientists indicated that	The analysis of project sample groups over a 2-5 year period showed that the change in acres at high risk was minimal. The Southwest Guidelines show that moving toward desired forest conditions (diverse structural stages) can decrease risk of catastrophic crown fire in the ponderosa pine and mixed forest species by: 1) maintaining a more open canopy, 2) reducing tree-understory fuels ladders and 3) increasing the growth rate of trees and reducing the length of time that stands are at risk to catastrophic fires. A range of fuel treatment

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			stand replacing wildfire would not be beneficial to goshawks.	methods is still available to use in each alternative. See response to comment #20230.61.5.
50200	418	1	South of Sturgis, SD. The area is over grown and bugs are killing many tree's, it's a major fire in the making!	Comment noted.
50200	419	1	South from Sturgis to Tilford to Beaver park is a mess. You better get it thinned and cleared up or were going to have another unstoppable fire.	Comment noted.
50200	453	6	The scoping letter says that under the amendment, the forest will be older and more heavily stocked. That may be the intent, but how old or heavily stocked is a burned forest? The analysis seems to assume the number of acres consumed by catastrophic fires will be smaller than recent experience indicates. We've heard it said that in a natural fire scheme, the fires aren't as severe and old timber survives. How do we know that? Information from pre-white settlement doesn't indicate an old or heavily-stocked forest. Even if claims made for the natural fire scheme are true, how do we get there from here? We have a manifestly unnatural accumulation of fuels in the forest.	The 1997 Forest Plan provides for a full range of fuel treatment methods and sets a goal of 8000 acres to be treated with prescribed fire. Phase I does not limit the number of acres treated for fuel management nor does Phase I eliminate any method for treating fuels. The Southwest Guidelines show that moving toward desired forest conditions (diverse structural stages) can decrease risk of catastrophic crown fire in the ponderosa pine and mixed forest species by: 1) maintaining a more open canopy, 2) reducing tree-understory fuels ladders and 3) increasing the growth rate of trees and reducing the length of time that stands are at risk to catastrophic fires. A range of fuel treatment methods is still available to use in each alternative. See response to comment #61.5.20230.
50200	467	1	Having just hauled wood off the Sturgis watershed south of the national cemetery, I seen the mess of overgrowth and bug trees, do something before your south door is burned!	Comment noted. See response to comment #50300.1.2.
50300	1	2	There are whole sections of the Black Hills forest that are dying and will be explosive during fire season or when the index is high something must be done before the whole hills area is one charred area.	Phase I allows for a full range of fuels treatment methods. The Southwest Guidelines supports maintaining a more open canopy. In the Guidelines minimum canopy, closures required are 40% in the three older VSS classes. The canopy of mature stands, in the long term, could be more closed, but the understory ladder fuels would be reduced. This strategy increases the growth rate of trees and reduces the length of time that stands are potentially at risk to catastrophic fires. See response to comments #20230.61.5 and 50200.453.6.
50300	10	3	Much of the recovery in the Jasper fire area will occur on its own. If seeding is done, it should be done from the air. If some tree replanting is necessary, it could be done by such groups as the Boy Scouts, Custer Boot Camp inmates, or Native American Indians as was done in the Deadwood Burns area in the early 1960's. It looks very good today!	This issue is outside the scope of the Phase I analysis. The reseeding of control lines associated with the Jasper Fire area was done through conventional methods and large-scale efforts requiring aerial seeding were not identified by the Burned Area Emergency Rehabilitation Team.
50300	59	6	The Attorney General's Office respectfully requests that the Forest Service ensure that adequate insect and wildfire control efforts can proceed and be implemented regardless of which alternative is selected for the Phase I	See responses to comments #50200.453.6, 50300.91.6 and 51400.59.4.

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			Amendment.	
50300	91	6	Forest management should focus on insects (pine beetle), and fire dangers first.	The Phase I Amendment will continue to provide management direction for insect and disease and fire risk through standards and guidelines. However, the Phase I Amendment is not proposing management actions; this is done in project level analyses. For each project on the forest, insect risk and fire danger are two of numerous considerations for proposed management action. See response to comment #51400.59.4.
50300	436	1	Leaving all the snags to go to waste cause more lightning fires. There is enough snags that will never be used.	Comment noted.
50300	453	4	We're aware that after the devastating fire season we had this year, the forest service announced a new commitment to reducing fire dangers. Do the proposed amendments address this commitment, or will there be future amendments on the fire danger issue? If so, they will work at cross-purposes, since we suspect the favored amendment will increase fire danger. Although we appreciate the recent news that the fire fighting budget will increase, we note that until fuels are reduced and roads are maintained, the severity and size of fires will still increase.	The Phase I Analysis included the evaluation of fire risk under all three alternatives. The proposed alternatives allow a full range of treatment methods for reducing ladder fuels, thinning overstocked stands and reducing the threat of stand replacing fires. Stand structure, fuel loading, and access are only a few of the factors that influence the severity and size of fires. Increase of fire size and severity is also dependent on topography, ignition sources and perhaps most importantly the weather. See EA, Chapter 3.
50300	471	2	I feel that the best indicator of forest health is the obvious neglect that we can all see in the large areas of bark beetle infested trees in the hills and in the overgrown, fire prone state of many parts of the forest, on top of that we have had large areas of storm damage with a great deal of downed and damaged trees. It seems as though we like to study the forest and make recommendations for better protection of "Indicator species" but can't seem to get off our asses to protect and manage the health of the forest itself. I think the Forest service needs to rethink the direction that it has been moving and instead of concentrating on the fine details we should be working on the big picture that a healthy forest will benefit all wildlife. This means that we need more controlled burning, more timber harvested and we need to get after the bark beetle problem.	See responses to comments #50200.453.6, 51400.59.4 and 51400.61.9.
50300	472	2	This order must be reversed-immediately. Summer is coming. How are forest fires to be fought if access to these areas is limited?	This comment is outside the scope of the Phase I analysis.
50360	79	6	Clean up fire hazard from blizzard of April 19, 00.	This comment is outside the scope of the Phase I analysis. The Forest has been actively working on cleaning up damage caused by the April snowstorm since it occurred. Work continues including, jackpot burning, road clearing, and hand piling accumulated debris.
50500	59	2	The Phase I Amendment does not provide for adequate fire management activities and does not address to severe fuel loading problem throughout the entire Black Hills National Forest.	Phase I does not eliminate any fuel treatment or fire management activities previously identified in the 1997 Forest Plan. Phase I did analyze shifts in acres at high risk for all of the Project Sample Groups for the analysis period that was identified as 2 to 5 years. The Phase I analysis evaluated the effects of fire risk for the project sample groups. Phase I allows for a full range of fuel treatment options including prescribed fire and mechanical treatment methods. See response to

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				comment #20230.61.5.
50500	59	7	The Attorney General's Office further requests that each alternative be assessed to determine its direct effect and impact on existing or future insect and wildfire control projects on the Black Hills National Forest. We have seen examples of a federal "controlled burn" and believe that the Phase I Forest Plan Amendment may well lead to uncontrolled burns.	The Phase I analysis evaluated the effects of fire risk for the project sample groups. Phase I allows for a full range of fuel treatment options including prescribed fire and mechanical treatment methods. See response to comment #51400.61.9. Phase I allows for a full range of fuel treatment options and Alternative 3 promotes thinning of ladder fuels. In addition, prescribed fires that occasionally escape control lines do so because of unpredictable weather events, underestimating other conditions, or not following an approved burn plan. See EA, Chapter 3 for effects to fire. See response to comment #50200.453.6.
50500	61	10	The preliminary information suggests there is little difference between the alternatives with regard to fire and fuels related management. The BHNF grows approximately 150 million board feet of wood each year on trees of all sizes. Alternative 1 proposes to remove up to 83 million board feet of wood each year. Alternative 3 proposes to remove 30 to 60 million board feet per year; however, it does not indicate if this is strictly sawtimber or sawtimber plus POL. There are no harvest figures provided for alternative 2; however, it will be less than alternative 1. Therefore, under Alternative 2 or 3, as much as 80% of the woody biomass produced each year on the BHNF will remain on site.	See responses to comments #50200.453.6 and 71100.99.14.
50600	49	77	For the proposed action and each alternative evaluated in the NEPA document, the following effects must be evaluated as potential direct, indirect, and cumulative and cumulative impacts of the actions under consideration. The cumulative impacts of the 83,500 acre Jasper Fire and any related salvage logging activities must be considered in developing the interim direction.	The effects of salvage logging within the Jasper Fire Area is being analyzed in a separate analysis and is outside the scope of the Phase I Amendment. The Jasper Fire is included in the cumulative effects analysis. See the Jasper Fire Value Recovery FEIS.
50600	55	34	The cumulative impacts of the 83,500 acre Jasper Fire and any related salvage logging activities must be considered in developing the interim direction.	See response to comment #50600.49.77.
50600	112	11	As explained in our October 7th and October 17th letters to the Forest Supervisor, the Forest Service has a legal obligation to prepare a programmatic EIS and Forest Plan amendment to address the significant changed circumstances related to the Jasper Fire and to assess the significant direct, indirect, and cumulative impacts associated with any proposed activities related to salvage, rehabilitation, or treatment in the Jasper Fire area.	See response to comment #50600.49.77.
51200	34	17	We do agree with your statement that mountain pine beetle susceptibility will also increase. Both of these mortality events are of high local interest and should be carefully evaluated in the final document.	The beetle situation in Beaver Park, which contains approximately 60 percent of the current beetle-caused tree mortality, is addressed in Chapter 3 of the EA. Because of the Settlement Agreement, Civil Action No. 99-N-2173, treatments to minimize beetle impacts in Beaver

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				Park are outside the scope of this analysis. The impacts of beetle outbreaks on other resources of the forest are stated and referenced. Also see responses to comments #51400.59.4 and 51400.61.9.
51300	453	2	Specifically, we're concerned about treating the mountain beetle infestation in Meade County. Along with this, we've expressed our concern that the forest service is doing nothing to alleviate the high fire danger this infestation and the general condition of the forest has caused.	This comment is outside the scope of the Phase I Analysis. See responses to comments #51400.59.4. and 51310.1.1.
51310	1	1	Unless you address the pine beetle problem in the Black Hills, there will be no plan that will help sustain wildlife and diverse species.	The beetle situation in Beaver Park, which contains approximately 60 percent of the current beetle-caused tree mortality, is addressed in Chapter 3 of the EA. Because of the Settlement Agreement, Civil Action No. 99-N-2173, treatments to minimize beetle impacts in Beaver Park are outside the scope of this analysis. The impacts of beetle outbreaks on other resources of the forest are stated and referenced. Also see response to comment #51400.59.4.
51310	472	3	The pine beetle infestation in the Black Hills must be stopped before it spreads farther.	Comment noted.
51400	5	4	MPB [eradication] measures should be a priority and implemented on an emergency basis as a 100% snag MPB area may increase your number of snags but not distribution.	The beetle situation in Beaver Park, which contains approximately 60 percent of the current beetle-caused tree mortality, is addressed in Chapter 3 of the EA. Because of the Settlement Agreement, Civil Action No. 99-N-2173, treatments to minimize beetle impacts in Beaver Park are outside the scope of this analysis. The impacts of beetle outbreaks on other resources of the forest are stated and referenced.
51400	18	23	Mountain Pine Beetle Risk Based on Project Sample Groups, Table 2, page 7:In the text, you discussed the percentages found under the column titled "Percent of Total". There can be a danger in discussing raw numbers as an absolute and your text can be misleading. Did you perform any statistical tests on the various data to find any significant differences between the Alternatives? The "PSG acres" and "Percent of Total" values are so close between alternatives that we would be surprised if the Alternatives are significantly different. Your data would suggest that the mountain pine beetle risk IS THE SAME, no matter what the Alternative. But then, we can not assume that since no statistical tests for significance were performed.	The information from the Project Sample Group presented in the scoping package showed the results of four individual areas and was not intended to represent percentages over the entire Forest. Statistical tests were not performed because we have no mean and variance around a mean to perform a test. Therefore, only anecdotal comparisons can be made using absolute numbers. Chapter 3 of the EA discusses the anticipated effects of the Phase I alternatives on Mountain Pine Beetle risk. Based on the comparison of project sample groups and the landscape level analysis, Alternative 2 had higher stand susceptibility than Alternative 1 and probably Alternative 3. See response to comment #51400.61.9.
51400	59	1	The Phase I Amendment fails to adequately address the existing Mountain Pine Beetle epidemic in the Black Hills and especially in the Northern Black Hills.	The beetle situation in Beaver Park, which contains approximately 60 percent of the current beetle-caused tree mortality, is addressed in Chapter 3 of the EA. Because of the Settlement Agreement, Civil Action No. 99-N-2173, treatments to minimize beetle impacts in Beaver Park are outside the scope of this analysis. The impacts of beetle outbreaks on other resources of the forest are stated and referenced. Also see responses to comments #51400.59.4 and 50300.91.6.

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51400	59	4	Forest Service regulations require monitoring and evaluation to ensure that "destructive insects and disease organisms do not increase to potentially damaging levels following management activities." 36 C.F.R 219.12(k)(5) (iv).Further the regulations require that all management prescriptions shall "minimize' serious or long lasting hazards from flood, wind, WILDFIRE, erosions, or natural physical forces, " 36 C.F.R. 218.27 (a)(2), and "prevent or reduce serious, long lasting hazards and damage from pest organisms, utilizing principles of integrated pest management." 36 C.F.R. 219.217(a)(3). Alternatives 2 and 3 place additional burdens and restrictions on the Forest Service's ability to carry out these mandated management requirements. The statutes and regulations also allow the salvage or sanitation harvesting of timber stands which are substantially damaged by fire or which are in imminent danger from insect or disease attack. 16 U.S.C 1611(b) ; 36 C.F.R. 219.27(d)(2)(iii).	Effects to insect and disease pests are discussed in Chapter 3 of the EA. Phase I alternatives include Standards and Guidelines 4201 through 4207 that allow for treatment of insects and disease in most areas of the forest. Direct control of mountain pine beetle involves treating infested trees by either removing the trees from the site or mechanically treating trees on site. Thinning activities provide longer-term preventative measures to reduce stand susceptibility to mountain pine beetle. Disturbance in stands containing goshawk nesting sites would be restricted in both Alternatives 2 and 3. Alternative 2 harvesting treatments include both thinning and overstory removal. Alternative 3 harvesting treatments would include thinning and limited overstory removal. All of these activities would decrease basal area and therefore lower stand susceptibility to mountain pine beetle attack. See response to comment #50300.91.6.
51400	61	9	Alternatives 2 and 3 encourage larger diameter stands with full crown closure. Stands of this nature are breeding grounds for the current beetle epidemic. Therefore, the preliminary information that suggests there is very little difference in the risk of mountain pine beetle between the three alternatives is puzzling. Alternative 2 is more limited in scope and, therefore, may not have as much effect forest-wide. Alternative 3, however, affects entire landscapes and would likely have greater potential for beetle activity, particularly over time. Given the current mountain pine beetle epidemic and the inability of the Forest Service to respond and remove beetle killed trees, the accumulation of dead down woody material will accelerate over the Forest much as it has in Beaver Park.	The analysis presented in the original public scoping letter was based on the project sample group data. Analyses of the three alternatives showed that stand susceptibility to mountain pine beetle was higher in Alternative 2 than 3. These findings were not meant to be extrapolated to the whole forest, but provide information on specific project areas and a comparison based on the available data. A landscape level analysis was subsequently conducted to estimate treatments over the interim period. Based on the harvesting/treatment landscape level information, Alternative 2 would have less overstory removal, total treatment acres, and total timber harvest volume than Alternative 1. Therefore, there would be slightly more risk to mountain pine beetle in Alternative 2 than Alternative 1. The comparison between Alternatives 2 and 3 is more difficult to ascertain. The estimate of total treatment acres would be less in Alternative 2 than Alternative 3. However, the amount of total timber harvested volume could be either more or less in Alternative 2 than Alternative 3. In addition, there are differences in the types of treatments that would be used in the alternatives (see Chapter 3 of EA). In Alternative 2 a majority of harvesting treatments involve overstory removal and shelterwood seed cuts. The reduction in acres treated and volume harvested in Alternative 2 compared with Alternative 1 is primarily caused by greater green tree retention in Alternative 2. Alternative 3 treatments are patchier in nature, focus on thinning from below and cover more of a landscape scale. It is uncertain how treatments such as thinning from below, small vegetation cuts and thinning from above compare in minimizing beetle susceptibility. However, any silvicultural treatment that lowers basal area will also decrease overall susceptibility to mountain pine beetle. Mountain pine beetle-caused tree mortality can be expected to be concentrated in stands of high basal area and which have a minimum average tree diameter greater than 7 inches. As stated in Chapter 3 of the EA, any treatments that decrease the amount of trees removed per acre can affect stand susceptibility to mountain pine beetle. Therefore, change in stand susceptibility depends on how much and where there are differences in acres treated and volume removed between Alternatives 2

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				and 3. The Phase I Amendment is anticipated to be in place from two to five years. The EA discusses effects anticipated from the Phase I Amendment in Chapter 3. In regard to the relationship between fire and insect-caused tree mortality, the Forest Plan allows for treatment of fuels and small diameter trees in the wildland/urban interface.
51400	455	1	I hope you can understand our frustration of not being able to take care of the BEETLE problem and now creating alternative 3.	See responses to comments #50000.52.2, 50300.91.6, 51400.61.9 and 51400.59.4.
60110	477	5	Nancy was concerned with effects she observed in Sand Creek. The State doesn't require filing for mining. Need to look at diminimus stuff. Some of the recreational placer miners are real responsible, others are not.	See response to comment #70410.477.1
61400	23	7	No more wilderness areas!	None of the alternatives in the Phase I Amendment contain any proposals for wilderness designation. This comment is outside the scope of this assessment.
64400	20	8	To protect the few remaining high-quality and highly imperiled montane grasslands on the Black hills, these areas--together with 1/2 mile no activity buffers--must be designated as Research Natural Areas through the Phase I amendment.	See response to comment #64400.112.38.
64400	23	8	As to botanical resources---No one should expect to keep all that was once original part of the Black Hills. Change is always in progress, wanton destruction is not acceptable!	Comment noted.
64400	51	7	The interim direction protect the few remaining high-quality and obviously imperiled montane grasslands on the Black Hills by assigning them a 1/2 mile no-activity buffer zone around them and then designating them as Research Natural Areas;	See response to comment #64400.112.38.
64400	55	8	To protect the few remaining high-quality and highly imperiled montane grasslands on the Black Hills, these areas -- together with 1/2 mile no-activity buffers -- must be designated as Research Natural Areas through the Phase I amendment.	See response to comment #64400.112.38.
64400	55	25	The highly imperiled montane grasslands (G1S1 plant communities) in the Black Hills must also receive full protection under the Phase I amendment to ensure they are not further degraded in the interim. The USFS has the authority and the responsibility to designate the highest quality montane grasslands as Research Natural Areas as part of the Phase I amendment. They must protect these areas with a 1/2 mile buffer. None of the proposed alternatives would do this.	See response to comment #64400.112.38.
64400	112	37	The highly imperiled montane grasslands (G1S1 plant communities) in the Black Hills must also receive full protection under the Phase I amendment to ensure they are not further degraded in the interim. The forest Service has the authority and the responsibility to designate the highest quality montane grasslands as Research Natural Areas as part of the Phase I amendment.	See response to comment #64400.112.38.

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			They must protect these areas with a 1/2 mile buffer. None of the proposed alternatives would do this.	
64400	112	38	The Forest Supervisor's October 13th letter indicates the BHNF will only "propose" to consider these high-quality montane grassland areas for "analysis of candidates" for RNA establishment during the Phase II Forest Plan amendment process. This proposed amendment process won't even get going until after the proposed logging activities in the Jasper Fire area would be completed. By the time the Forest Service finally gets around to actually "analyzing" the montane grasslands as "candidates" -- perhaps two or three years from now -- these areas could be logged and significantly impacted in other ways (e.g., by increased ORV use made possible by the fire and proposed logging activities). Here too, the time to address this issue and ensure protection of these special areas is now, not 2 or 3 years down the road. In addition, the recommendation of Hollis Marriott to relocate the Lemming Draw road was made during her "site visit in July" which predates the Jasper Fire; this recommendation is unlikely to now be preferable to simply canceling all road construction activities within 1/2 mile of the imperiled montain grasslands in Lemming Timber Sale and other active timber sales. Until the Forest Service prepares the legally-required RNA review, no activities that could impair potential RNA sites can be legally authorized on the Black Hills National Forest. These restrictions must be assessed in the Phase I Amendment process.	Marriott's report (Marriott, Hollis. February 25, 2000. Survey of Black Hills Montane Grasslands. Unpublished report prepared for the Wildlife Division of the South Dakota Department of Game, Fish and Parks. 60 pp.) presents new information that will be evaluated in individual project proposals, and open to public comment. Evaluation of sites as suitable (see direction in Forest Service Manual 4063) for Research Natural Areas is to take place during the Phase II Amendment process. There is no biological reason to provide an activity buffer of 1/2 mile or any other distance around these sites. The presence of adjacent activities will not by itself exclude an area from further consideration as an RNA.
64400	112	39	To protect the few remaining high-quality and highly imperiled montane grasslands on the Black Hills, these areas -- together with 1/2 mile no-activity buffers -- must be designated as Research Natural Areas through the Phase I amendment.	See response to comment #64400.112.38.
65100	99	4	There is virtually no discussion about the effects of "additional road closures...to protect snags" on motorized recreation access. The Forest must do a much more thorough job of analyzing and quantifying actual effects.	Road closures for snag protection would be considered during project analysis for areas where demonstrated loss of snags occurs due to firewood cutting. Other road closures may also be evaluated at the project level. The Project Sample Group analysis did not indicate there would be a significant increase in road closures over the Motorized Travel Opportunity Objectives in the Forest Plan. Site specific analysis, with a cumulative effects component, would address this issue when and if specific road closures are proposed during project analyses. Generally speaking on a forest-wide scale, motorized access will not be significantly impacted by the degree of road closures that might be necessary in any of the alternatives concerning protection of snags.
65100	100	4	There is virtually no discussion about the effects of "additional road closures...to protect snags" on motorized recreation access. The Forest must do a much more thorough job of analyzing and quantifying actual effects.	See response to comment #65100.99.4.

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65400	23	10	Hunting & Fishing--I have enjoyed hunting in the Spearfish Area to Battle Mountain to Wyo. line. What a beautiful country. Now I cannot draw a permit to hunt deer or elk. Erosion, urban sprawl, logging, road construction, fires and many other things affect fishing. These luxuries and privileges need to be protected but not at the expense of human need.	This comment is outside the scope of this assessment. None of the alternatives in Phase I contain any proposals for limiting any hunting or fishing privileges. Availability of hunting and fishing licenses are the domain of the state, and therefore are not affected by any of these alternatives.
66100	98	8	The issues with regard to "Identifying roads to be closed" for the protection of snags is active management that has yet to be determined necessary by the re-evaluation process that is part and parcel of Phase 2 and is unjustified in the "interim direction" arena. It is preemptive rhetoric designed for the purpose of placating extremist organizations. This is particularly frustrating because, as is typical, several issues regarding Roads and OHV use were challenged in the 1997 Forest Plan and respectively upheld on all accounts. There are far more effective means of protection that are not even discussed here. If during Phase 2 re-evaluation it is determined that snag protection is necessary, then it should be addressed in Phase 2 planning. At that juncture all the alternatives for that protection should be adequately evaluated and appropriate measures proposed. That juncture is not in Phase 1 and as such, Phase 1should not be just another excuse to close roads to equally viable recreational and management uses.	Road closures for snag protection would be considered for areas where demonstrated loss of snags occurs due to firewood cutting. Project area analysis would indicate needs for road closures, in addition to snag protection measures already in place. Alternative 3 maintains the direction in the current Forest Order restricting the cutting of standing dead trees.
67100	9	5	Now I come to the hardest pill to swallow, and that is #4 identify roads to be closed to protect the snags. If you're going to put up a sign it would just be as easy and a lot less controversial to post a sign that says "don't cut snags" as opposed to road closed for no good reason that we can see. My request is that the line (4) Identify roads to be closed at the completion of projects to protect snags from removal, especially in areas where snag densities are low. Be strickest from the phase one forest plan. This line alone could literally close the Black Hills forest from it's users.	Road closures for snag protection would be considered for areas where demonstrated loss of snags occurs due to firewood cutting. Project area analysis would indicate needs for road closures, in addition to snag protection measures already in place. Alternative 3 maintains the direction in the current Forest Order restricting the cutting of standing dead trees.
67100	23	5	The short comings: Too many roads left usable after logging.	This concern is dealt with at the project level through implementation of Standards 1109, 9105, and 9106, and would have similar effects under all alternatives.
67400	444	2	We need open roads.	Comment noted. Also see response to comment #67452.34.21.
67450	53	3	I urge an actual program to protect species viability and diversity. To preserve watersheds...With a program to fully preserve all roadless areas 160 acres and larger, and to obliterate roads.	This issue is beyond the scope of the Phase I Amendment. Roadless areas were reviewed for the 1997 Forest Plan and are not under review for the Phase I Amendment. The New Roadless Area Policy and Planning Rule provides for the evaluation of roadless areas in new forest plans or project area analysis. Project decisions implemented with the Phase I Amendment can always consider roadless area designation as part of the project analysis, but the Phase I Amendment does not direct roadless designation. Road obliteration can also be considered with project planning. The Project Sample Group analysis did not indicate there would be a significant increase in road obliteration over the original Forest Plan. See response to comment #31000.53.1.

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67452	34	21	This amendment will also lead to more road closings. Again this will impact both the recreational value that is very important to the people who use the Black Hills National Forest and also the fire fighting capability of the USFS. As was evidenced in the Jasper Fire, roads played a pivotal role in controlling the fire by providing access, existing fire lines, and breaking the continuity of fuels.	The EA discusses effects to transportation and fire in Chapter 3. Road closures for snag protection would be considered during project level analyses for areas where demonstrated loss of snags occurs due to firewood cutting. Other road closures may also be evaluated at the project level. The Project Sample Group analysis did not indicate there would be a significant increase in road closures over the Motorized Travel Opportunity Objectives in the original Forest Plan. Effects of road closures on fire access are expected to be minimal.
67453	29	4	I do not support new road closure, because I do not want to lose more access to the Forest and also because I do not want the Forest to then have to consider those areas as "unroaded" during future analyses.	The EA discusses effects to transportation and fire in Chapter 3. Road closures for snag protection would be considered during project level analyses for areas where demonstrated loss of snags occurs due to firewood cutting. Other road closures may also be evaluated at the project level. The Project Sample Group analysis did not indicate there would be a significant increase in road closures over the Motorized Travel Opportunity Objectives in the original Forest Plan. Effects of road closures on fire access are expected to be minimal.
67453	32	5	I do not favor more road closure since these closures may lead to "unroaded designations" in the future.	Comment noted. See response to comment #67453.29.4.
67453	110	2	There is no reason for more road closures.	Comment noted. See response to comment #67453.29.4.
67453	111	3	There is no need for any new road closures.	Comment noted. See response to comment #67453.29.4.
67453	113	3	There is no reason for any new road closures.	Comment noted. See response to comment #67453.29.4.
67453	435	1	There is no new reason for road closures. My family spends every Sunday using the Forest recreationally.	Comment noted. See response to comment #67453.29.4.
67453	454	2	There is absolutely no reason for any more road closures.	The EA discusses effects to transportation and fire in Chapter 3. Road closures for snag protection would be considered during project level analyses for areas where demonstrated loss of snags occurs due to firewood cutting. Other road closures may also be evaluated at the project level. The Project Sample Group analysis did not indicate there would be a significant increase in road closures over the Motorized Travel Opportunity Objectives in the original Forest Plan. Effects of road closures on fire access are expected to be minimal.
67453	474	3	We are concerned about the new road closures because of the potential to lose more access to the Forest and because those areas would be considered as "unroaded" during future analysis.	See response to comment #67453.29.4.
67454	39	6	There is no reason for any new road closures in the BHNF.	Comment noted. See response to comment #67453.29.4.
67600	7	1	I would support Alternative 3 to allow for maintenance & reconstruction to the existing transportation system to access new areas.	Comment noted. See response to comment #67453.29.4.

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70410	477	1	[Prairie Hills Audubon Society] called to express concern with the changes regarding the recreational mining, placer mining associated with the Chief's direction for Standard 1511. [Prairie Hills Audubon Society] expressed the Chief missed the point in the appeal. [Prairie Hills Audubon Society] disagrees with the wording "the Forest Service shall approve" [they] said it should be "the Forest Service may approve." [Prairie Hills Audubon Society] expressed a concern with the diminimus exclusions where filing a Plan of Operations is not required, nor a Notice of Intent required under 36 CFR part 228, Subpart A 228.4 (2). . . . The wording [Prairie Hills Audubon Society] referred to is from the Chief's discussion on page 113, "The standard simply states that the Forest will allow these activities outside of Wilderness if they do not conflict with the rights of mining claimants. . . ." [Prairie Hills Audubon Society] noted that shall and will are the same and said the real issue is it should say "may." [Prairie Hills Audubon Society] is concerned that under 36CFR 228.4(2) a miner doesn't have to file a Notice of Intent or a Plan of Operations. The only way they could go after someone would be through the Clean Water Act, the dipper is not threatened or endangered, or the finescale dace.	On page 86 of the WO Appeal Decision it states; The Forest Service met legal and regulatory requirements in considering hardrock mineral resources in the plan revision process. Public comments were considered in rendering decisions, and are found in the record. Congressional authority to modify mining laws is outside the scope of an LRMP revision. The plan revision process complied with the 1872 Mining Act which encourages locatable mineral extraction. Forest Plan standard 1511 would allow the FS to evaluate potential adverse effects of recreational (gold) panning on a case-by case basis to determine if an 'operation plan' is needed. The Chief's appeal decision recommended for purposes of clarity that Standard 1511 incorporate a reference to 36 CFR 228, Subpart A in the language rather that simply the term "operation plan" Refer to the sections in CFR 36, Part 228, Subpart A for exact wording. Under these regulations operating plans would not be required in all cases. For example: CFR 36 Part 228, Subpart A- Locatable Minerals, 228.4 Plan of Operations-notice of intent-requirements. The requirements to submit a plan of operations shall not apply: (ii) To individuals desiring to search for and occasionally remove small mineral samples or specimens.
71100	99	14	From our review of the October 27 Scoping letter and associated information, the Forest has not considered the effects of activities that will be implemented in the next two years in the proper context. For example, according to TSPIRS data, there were only about 14,000 acres of timber harvest in FY 1997 (the most recent available date); assuming that is relatively representative of current harvest levels, timber harvest would only affect 28,000 acres, or 2%, of the Black Hills National Forest over the next 2 years. Neither has the Forest adequately considered the fact that the annual growth on the Black Hills National Forest is 155 mmbf.	While the actual amount of harvest that may occur with implementation of the Phase I Amendment may be a small percentage of the forest, the effect of past, present, and future harvest activities and their contributions to forest structure needs to be considered. Many of the items in the Phase I Amendment contain specific direction for forest structure. While actual harvest acres contribute to that structure, past and future harvests have and could contribute to this structure as well. Forest Plan FEIS Appendix G Tables G-1 and G-2 (pp. G-2, G-3) display total annual growth rates of 153 MMBF on all areas, and on suitable and available land growth rates of 131.0 MMBF. Based on the Forest's cut and sold report, volumes cut from the forest over 1996-1999 averaged approximately 63 MMBF. (The FEIS Appendix G contains additional information on growth vs. harvest.) The Forest Service is required by law to manage under a biological rotation (even-aged stands scheduled to be harvested …will generally have reached culmination of mean annual increment. 36 CFR 219.16(a)(2) (iii)). "Generally" is considered to be 95% of CMAI. For the site indices that have been done on project level analysis (generally ranging from 35-85), 95% of CMAI occurs anywhere from about 80 years to 140 or 160 years, depending on site index, when bare ground runs are performed with Forest Vegetation Simulator (FVS). These years could be later depending on the volume removed during the rotation. Past management, stand exam, and field reviews are all taken into account during project level analysis to determine if an even-aged stand is ready for harvest. In some cases, these reviews show that growth has not culminated. These stands are then deferred from regeneration harvest.

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				Other management options for these stands could be considered at this time for multiple use purposes including, but not limited to, timber, recreation, wildlife habitat, and range.
71100	100	14	From our review of the October 27 Scoping letter and associated information, the Forest has not considered the effects of activities that will be implemented in the next two years in the proper context. For example, according to TSPIRS data, there were only about 14,000 acres of timber harvest in FY 1997 (the most recent available date); assuming that is relatively representative of current harvest levels, timber harvest would only affect 28,000 acres, or 2%, of the Black Hills National Forest over the next 2 years. Neither has the Forest adequately considered the fact that the annual growth on the Black Hills National Forest is 155 mmbf.	See response to comment #71100.99.14.
71100	101	2	A great deal of damage has been done to our ability to serve the Forests as stewards as a result of the Washington Dc appeal decision. Our ability to serve the Forests as stewards as a result of the Washington DC appeal decision. Our ability to respond to forest issues by applying new technology is being hampered.	Comment noted. See response to comment #71400.473.4.
71100	102	2	A great deal of damage has been done to our ability to serve the Forests as stewards as a result of the Washington Dc appeal decision. Our ability to serve the Forests as stewards as a result of the Washington DC appeal decision. Our ability to respond to forest issues by applying new technology is being hampered.	Comment noted. See response to comment #71400.473.4.
71110	22	8	To maintain viable, well distributed populations of snag-dependent species such as the pygmy nuthatch, the interim direction must provide for recruitment of large snags by preserving large green trees; this should be done by establishing a diameter limit that prohibits the logging of any live trees lager than 18 inches diameter breast height. None of the proposed alternatives would do this. At the very least, this protection is reasonable and should be provided through the Phase I amendment for the "interim" period until the BHNF takes a hard look at this problem and figures out more carefully how many large live trees must be recruiting large snags needed by nuthatches, etc.	See response to comment #31045.20.7.
71110	98	4	If the conservative measures of the "interim direction" extend much beyond a 2 year time frame, the Black Hills National Forest will be left without the necessary "on-the-ground" management tool of viable Timber Industry. As you are intimately aware, the Timber Industry that serves in the Black Hills National Forest geared itself around the Forest Plan. With the subsequent and substantial setbacks brought about by the Appeals process and other extenuating litigation, the Timber Industry in the Black Hills has suffered serious deficiencies in originally projected business decisions. The addition of 2-5 full years of overly conservative "interim direction" has the potential of dealing with the fatal blow to an already suffering industry. That will have devastating consequences to the local communities from which, some may	See EA, Chapter 3.

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			not even recover.	
71300	5	2	Speaking of the decrease in lumber hauled how can you decrease the amount from zero.	Comment noted. See response to comment #10010.101.1.
71300	470	2	Proper thinning also needs to be competitive and profitable for the timber industry and practical for habitat improvement. Lack of profitability will severely cripple the timber industry and the many spin off unilateral businesses tied to it. Overall it cripples the economy.	Comment noted. Economic and social effects are discussed in Chapter 3 of the Phase I EA.
71400	5	6	It seems to me that your model on Alt #3 page 11 where you speak of balance of canopy types may be a fine study in a school setting, but to even suggest implementing it in the real world is beyond belief.	Comment noted. Management of ponderosa pine stands to move towards a balance of structural stages (diameter classes) has been implemented in the Southwest. Refinements are being developed.
71400	10	1	The Jasper Fire area of 79, 404 acres must be addressed immediately. Start the four ongoing timber sales NOW as in the spring it might be impeccable because of wet conditions to log that area. We must not waste all this good timber! Deterioration will start quickly as the trees get wet. Birds and wildlife will not return until it starts to regenerate. I helped log the burned area around Deadwood and Lead in 1959 and early 1960 and know of the short salvage time.	The Forest identified a need to analyze the 83,500 acres Jasper Fire effects and management appropriate for that area given the changed conditions in a separate effort. The Jasper Rapid Assessment Team Report and the Jasper Fire Value Recovery Environmental Impact Statement are complete and available on the Black Hills National Forest website. Salvage in the Jasper Fire was considered in the cumulative effects discussions in Chapter 3 of the Phase I EA
71400	10	5	Current timber sales are being cut too thin. There is not enough canopy being left for birds and wildlife.	Comment noted. Alternatives 2 and 3 include canopy closure direction for goshawk post-fledging family areas, and Alternative 3 includes additional direction for canopy closure across the ponderosa pine landscape.
71400	11	4	At the outset, Alternative 2 states that output from the Forest in timber is "anticipated to be less than that anticipated under Alternative 1". We feel this verbiage needs clearer definition to avoid the open-ended bottom of the phrase "less than anticipated". You may also note that Alternative 1 does not, in fact, "anticipate" output of the Forest in timber as indicated. In actuality, it specifies it at "60 to 83.8 million board feet per year (depending on funding levels)".	See response to comment #71600.99.2.
71400	22	6	With more than 97% of the BHNF already logged, and over 8,000 miles of roads, this forest is one of our most heavily abused forests in the country. The interim direction should prohibit any further road building, even aged silvicultural prescriptions, and logging of old growth (i.e., Structural Stage 5) or dense mature forest habitat (Structural Stage 4C) in the Black Hills during Phase I as there is too little of this habitat left to allow any of the remaining SS-4C and SS-5 habitat to be logged or fragmented by roads.	See response to comments #31010.112.20 and 40120.35.4.
71400	30	3	We have to share our forest land man and animal alike. We can harvest timber and make the forest a better place for wildlife by thinning and replanting grass for animals. Logging is getting to be a fine art today compared to years in the past and with work we can make the land better than before.	Comment noted.
71400	75	6	Keep the production of timber going! It will help renew the forest and	Comment noted.

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			also give jobs to many people.	
71400	85	6	The forest service needs to manage the forest floor better and thin out the forest. Open more land for logging.	Fuels treatments and slash clean up would continue under any alternative. Suitability of lands available for timber production is not changed with the Phase I Amendment. See also response to comment # 71400.473.4.
71400	115	7	You may have to lower the timber harvest from 120 mbf to 108 mbf because we burnt up 10% of the forest.	See response to comments #71600.49.78.
71400	410	1	We need to work out a plan that works for the thousands of people thats lively hood depends on the timber industry.	See response to comment #71400.473.4.
71400	411	1	Your doing a good job do what is best for South Dakota logging.	Comment noted.
71400	444	1	Please allow timber harvesting in pine beetle areas.	Management to reduce risk of pine beetle losses would be included in any alternative. Harvest activities in the mountain pine beetle mortality areas located within the Beaver Park area have been forgone due to the Settlement Agreement for Civil Action 99-N-2173. See also response to comment # 71400.473.4.
71400	472	4	Logging is a large part of the Black Hills economy. These things must be considered.	See response to comment #71400.473.4.
71400	473	4	Timber management should be no 1. And use our natural [resources] and not burning them. We need more tree thinning-good use for pulp wood. Forest should be managed to pay the way, as any other [business].	The Black Hills National Forest will continue to be managed for multiple uses. The Deputy Chief identified deficiencies in the Revised Forest Plan that needed to be addressed. Additional management direction is incorporated Alternatives 2 and 3 to assure management options will not be foreclosed during the period needed to re-evaluate the sufficiency of the Revised Forest Plan in maintaining species diversity and viability. Overall the direction would lessen the level of risk for species for which there may be a viability concern by providing greater protection during the interim period, while still providing the opportunity to continue management activities. Management on the Black Hills National Forest will continue to incorporate the Multiple-Use Sustained-Yield Act and the National Forest Management Act requirements of providing for multiple uses of several products and services. Forest management would continue to be a tool used to improve habitat conditions and maintain or enhance vegetative diversity. The EA discusses forest health and fire management in Chapter 3.
71410	10	4	Move all logging crews in immediately to the Jasper Fire acres, it will not be a picnic for them built dirty, hand work. No more studies are needed, we have dealt with forest fires for years. Do not waste time and money! There will be much less impact to the land if this is done now while it is frozen.	This comment is beyond the scope of the Phase I analysis. Effects of the Jasper Fire are discussed in Chapter 3 of the EA. See response to comment #71400.10.1.
71410	108	1	I own property in Boulder Canyon bordering US forest service property. We also have a fireplace and burn firewood. There are hundreds of	Snag distribution is addressed in the 1997 Revised Forest Plan and also in the October 12, 1999 Forest Plan FEIS appeal decision. The

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			dead snags standing behind our place on U.S. forest service property, due to the recent storm we have had in the past 3 years. There are also a lot of bug killed trees creating a potential fire hazard. Yet you have an outstanding law prohibiting people from cutting standing dead trees or snags, for firewood use. In my viewpoint ad others I've talked to this is utterly ridiculous, when you have hundreds of dead snags and bug killed trees. Creating a fire hazardous situation, why not let the wood permit people cut them. There's only a limit amount they can gain access too, I'm sure there will be more then a sufficient amount left for our wildlife.	Interim Direction requires 25% of the snags that are chosen for retention represent the largest diameter class available. These snags can be clustered or individual, but must be well distributed within the watershed. The Interim Direction required sufficient number of green trees to leave one tree per acre greater than 20 inches or from the largest diameter class available to provide future snags. Some cavity dependant species need 2-4 snags per acre, and some need 16 inch and greater diameter snags. The Forest Plan did not demonstrate that these conditions would be maintained over time. Road closures for snag protection would be considered for areas where demonstrated loss of snags occurs due to firewood cutting. Alternative 3 revises Guideline 2304 to "a. Prohibit cutting of standing dead trees for fuelwood, except in designated areas." This direction would allow some areas to be opened up for fuelwood gathering, on a site specific basis. There are localized areas where many snags exist from recent events (insect, fire, storm damage), however, these areas are not well distributed throughout the forest, and the sizes of these snags are not necessarily the largest size classes present. Much of the April 2000 storm damaged small diameter trees.
71420	111	6	The amount of additional timber and vegetation growth is very apparent when looking at the fire history in the Black Hills. In the past 100 years, over 340,000 acres have been burned in the Black Hills Forest area by fires larger than 500 acres in size. This is 23% of the forest area around the Black Hills. During the past 20 years, over 175,000 areas have been burned by fires larger than 500 acres in size. This is an alarming 12%!! of the forested Black Hills area. Over half of the acreage of larger fires (over 500 acres in size) in the Black Hills in the past 100 years has been burned in the last 20 years. Yet the Forest Service chooses to ignore the large fuel build up by failing to remove a sustainable growth of our Black Hills forest. We need to stop the senseless waste of planning dollars and put this money to good use on the ground with fuel treatment programs, bark beetle control programs, and sustainable timber and grazing programs.	Phase I analyzed increase risk in all project sample groups over the 2-5 year analysis period and does not remove any option identified in the 1997 Forest Plan. The Southwest Guidelines show that moving toward desired forest conditions (diverse structural stages) can decrease risk of catastrophic crown fire in the ponderosa pine and mixed forest species by: 1) maintaining a more open canopy, 2) reducing tree-understory fuels ladders and 3) increasing the growth rate of trees and reducing the length of time that stands are at risk to catastrophic fires. A range of fuel treatment methods is still available to use in each alternative. See also response to comment #61.5.20230.
71450	20	10	The Allowable Sale Quantity on the BHNF must be reduced to fully account for the reduced to fully account for the reduction in timber volume caused by the interim direction and the Jasper Fire.	See response comment #71600.49.78 and 71600.99.2. See EA, Chapter 3.
71450	22	9	The BHNF must consider the cumulative impacts of the 83,500-acre Jasper Fire and any related salvage logging activities in developing the interim direction. In this same regard, the Allowable Sale Quantity on the BHNF must be reduced to fully account for the reduction in timber volume caused by the burn.	See response comment #71600.49.78 and 71600.99.2. See EA, Chapter 3.
71450	34	10	We are very concerned that the scoping letter suggested there would be a 21% decrease in the amount of timber sold by implementing Alternative 2. What is not indicated is what level are you projecting the decrease from.	The ‘21% decrease in the amount of timber sold by implementing Alternative 2’was based on the difference in results from a ‘review of a sample of four timber sales. The sample areas were selected to

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			The base number that should be used is the 1997 LRMP ASQ figure of 83.8million board feet. As you know the BH National Forest sale volumes have been between 55 and 70 million board feet over the last several years. We hope the volumes will be no less than these numbers.	represent the variety of issues and wildlife habitat concerns that were expressed in the October 12, 1999 Forest Plan Appeal Decision' (first paragraph of Attachment 3 of the October 27, 2000 scoping document). Specifically, four proposed timber sales that were analyzed under the 1997 Revision of the Forest Plan were used in this review. The preferred alternative from each of the four sales was used for Alternative 1 of the Project Sample Groups. The criteria outlined in the Project Sample Group definitions on the web page describe the conditions that were analyzed under Alternatives 2 and 3. Of the four sales reviewed, an overall 21% reduction in volume occurred in Alternative 2 from Alternative 1. A second level of analysis, a landscape analysis covering five-year action plan seventh-level watersheds, was also conducted. The landscape analysis for Alternative 2 had not been completed as of the October 27, 2000 scoping document. It is now complete. A Newsletter update with an expanded comment period was sent out in December 2000 to clarify information from the scoping package, and provide additional opportunities for comments. See response to comments #71600.99.2 and 71600.49.78. See also Chapter 3 of the EA.
71450	35	9	We urge the Forest Service to reduce the Allowable Sale Quantity to full account for the reduction in timber volume caused by the interim direction and recent fires.	See response to comment #71600.49.78 and 71600.99.2. See also Chapter 3 of the EA.
71450	36	6	The Allowable Sale Quantity on the BHNF must be reduced in order to compensate for the reduction in timber caused by the interim situation and the Jasper Fire.	See response to comment #71600.49.78 and 71600.99.2. See also Chapter 3 of the EA.
71450	45	6	The BHNF needs to accomplish its yearly timber harvest ASQ goal of 83.6 MBF. The selected Alt. should meet but NOT EXCEED the chief's directive.	See response to comment #71600.49.78 and 71600.99.2. See also Chapter 3 of the EA. In all cases, the selected alternative will not exceed the ASQ listed in the 1997 Forest Plan.
71450	51	5	The interim direction account for the reduction in available timber volume caused by the Jasper Fire, and thus reduce the Allowable Sale Quantity on the Black Hills National Forest;	See response to comment #71600.49.78 and 71600.99.2. See also Chapter 3 of the EA.
71450	55	10	The Allowable Sale Quantity on the BHNF must be reduced to fully account for the reduction in timber volume caused by the interim direction and the Jasper Fire.	See response to comment #71600.49.78 and 71600.9.2. See also Chapter 3 of the EA.
71450	61	12	The BHNF reduced the allowable sale quantity from 118 million board feet (MMBF) to 83 MMBF with the adoption of the 1997 Revised Forest Plan. One large forest products mill in the Black Hills closed due to reduced volume availability from the National Forest. Now the Forest proposes to reduce volume availability to as low as 30 MMBF per year. How many more mills will close as a result of this volume reduction?	See response to comment #71600.49.78 and 71600.99.2. See also Chapters 2 and 3 of the EA.
71450	83	6	The BHNF needs to accomplish it's yearly timber harvest ASQ goal of 83.6 MBF.	See response to comments # 71600.49.78 and 71600.99.2. See also Chapters 2 and 3 of the EA.

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71450	84	6	The BHNF needs to accomplish it's yearly timber ASQ of 83.6 MBF.	See response to comments # 71600.49.78 and 71600.99.2. See also Chapters 2 and 3 of the EA.
71450	98	6	We also see the significant reductions as severely detrimental to the environmental health of the Black Hills National Forest. This is a forest that grows at an annual rate of 150 mbf per year. Reductions have already been made in the Forest Plan to approximately 70 mbf and the proposed output in the Alternatives presented reduce that amount by over 1/2 yet again. This is unsustainable forestry practice that will cause irreparable harm. We ask the final alternative maintain outputs as close to the outputs outlined in the Forest Plan as possible.	See response to comments #71100.99.14, 71600.49.78 and 71600.99.2.
71450	111	5	Alternative 3 is totally unacceptable. The Black Hills cannot sustain another cut in the allowable timber sale quantity.	See response to comments #71600.49.78 and 71600.99.2. See also Chapters 2 and 3 of the EA.
71450	112	12	The Allowable Sale Quantity on the BHNF must be reduced to fully account for the reduction in timber volume caused by the interim direction and the Jasper Fire. All of this should be encompassed in the Phase I Amendment.	See response to comment #71600.49.78.
71460	61	13	Alternatives 2 and 3 call for more thinning in precommercial and POL stands. Thinning from below is an excellent way to improve growth of larger trees; it mimics the effects of nature by releasing the largest and tallest trees. Unfortunately, precommercial thinning costs money and there is so much annually available for this project. POL is considered a commercial product and must be sold. However, the market for POL is very weak and there is already more POL available than what purchasers are willing to buy. Local industry is unwilling to invest in technology to make POL profitable given the downward trend in volume availability from the BHNF. Therefore, much of the POL that the Forest intends to have cut may remain on the stump. Is the Forest Service ready to pay to remove POL?	Economic effects, including anticipated increased project costs are discussed in Chapter 3 of the EA. Increased vegetation stewardship activities may decrease the amount of Knutson-Vandenberg (K-V) funding available for other projects such as wildlife and livestock watering facilities, interpretation, road obliteration etc. Products Other than Logs (POL) volume would be available under all alternatives.
71500	101	9	I ask that you consider: Ensuring that the volume resulting from the settlement agreement be moved forward as quickly as possible;	This comment is outside the scope of the Phase I Amendment. Green timber sale offered from sales listed in the Settlement Agreement for Civil Action 99-N-2173, Tables A and B, are anticipated to be offered within the next few years.
71500	102	9	I ask that you consider: Ensuring that the volume resulting from the settlement agreement be moved forward as quickly as possible;	See the response to comment # 71500.101.9.
71510	9	6	I agree that in light of litigation, concessions must be made to those angry individuals who seek lawsuits against the land and the public who use it, but some concessions should also be made for those of us that use the land, live on the land and love the land. I truly believe the timber industry has a major concern for protecting the forest, they know that to misuse it would greatly effect their industry, they know that proper forest management is essential to prolong the harvest. They know that proper forestry can and will take the forest long in the future. They are not out	Comment noted. The Black Hills National Forest will continue to be managed for multiple uses. The Deputy Chief identified deficiencies in the Revised Forest Plan that needed to be addressed. Additional management direction is incorporated Alternatives 2 and 3 to assure management options will not be foreclosed during the period needed to re-evaluate the sufficiency of the Revised Forest Plan in maintaining species diversity and viability. Overall the direction would lessen the level of risk for species for which there may be a viability

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			to destroy, but are there as caretakers.	concern by providing greater protection during the interim period, while still providing the opportunity to continue management activities. Management on the Black Hills National Forest will continue to incorporate the Multiple-Use Sustained-Yield Act and the National Forest Management Act requirements of providing for multiple uses of several products and services. Forest management would continue to be a tool used to improve habitat conditions and maintain or enhance vegetative diversity.
71600	49	78	The cumulative impacts of the 83,500 acre Jasper Fire and any related salvage logging activities must be considered in developing the interim direction. For each alternative, how implementing the interim direction would affect the availability of merchantable sawtimber, and thus, how each alternative would reduce the annual Allowable Sale Quantity on the BHNF; this assessment must also account for the reduction in sawtimber caused by the Jasper Fire and past, present, and planned timber sales.	Changing the Allowable Sale Quantity is not part of Phase I in the amendment process. Review of the Allowable Sale Quantity is an issue to be addressed in Phase II of the Forest Plan Amendment process. The Jasper Fire occurred after the Phase I efforts were underway. The Forest identified a need to analyze the 83,500 acres Jasper Fire effects and management appropriate for that area given the changed conditions in a separate effort. The Jasper Rapid Assessment Team Report and the Jasper Fire Value Recovery Final Environmental Impact Statement (FEIS) are complete and available on the Black Hills National Forest website. The Jasper Fire is discussed in the cumulative effects section in Chapter 3 of the EA. Volume estimates for each of the alternatives is listed in response to comments #71600.99.2. See also Chapter 3 of the EA.
71600	99	2	The discussion about the potential amount of timber sale volume that will be offered by the Black Hills National Forest under the different alternatives being considered for the Phase I amendment in your October 27 Scoping letter is confusing and must be clarified. For example, page 2 of Attachment 2 states "The outputs from the Forest in timber would remain around the existing levels of 60 to 83.8 million board feet per year (depending on funding levels)" for Alternative 1" of 45 mmbf. The only reference to timber outputs under Alternative 2 is "The outputs from the Forest in timber are anticipated to be less than anticipated under Alternative 1" (Attachment, page 3), and the only reference to timber outputs under Alternative 3 is "outputs from the Forest in timber are anticipated to be in the range of 30 to 60 million board feet per year (Attachment 2, page 4).	See the Timber Production Section in Chapter 3 of the EA. The scoping document Attachment 2 shows 60-83.8 MMBF. This is based on the FEIS which reflects varying budget levels for Alternative 1. Clarification for Attachment 3 is as follows: the 45 MMBF noted for Alternative 1 is based on a 10 year simulated volume output using landscape analysis conducted over five year program plan watersheds. Some errors were found in the information that was sent in the scoping package. A Newsletter update with an expanded comment period was sent out in December 2000 to clarify information from the scoping package, and provide additional opportunities for comments. Volume figures were corrected, updated and displayed in the December 2000 Newsletter, and were based on the five year timeframe anticipated for the Phase I Amendment. Program runs were reviewed to verify calculated outputs for Alternatives 1 and 3 landscape analyses. Additional analysis for Alternative 2 has also been completed.
71600	99	19	We recommend the following:-that the Forest evaluate all alternatives in the context of actual acres that will be treated within the next two years, in the context of annual growth vs harvest, and in the context of contributions from forested lands not considered Suitable and Available.	See response to comment #71100.99.14 in reference to actual acres harvested and actual growth vs. harvest. Project Sample Group analysis shows that harvest treatments from lands not considered suitable and available could still occur with the Phase I Amendment. These would include activities such as maintaining hardwoods and meadows. While not specifically occurring within the project sample group sales, enhancement treatments in botanical areas, backcountry motorized and non-motorized recreation areas, or other management

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				areas where tentatively suitable lands do not contribute to ASQ, could also be conducted. These activities would be dependent on project level analyses.
71600	100	2	The discussion about the potential amount of timber sale volume that will be offered by the Black Hills National Forest under the different alternatives being considered for the Phase I amendment in your October 27 Scoping letter is confusing and must be clarified. For example, page 2 of Attachment 2 states "The outputs from the Forest in timber would remain around the existing levels of 60 to 83.8 million board feet per year (depending on funding levels)" for Alternative 1" of 45 mmbf. The only reference to timber outputs under Alternative 2 is "The outputs from the Forest in timber are anticipated to be less than anticipated under Alternative 1" (Attachment, page 3), and the only reference to timber outputs under Alternative 3 is "outputs from the Forest in timber are anticipated to be in the range of 30 to 60 million board feet per year (Attachment 2, page 4).	See response to comment #71600.99.2 and 71600.49.78. See also Chapter 3 of the EA.
71600	100	19	We recommend the following:-that the Forest evaluate all alternatives in the context of actual acres that will be treated within the next two years, in the context of annual growth vs harvest, and in the context of contributions from forested lands not considered Suitable and Available.	See response to comments #71100.99.14 and 71600.99.19.
71700	57	6	The cumulative impacts of the 83,500 acre Jasper Fire and any related salvage logging activities must be considered in developing the interim direction.	See response to comment #71600.49.78. See also Chapter 3 of the EA.
72110	98	9	The issues with regard to livestock grazing decisions. The bold statement made within the documents to the end that "grazing use would change as needed, by allotment to address site specific concerns" is inappropriate. It assumes there are site specific concerns already in place that must change with little or no justification for that action and resultant effects. As with roads, issues with regard to grazing were appealed and upheld in the 1997 Forest Plan. If during Phase 2 planning, it is determined there is some change needed to the original plan, it should and will be addressed at that time and not before.	Current Forestwide livestock grazing levels (permitted Animal Unit Months), as established in the 1997 Forest Plan, would not change under any of the alternatives in the Phase I Amendment. The EA in Chapter 3 discusses impacts anticipated on livestock grazing under the Phase I alternatives. For affected allotments, Annual Operating Instructions (AOI) would include direction to protect areas of concern. If changes in Forest wide grazing levels are necessary, that will be determined after a full review of Forest programs during the Phase II process. Allotment Management Planning and project level analysis and planning are used to determine site-specific effects to grazing management on specific allotments. The October 12, 1999 Appeal Decision provided interim direction to the Forest to ensure that species viability and diversity is maintained until the re-analysis of species viability and diversity is completed (Phase II). Allotment and project level assessments to determine appropriate measures to protect sensitive species can result in mitigation/grazing management adjustments (fencing or other types of management strategies) where needed to protect sensitive species for the interim period.
72320	23	4	The short comings: noxious weed control.	The Phase I Amendment would continue to provide direction for noxious weed treatments through direction in the Forest Plan goals, objectives

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				and standards and guidelines. A separate analysis is underway to specifically address noxious weed control. (The Black Hills Noxious Weed Environmental Assessment.)
72320	440	2	The National Forest plan does nothing toward weed control.	See response to comment #73220.23.4.
72400	23	6	The short comings: (A hot one to handle) grazing management, in dry seasons either less animals or shorter grazing season; take half, leave half has worked well on [our] ranch.	Management decisions concerning grazing during dry seasons are addressed at the Allotment planning level and are outside the scope of the Phase I Amendment. This information will be shared with the Range staff for future consideration in Allotment Management Planning.
72500	99	3	Similarly, the effects on livestock grazing under Alternative 2 and 3 are only vaguely quantified as "grazing use would change as needed, by allotment to address site specific concerns"	The EA discusses effects of the Phase I alternatives in Chapter 3. Current Forest wide livestock grazing levels (permitted AUMs) as established in the 1997 Forest Plan will not change under any of the Alternatives in the Phase I Amendment. Any changes necessary in Forest wide grazing levels would be determined during the Phase II process. Allotment Management Planning and project level analysis and planning are used to determine specific effects to grazing management on specific allotments. Effects can vary from allotment to allotment depending upon site-specific needs, species presence and abundance or absence. Allotment and project level assessments to determine need for mitigation to protect sensitive species can result in mitigation/grazing management adjustments (fencing, rerouting livestock uses, or other types of management strategies) where needed to protect sensitive species for the interim period. For example, for the interim period specific direction was given to “Ensure that all known colonies of sensitive snail species (Cockerell’s striate disc and Cooper’s Rocky Mountain snail) are protected from adverse effects of livestock use and other management activities.” This was incorporated in the Phase I Amendment as Alternative 2. This had no effect on many allotments on the Forest, while some allotments require mitigation measures to ensure protection of the snails. Alternative 3 requires protection for additional snail species and also has effects that vary from allotment to allotment. Overall there is only a slight difference between the three alternatives in regard to changes in project level grazing management needed to ensure the protection of these snail species.
72500	100	3	Similarly, the effects on livestock grazing under Alternative 2 and 3 are only vaguely quantified as "grazing use would change as needed, by allotment to address site specific concerns"	See response to comment #72500.99.3.
80200	60	2	The following modifications should be made to the preliminary alternatives. Alternatives 2 and 3 do not sufficiently address the social and economic consequences of the proposed actions. Specific information with regard to the projected social and economic impacts to local communities must be added to the alternatives before a true analysis of the options can be made.	Social and economic effects are discussed in Chapter 3 of the EA. See also response to comment 10010.101.1.
80200	103	5	Please don't forget about us folks that work, live and play in the BHNF - we	Social and economic impacts are discussed in Chapter 3 of the Phase

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			are the ones who took the time to participate in the forest plan revision process; we are the ones whose social and economic situations are most impacted by the amendment. You proposed alternatives do not adequately address our issues. Please re-visit and accurately portray the impacts, socially and economically, to local communities in your document.	I EA.
80300	56	1	I am a Professional Forester and have worked in the Black Hills area for twenty years. My family and I have enjoy living in the Black Hills mainly because of the wonderful way that the National Forest has been managed. In recent years I have become increasingly concerned by the pronounced shift in the Forest Service toward no management. In addition to making it difficult for me to provide a living for my family, this is very bad for forest health.	Comment noted. See response to comment #10010.5.7.
80300	73	6	Clinton sold us out, please don't do the same. Many families are counting on you.	Comment noted.
80320	118	6	My job and recreation depend on the use of our forest.	Comment noted. See response to comment 10010.101.1.
80320	120	6	Please help us keep our forests. My job and recreation depend on them.	Comment noted. See response to comment 10010.101.1.
80320	124	6	Please help save our jobs & recreational areas.	Comment noted. See response to comment 10010.101.1.
80320	421	1	My job & recreation means alot.	Comment noted. See response to comment 10010.101.1.
80330	44	6	I want my children & grandchildren to see what I've seen in the outdoors.	Comment noted. See response to comment 10010.101.1.
80350	23	9	The heritage of the Hills area is important and needs to be recorded. I found the heel bone of a camel in a gravel pit near our house that dates back 10,000 yrs. according to school of mines.	The Phase I Amendment would continue manage heritage resources. Section 106 of the Historic Preservation Act (36 CFR 800) requires all Federal Agencies to consider the potential of propose undertakings to effect heritage resources. In order to meet this obligation the Black Hills National Forest conducts heritage resource inventories to identify, evaluate and provide management recommendations for historic and archaeological properties. When an undertaking is proposed a heritage inventory is initiated through a literature review for the Area of Potential Effect (APE). Historic records and current databases or reviewed. Tribal governments are contacted for information concerning traditional use of the area or the existence of sensitive cultural sites in the (APE). If the APE has not been adequately inventoried in the past a pedestrian field survey is conducted. An inventory report is prepared and submitted to the appropriate State and Tribal Historic Preservation Offices for review and comment. When the decision to proceed with an undertaking is made, potential effects to heritage resources and management recommendations for these effects are disclosed.
80800	53	2	I urge an actual program to protect species viability and diversity.	This comment is outside the scope of the Phase I Amendment. See

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			To preserve watersheds...And to require all inholdings	responses to comments #31000.53.1 and 67450.53.3.
81400	30	4	I have worked in the timber industry for 30 years and my family greatly depends on the forest services decisions.	Comment noted.
81400	34	4	The harvest of timber and the production of wood products has been and currently is an important part of the custom and culture of Lawrence County. Historical documents give evidence that when this county was settled during the late 1800's many people were gainfully employed in the harvesting of trees for the many types of woods products that these early settlers needed. It is estimated that by 1897 over 1.5 billion board feet had been harvested from the Black Hills for use by these earlier settlers. The harvest of this timber also created wealth for the people by providing much needed jobs and economic activity. The 1940 census shows that 1022 people were directly employed by the forest products industry. Unfortunately the census does not indicate whether this included loggers. The 1990 census indicates that almost 500 people were employed in Lawrence County by this industry providing over $14 million in wages and benefits. These wages are some of the highest paid by any industrial sector operating in the county. The economic impacts that Lawrence County receives from the Black Hills National Forest selling timber is significant. In fiscal year 1999 the county received over $950,000 from the 25% fund.	The Black Hills National Forest will continue to be managed for multiple uses. The Deputy Chief identified deficiencies in the Revised Forest Plan that needed to be addressed. Additional management direction is incorporated Alternatives 2 and 3 to assure management options will not be foreclosed during the period needed to re-evaluate the sufficiency of the Revised Forest Plan in maintaining species diversity and viability. Overall the direction would lessen the level of risk for species for which there may be a viability concern by providing greater protection during the interim period, while still providing the opportunity to continue management activities. Management on the Black Hills National Forest will continue to incorporate the Multiple-Use Sustained-Yield Act and the National Forest Management Act requirements of providing for multiple uses of several products and services. Forest management would continue to be a tool used to improve habitat conditions and maintain or enhance vegetative diversity. Payments to Counties from the 25% fund is discussed in Chapter 3 of the Phase I EA.
81400	34	9	We have just suffered a huge blow to our economy from the Homestake Mine shutdown which will terminate over 400 high paying jobs and we hope that you will do what is needed to prevent the closing of another major industry in our county. We say this because there is no mention of economic, social or cultural impacts in the scoping letter. We request that the amendment evaluate these impacts.	Social and Economic effects are discussed in Chapter 3 of the EA. See response to comment # 81400.34.4.
81400	99	18	We recommend the following:-that the Forest add an additional issue to the two issues identified in the October 27 Scoping letter, specifically, effects to local communities, businesses, and families.	See responses to comments # 81400.34.4 and 81400.34.9.
81400	100	18	We recommend the following:-that the Forest add an additional issue to the two issues identified in the October 27 Scoping letter, specifically, effects to local communities, businesses, and families.	See responses to comments # 81400.34.4 and 81400.34.9.
81400	101	5	I truly understand the difficult path that you must walk with respect to species viability in today's litigious atmosphere. However, it appears that the Forest is taking an ultra conservative path without analyzing the viability of local communities or industries with decisions.	See responses to comments # 81400.34.4 and 81400.34.9.
81400	102	5	I truly understand the difficult path that you must walk with respect to species viability in today's litigious atmosphere. However, it appears that the Forest is taking an ultra conservative path without analyzing the viability of local communities or industries with decisions.	See responses to comments # 81400.34.4 and 81400.34.9.
81400	125	6	Our families not only enjoy recreation in the forests but rely solely on	Comment noted.

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			them for an income. Where do common sense gardening & stewardship fit into this?	
81410	38	6	You guys are going to kill 400 jobs if this plan does not cut 70-85 MBF. The forest is growing in excess of 120 MBF/YR.	Comment noted.
81410	66	6	Save our jobs & help the forest!	Comment noted.
81410	76	6	Please help - my job depends on it.	Comment noted.
81410	78	6	Help us keep our jobs.	Comment noted.
81410	82	6	Help us keep our jobs.	Comment noted.
81410	87	6	We need to manage the forest better to help the industry and provide jobs for us and for the younger people. Stop putting us out of work.	Comment noted.
81410	92	6	"Please Help" - there's a lot of people with jobs on the line.	Comment noted.
81410	122	6	We need our jobs.	Comment noted.
81410	318	6	We need to stop putting people out of work.	Comment noted.
81410	440	1	The country stands to loose[sic] more job in area.	Comment noted.
81410	461	6	We can't stand to loose more jobs in one area.	Comment noted.
81410	464	1	Help us keep our jobs.	Comment noted.
81900	104	1	We are very concerned that the action alternatives presented in the proposal will shut down multiple use on the Black Hills National Forest. Neither Alternative 2 or 3 addresses the potential impact to surrounding communities when the traditional uses of the Forest are restricted or stopped. The people that depend on the Forest for their livelihoods and recreational endeavors should not be put on hold and made to endure years of additional planning.	The Black Hills National Forest will continue to be managed for multiple uses. The Deputy Chief identified deficiencies in the Revised Forest Plan that needed to be addressed. Additional management direction is incorporated Alternatives 2 and 3 to assure management options will not be foreclosed during the period needed to re-evaluate the sufficiency of the Revised Forest Plan in maintaining species diversity and viability. Overall the direction would lessen the level of risk for species for which there may be a viability concern by providing greater protection during the interim period, while still providing the opportunity to continue management activities. Management on the Black Hills National Forest will continue to incorporate the Multiple-Use Sustained-Yield Act and the National Forest Management Act requirements of providing for multiple uses of several products and services. Forest management would continue to be a tool used to improve habitat conditions and maintain or enhance vegetative diversity.
83500	112	2	Once again the Forest has failed to use the NEPA process to resolve conflicts over resources resulting from the land claims of the signatory tribes to the 1851 and 1868 Fort Laramie Treaties. This action requires a full Environmental Impact Statement to resolve these conflicts and to document needed protections for montane grasslands, northern	The issue of resolving conflicts with the signatory tribes of the 1851 and 1868 Fort Laramie Treaties is beyond the scope of the Phase I Amendment. The issue of the land claims by tribal governments has been going on

CAT CODE	LTR #	COMMENT #	COMMENT TEXT	RESPONSE TO COMMENT
			goshawk, and snag-dependent species. We request that these concerns be fully considered in a draft EIS before any further resource commitments are made on the Black Hills National Forest.	for over 100 years. The consistent position by Congress and the Courts has been that the lands were taken by the United States when the Fort Laramie treaty of 1868 (15 Stat 635), was abrogated by Congress. This occurred when a 1876 special commission agreement with the Sioux Tribes was enacted into law by Act of Congress in 1877 (19 Stat 254). In 1980, after almost 60 years of litigation, the Supreme Court in the U.S. v. Sioux Nation held that the 1877 Act was an unconstitutional taking. This decision also affirmed a 1976 Indian Claims Commission award to the Sioux Tribes of $17.1 million plus interest in damages as a result of this unconstitutional undertaking. In summary, the United States taking of the lands in 1877 was affirmed and the Sioux Nation's claims for return of the land was denied. The exclusive remedy for the Sioux and all other Indian claims is provided for by Congress in the Indians Claims Commission Act of 1946. Further consideration of the Sioux Nation's land claims is a matter for deliberation by Congress. The Black Hills National Forest clearly recognizes the cultural importance of the Black Hills to a number of federally recognized Tribes. The Forest has a legally mandated trust responsibility to consult with these tribes in the context of a government-to-government relationship on policies, programs, and projects implemented in the Black Hills. This trust responsibility to consult has been articulated in Forest Service policy (FSM 1563), several Presidential Executive Orders (EO-13007, EO-13175), and a number of Federal laws including the National Historic Preservation Act, National Environmental Policy Act, Forest & Rangeland Renewable Resource Act, American Indian Religious Freedom Act, Archaeological Resources Protection Act, Native American Graves and Repatriation Act, and the Religious Freedom Restoration Act. See response to comments #41400.35.7, 31045.3.4, 31045.99.13, 32210.37.6 and 32230.22.12.
83800	14	3	Before the fire I was leaning towards alternative 2, if that could be use[ed] as part of comment. My main concern of this time is the protection of the sacred sites which were exposed due to the fire.	All Phase I alternatives would continue to provide protection of sacred sites. The Forest has a legal obligation to identify and provide management recommendations for the protection of sacred sites. The Forest also recognizes the sensitive nature of this type of information and the need to use discretion in the discussion of these sites. The Forest will continue to seek information and advise from the tribal communities in the management and protection of sacred sites.

APPENDIX E

This appendix contains changes made in this decision to the June 24, 1997 Record of Decision for the Revised 1997 Land and Resource Management Plan, Black Hills National Forest.

1997 REVISED FOREST PLAN:

Chapter One: Goals and Objectives:

Corrections Or Additions

Original:

211. In conifer forested portions of a planning unit (diversity unit, watershed, or landtype association), maintain an average of 1.08 hard snags per acre, well dispersed across the conifer forested portion of the planning area through the rotation. Calculate as a per acre average for the planning unit; some acres may have no snags while others may exceed the average.

Corrected:

211. In Ponderosa pine forested portions of a watershed, maintain an average of 2 hard snags per acre on south facing slopes and 4 hard snags per acre on north facing slopes, well dispersed across the watershed through the rotation. Calculate as a per acre average for the watershed; some acres may have no snags while others may exceed the average. In other forest types maintain an average of 6 hard snags per acre, well dispersed across the watershed.

Reason for Change:

To reduce the risk of adverse impacts to snag dependent and associated species.

Original:

224. Reduce or otherwise treat fuels commensurate with risks (fire occurrence), hazard (fuel flammability), and land and resource values common to the area, using the criteria in Forestwide Standard 4110.

Corrected:

224. Reduce or otherwise treat fuels commensurate with risks (fire occurrence), hazard (fuel flammability), and land and resource values common to the area, using the criteria in Forestwide Guideline 4110.

Reason for Change:

See Chapter Two, page II-55 and II-56. 4110 is a guideline and this reference to it as a standard was in error.

Original:

309. Provide the following changes to the Forest Development Road system (FDR) in support of long-term sustainable production of commodities.

Road Construction	280 miles/decade
Road Reconstruction	870 miles/decade
Road Obliteration	140 miles/decade
Two-track Obliteration	270 miles/decade

Corrected:

309. Provide the following changes to the National Forest System roads and two-track roads in support of long-term sustainable production of commodities.

Road Construction	**280 miles/decade**
Road Reconstruction	**870 miles/decade**
Road Obliteration	**140 miles/decade**
Two-track Obliteration	**270 miles/decade**

Reason for Change:

Wording refers to Forest Development Road system and two-tracks are not a part of it. Also the Forest Development Transportation System Final Rule issued January 12, 2001 changes the wording Federal Development Road system (FDR) to National Forest System roads.

Original:

416. Maintain and construct trails as displayed in the following table:

Non-motorized Trails (1996)	293 miles
Motorized Trails (1996)	14 miles
Non-motorized Trail Construction	204 miles
Motorized Trail Construction or Conversion from Road to Motorized Trail	15 miles
Total Forest Trail System	526 miles
Reconstruction	100 miles

Corrected:

416. Maintain and construct trails as displayed in the following table:

Non-motorized Trails (1996)	**293 miles**
Motorized Trails (1996)	**14 miles**
Non-motorized Trail Construction	**204 miles**
Motorized Trail Construction or Conversion from Road to Motorized Trail	**15 miles[1]**
Total Forest Trail System	**526 miles[2]**
Reconstruction	**100 miles[1]**

1Per decade

2Total miles at end of decade

Reason for Change:

Add footnotes 1 and 2 for clarification.

Corrected:

Numbering on pages I-29 through I-32.

Reason for Change:

Two pages were each numbered I-29 and I-30; second set should be pages I-31 and I-32.

Chapter Two: Forestwide Standards and Guidelines:

Corrections Or Additions

Original:

CONFORMANCE WITH OTHER DIRECTION

Additional direction is contained in the Forest Service Manual and the Forest Service Handbook. A partial listing of some of the direction is contained in Appendix A and Appendix B. Additional direction is also provided in the following documents, which are hereby incorporated by reference into this Forest Plan.

- Best Management Practices for South Dakota (See Appendix D)
- Best Management Practices for Wyoming (See Appendix D)
- Best Minerals Management Practices
- Oil and Gas, Surface Operating Standards for Oil and Gas Exploration and Development (Gold Book)
- Federal Wildland Fire Management Policy and Program Review 12/18/95
- A Desk Reference for NEPA Air Quality Analyses for USDA Forest Service 1995

Revised:

CONFORMANCE WITH OTHER DIRECTION

Additional direction is contained in the Forest Service Manual and the Forest Service Handbook. A partial listing of some of the direction is contained in Appendix A and Appendix B. Additional direction is also provided in the following documents, which are hereby incorporated by reference into this Forest Plan.

- **Best Management Practices for South Dakota (See Appendix D)**
- **Best Management Practices for Wyoming (See Appendix D)**
- **Best Minerals Management Practices**
- **Oil and Gas, Surface Operating Standards for Oil and Gas Exploration and Development (Gold Book)**
- **Federal Wildland Fire Management Policy and Program Review 12/18/95**
- **A Desk Reference for NEPA Air Quality Analyses for USDA Forest Service 1995**
- **WO Interim Direction included in the Decision for Appeals of the Black Hills National Forest 1997 Revised Land and Resource Management Plan, 10/12/99**

Reason for Change:

To include additional direction reference.

Guidelines To Be Treated As Standards:

ALT2:

Excerpts from WO Interim Direction included in their Response to Appeal of Black Hills National Forest 1997 Revised Land and Resource Management Plan, 10/12/99:

> **1. Treat all environmentally protective guidelines in the Revised Plan as standards unless doing so would conflict with other interim direction listed below (pg 3, 62). Decision for Appeal of Black Hills National Forest 1997 Revised Land and Resource Management Plan, 10/12/99).**
> **2. In situations where there is an inconsistency between the Revised Plan direction and the Interim Direction, whichever direction is more protective relative to conservation of species populations and habitats will apply.**
> **3. Environmental analyses for proposed projects must evaluate the effectiveness of best management practices (BMPs) and other measures proposed to mitigate adverse effects to species and the ecological conditions that support them. This requirement may be satisfied by previous analysis that can be incorporated by reference.**

The following guidelines will be treated as standards:

1102	1104	1108	1110	1111	1115	1202	1204	1205	1208	1303
1401	1506	1507	1508	1516	1518					
2102	2107	2201	2202	2204	2206	2207	2208	2303	2304	2305
2306	2307	2411	2501	2502	2504	2505	2506	2507	2508	
3102	3104	3105	3106	3107	3110	3112	3113	3114	3203	3204
3205	3208	3210	3211	3212						
4102	4105	4106	4107	4111	4201	4206	4207	4302	4304	4305
5301	5404									
8202	8303	8305	8308							
9107	9108	9109	9201	9202	9204					
1.1A-2102		1.1A-2103		1.1A-2502		1.1A-4103		1.1A-4301		
1.1A-5102		1.1A-5105		1.1A-9103		1.1A-9105				
3.1-2502		3.1-9101		3.1-9102		3.1-9103				
3.2A-2502										
3.31-3202		3.31-5103		3.31-9102						
3.32-3202		3.32-5102		3.32-9101						
3.7-8501		3.7-9101		3.7-9102		3.7-9103		3.7-9104		
4.1-3201		4.1-9102		4.1-9103						

4.2A-9102

4.2B-5102

5.1-3201

5.1A-3201

5.2A-1201	**5.2A-2501**	**5.2A-3201**		
5.4-1501	**5.4-2101**	**5.4-2501**	**5.4-2502**	**5.4-3203**
5.4-5101	**5.4-9101**	**5.4-9102**	**5.4-9103**	
5.4A-2503	**5.4A-3202**	**5.4A-3205**	**5.4A-3206**	**5.4A-3207**
5.4A-3208	**5.4A-4201**	**5.4A-5101**	**5.4A-5102**	**5.4A-5104**
5.4A-5105	**5.4A-9101**	**5.4A-9104**	**5.4A-9107**	**5.4A-9108**
5.43-3202	**5.43-9101**	**5.43-9102**		
5.6-3202				
8.2-3203	**8.2-5103**	**8.2-9102**	**8.2-9103**	

The following pages include standards and guidelines that have been corrected and/or revised. The revised guidelines have been identified as environmentally protective and are to be treated as standards.

ALT3:

Treat all environmentally protective guidelines relative to sensitive wildlife and plant populations and habitats as standards.

The following guidelines will be treated as standards:

1102	**1104**	**1108**	**1110**	**1111**	**1115**	**1202**	**1204**	**1205**	**1208**	**1303**
1401	**1506**	**1507**	**1508**	**1516**	**1518**					
2102	**2107**	**2201**	**2202**	**2204**	**2206**	**2207**	**2208**	**2303**	**2304**	**2305**
2306	**2307**	**2411**	**2501**	**2502**	**2504**	**2505**	**2506**	**2507**	**2508**	
3102	**3104**	**3105**	**3106**	**3107**	**3110**	**3112**	**3113**	**3114**	**3203**	**3204**
3205	**3208**	**3210**	**3211**	**3212**						
4102	**4105**	**4106**	**4107**	**4111**	**4201**	**4206**	**4207**	**4302**	**4304**	**4305**
5301	**5404**									
8202	**8303**	**8305**	**8308**							
9107	**9108**	**9109**	**9201**	**9202**	**9204**					

1.1A-2102	**1.1A-2103**	**1.1A-2502**	**1.1A-4103**	**1.1A-4301**
1.1A-5102	**1.1A-5105**	**1.1A-9103**	**1.1A-9105**	

3.1-2502	**3.1-9101**	**3.1-9102**	**3.1-9103**	
3.2A-2502				
3.31-3202	**3.31-5103**	**3.31-9102**		
3.32-3202	**3.32-5102**	**3.32-9101**		
3.7-8501	**3.7-9101**	**3.7-9102**	**3.7-9103**	**3.7-9104**
4.1-3201	**4.1-9102**	**4.1-9103**		
4.2A-9102				
4.2B-5102				
5.1-3201				
5.1A-3201				
5.2A-1201	**5.2A-2501**	**5.2A-3201**		
5.4-1501	**5.4-2101**	**5.4-2501**	**5.4-2502**	**5.4-3203**
5.4-5101	**5.4-9101**	**5.4-9102**	**5.4-9103**	
5.4A-2503	**5.4A-3202**	**5.4A-3205**	**5.4A-3206**	**5.4A-3207**
5.4A-3208	**5.4A-4201**	**5.4A-5101**	**5.4A-5102**	**5.4A-5104**
5.4A-5105	**5.4A-9101**	**5.4A-9104**	**5.4A-9107**	**5.4A-9108**
5.43-3202	**5.43-9101**	**5.43-9102**		
5.6-3202				
8.2-3203	**8.2-5103**	**8.2-9102**	**8.2-9103**	

The following pages include standards and guidelines that have been corrected and/or revised. The revised guidelines have been identified as environmentally protective and are to be treated as standards.

Corrections or Additions to the Standards and Guidelines:

Original:

1203: Design and construct all stream crossings and other instream structures to pass normal flows, withstand expected flood flows, and allow free movement of resident aquatic life. (Regional WCP Handbook Standard 4)

STANDARD

Revised:

1203. All ALT - Design and construct all stream crossings and other instream structures to provide for passage of flow and sediment, withstand expected flood flows, and allow free movement of resident aquatic life.

STANDARD

Reason for Change:

Three of the 17 standards in the Watershed Conservation Practices (WCP) Handbook of USDA Forest Service, Rocky Mountain Region were revised in March 1999. These changes to the original wording are not substantive. They merely clarify the original intent of the standards as understood by line officers, staff officers, and resource professionals throughout the Region and as explained in the original design criteria for each standard.

Original:

1210. Maintain enough water in perennial streams to sustain existing stream health. Return some water to dewatered perennial streams when needed and feasible. STANDARD (Regional WCP Handbook Standard 7)

STANDARD

Revised:

1210. All ALT – Maintain enough water in perennial streams to sustain existing stream health. Return some water to dewatered perennial streams when needed. Comply with Section 505 of the FLPMA and 36 CFR 251.56 when issuing and re-issuing authorizations for water storage and diversion facilities. (Regional WCP Handbook Standard 7)

STANDARD

Reason for Change:

Clarify the legal requirements.

Original:

1302. Do not degrade ground cover, soil structure, water budgets, or flow patterns in wetlands. (Regional WCP Handbook Standard 6)

STANDARD

Revised:

1302. All ALT - Maintain long-term ground cover, soil structure, water budgets, and flow patterns in wetlands to sustain their ecological function, per 404 regulations.

STANDARD

Reason for Change:

Three of the 17 standards in the Watershed Conservation Practices (WCP) Handbook of USDA Forest Service, Rocky Mountain Region were revised in March 1999. These changes to the original wording are not substantive. They merely clarify the original intent of the standards as understood by line officers, staff officers, and resource professionals throughout the Region and as explained in the original design criteria for each standard.

Original:

1304. As opportunities arise, and need dictates, relocate or implement mitigation measures for roads, trails, watering tanks and similar facilities currently located within the Water Influence Zone.

STANDARD

Revised:

1304. ALT3 - As opportunities arise, and need dictates, relocate or implement mitigation measures for roads, trails, watering tanks, ponds, water catchments, and similar facilities currently located within the Water Influence Zone.

STANDARD

Reason for Change:

To reduce risk of adverse impacts to species associated with water influence zones, including fisheries resources.

Original:

1401. For caves which have been determined significant, or which have not been evaluated for significance, manage to protect or enhance biological, cultural, ecological, hydrological and physical characteristics with the following actions:

a. Avoid ground disturbance within 100 feet of an opening of a natural cave;

b. Take measures to prevent human caused changes in cave ecosystem, water, sediment, nutrient, chemical, airflow, humidity, or temperature regimes;

c. Gating of caves will only be done where it is the only viable option to protect cave resources. If a gate is utilized, it will allow free passage of bats, small animals, air and water.

GUIDELINE

Revised:

1401. ALT3 - For caves which have been determined significant, or which have not been evaluated for significance [as per 36 CFR 290.3 (c) or (d)], manage to protect or enhance biological, cultural, ecological, hydrological and physical characteristics with the following actions:

a. Avoid ground disturbance within 500 feet of an opening of a natural cave;

b. Take measures to prevent human caused changes in cave ecosystem, water, sediment, nutrient, chemical, airflow, humidity, or temperature regimes;

c. Gating of caves will only be done where it is the only viable option to protect cave resources. If a gate is utilized, it will allow free passage of bats, small animals, air and water.

GUIDELINE

Reason for Change:

To increase avoidance zone from 100 feet to 500 feet in a. to reduce risks of adverse impacts to bat species using caves.

Original:

1511. Recreational panning and sluicing shall be allowed outside of Wilderness where such activities do not interfere with the rights of mining claimants protected under the 1872 Mining Law. These activities shall be evaluated by the authorized Forest Service official on a case-by-case basis to determine if an operating plan is needed.

STANDARD

Revised:

1511. ALT2&3 - Recreational panning and sluicing shall be allowed outside of Wilderness where such activities do not interfere with the rights of mining claimants protected under the 1872 Mining Law. These activities shall be evaluated by the authorized Forest Service official on a case-by-case basis following direction found at 36 CFR 228, Subpart A.

STANDARD

Reason for Change:

Clarification referencing the legal authority.

Original:

2102. The maximum size of openings created by the application of uneven-aged silviculture will be two acres regardless of forest cover type.

GUIDELINE

Revised:

2102 – ALT2&3 - The maximum width of openings created by the application of uneven-aged silviculture will be no greater than 1-2 tree heights regardless of forest cover type.

GUIDELINE

Reason for Change:

Clarified direction for opening widths as referenced in Principles of Silviculture, 2nd Edition.

Original:

2207. Locate livestock/wildlife water sites (i.e., drinking structures) outside of hardwood communities when feasible.

GUIDELINE

Revised:

2207. ALT3 - Locate new livestock/wildlife water sites (i.e., drinking structures) outside of hardwood communities.

GUIDELINE

Reason for Change:

To reduce the risk of adverse impacts on plant species associated with hardwood communities

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Original:

SUMMARY TABLE FOR STANDARDS 2301 AND 2308
MINIMUM REQUIREMENTS FOR SNAGS AND WOODY DEBRIS RETENTION

FOREST TYPE	HARD SNAGS (Standard 2301)			DOWNED LOGS (Standard 2308)	
	Minimum Diameter	Average per Acre [1]	Minimum Height	Minimum Diameter	Linear Feet per Acre [1]
Ponderosa Pine and White Spruce	10 inches	1.08	15 feet	10 inches	50 feet

[1]This does not mean that every acre will have a snag or downed log; these are averages across the planning unit.

2301. Design vegetative treatments to maintain an average of 1.08 hard snags per conifer forested acre in all planning units (diversity unit, watershed and/or land type association). (See Table above.)

STANDARD

Revised:

2301. ALT 2 -
SUMMARY TABLE FOR STANDARDS 2301 AND 2308
MINIMUM REQUIREMENTS FOR SNAGS AND WOODY DEBRIS RETENTION

FOREST TYPE	HARD SNAGS					DOWN WOODY MATERIAL	
	Minimum diameter	Average Per Acre On North And East Slopes[1]	Average Per Acre On South And West Slopes[1]	Average Per Acre[1]	Minimum Height	Minimum Diameter	Linear Feet per Acre[1]
Ponderosa Pine	>10 inch DBH, 25% > 20 inch DBH, or in largest size class available	4	2	~	25 feet, or largest size class available	10 inches	50 linear feet
White Spruce	>10 inch DBH or in largest size class available	~	~	6	15 feet	10 inches	8 logs, 10 feet each
						20 inches	2 logs, 10 feet each
Other Forest Types	>10 inch DBH or in largest size class available	~	~	6	15 feet	~	~

[1]This does not mean that every acre will have a snag or downed log; these are averages across the watershed.

2301 ALT2 - Within the associated watershed, for each vegetation management project, retain the following minimum densities of hard snags at least 25 feet in height:
a. Ponderosa Pine on north- or east-facing slopes or in protected areas which would have historically supported an infrequent, stand replacing fire regime: Retain an average of 4 snags per acre > 10" DBH (diameter at breast height), collectively 25% of which must be > 20" DBH. If 20" DBH or 25 feet high snags are not available, retain snags in the largest size class available.
b. Ponderosa Pine on south- or west-facing slopes or in exposed areas which would have historically supported a more frequent, lower intensity fire regime: Retain an average of 2

snags per acre > 10" DBH, collectively 25% of which must be > 20" DBH. If 20" DBH or 25 feet high snags are not available, retain snags in the largest size class available.
c. Retain a minimum average of 6 snags per acre > 10" DBH for forest types other than Ponderosa pine.
d. Snags chosen for retention should represent the largest diameter class available.
STANDARD

2301. ALT3 -
SUMMARY TABLE FOR STANDARDS 2301 AND 2308
MINIMUM REQUIREMENTS FOR SNAGS AND WOODY DEBRIS RETENTION

FOREST TYPE	HARD SNAGS					DOWN WOODY MATERIAL	
	Minimum diameter	Average Per Acre On North And East Slopes[1]	Average Per Acre On South And West Slopes[1]	Average Per Acre[1]	Minimum Height	Minimum Diameter	Linear Feet per Acre[1]
Ponderosa Pine	>10 inch DBH, 25% > 20 inch DBH, or in largest size class available	4	2	~	25 feet, or largest size class available	10 inches	50 linear feet
White Spruce	>10 inch DBH or in largest size class available	~	~	6	15 feet	10 inches	8 logs, 10 feet each
						20 inches	2 logs, 10 feet each
Other Forest Types	>10 inch DBH or in largest size class available	~	~	6	15 feet	~	~

[1]This does not mean that every acre will have a snag or downed log; these are averages across the watershed.

Reason for Change:

To reduce the risk of adverse impacts to snag dependent and associated species.

2301 – ALT3 - Within the associated watershed, for each vegetation management project, retain the following minimum densities of hard snags (unless snags are a safety hazard) at least 25 feet in height:
a. Ponderosa Pine on north- or east-facing slopes or in protected areas which would have historically supported an infrequent, stand replacing fire regime: Retain an average of 4 snags per acre > 10" DBH (diameter at breast height), collectively 25% of which must be > 20" DBH. If 20" DBH or 25 feet high snags are not available, retain snags in the largest size class available.
b. Ponderosa Pine on south- or west-facing slopes or in exposed areas which would have historically supported a more frequent, lower intensity fire regime: Retain an average of 2 snags per acre > 10" DBH, collectively 25% of which must be > 20" DBH. If 20" DBH or 25 feet high snags are not available, retain snags in the largest size class available.
c. Retain a minimum average of 6 snags per acre > 10" DBH for forest types other than Ponderosa pine, unless snags are a safety hazard.
d. Snags chosen for retention should represent the largest diameter class available.
e. Provide large diameter trees and snags along habitat interface zones.
STANDARD

Reason for Change:

To reduce the risk of adverse impacts to snag dependent and associated species, while acknowledging safety concerns.

Original:

2302. If a planning unit (diversity unit, watershed, and/or land type association) does not meet the minimum hard snag diversity requirement across the conifer forested portion, project implementation within the planning unit (planning unit, watershed, and/or land type association) will move hard snag densities toward this objective.

STANDARD

Revised:

2302. ALT2&3 - In watersheds not meeting the minimum hard snag direction, all vegetation management projects will be designed to move hard snag densities toward this objective.

STANDARD

Reason for Change:

To clarify direction and to change to a watershed.

Original:

2303. Snags can be clumped or individual, but should be well distributed throughout the planning unit.

GUIDELINE

Revised:

2303. ALT2 - Snags can be clustered or individual, but must be well distributed within the watershed.

GUIDELINE

2303. ALT3 - Snags can be clustered or individual, but must be well distributed within the watershed. Focus on opportunities for leaving snags in clumps rather than individually.

GUIDELINE

Reason for Change:

To change area to a watershed.

Original:

2304. In planning units not meeting the snag objective, consider snag cutting restrictions and treating live replacement trees to create snags.

GUIDELINE

Revised:

2304. ALT2 –

a. In planning units not meeting the snag objective, consider snag cutting restrictions and treating live replacement trees to create snags.

b. Identify roads to be closed at completion of projects to protect snags from removal, especially in areas where snag densities are low.

GUIDELINE

2304. ALT3 –
a. Prohibit cutting of standing dead trees for fuelwood, except in designated areas.
b. In areas where cutting restrictions are not effective, consider identifying roads to be closed or restricted from use to protect snags from removal.
GUIDELINE

Reason for Change:

To reduce the risk of adverse impacts to snag dependent and associated species.

Original:

2306. When necessary provide live tree replacements to meet the minimum snag objective.
GUIDELINE

Revised:

2306. ALT2 - During vegetation management activities in ponderosa pine, retain a sufficient number of green trees > 20" DBH or from the largest diameter class available, to move towards or maintain an average minimum density of one large green tree per acre within the associated watershed, for the purpose of snag recruitment. Retention trees can be clustered or individual.
GUIDELINE

2306. ALT3 - During vegetation management activities in ponderosa pine, retain a sufficient number of green trees > 20" DBH or from the largest diameter class available, to move towards or maintain an average minimum density of one large green tree per acre within the associated watershed, for the purpose of recruitment of snags and large diameter down woody material.
GUIDELINE

Reason for Change:

To reduce the risk of adverse impacts to snag dependent and associated species.

Original:

2308. Prescriptions shall be developed prior to timber harvest to identify the amount, size(s), and distribution of down logs to be left on-site. On conifer-forested sites (ponderosa pine and white spruce) retain an average of at least 50 linear feet per acre of coarse woody debris with a minimum diameter of 10 inches (where materials are available). (See Table with 2301.)
STANDARD

Revised:

2308. ALT2&3 – a. Prescriptions shall be developed prior to timber harvest to identify the amount, size(s), and distribution of down logs to be left on-site. On conifer-forested sites (ponderosa pine and white spruce) retain an average of at least 50 linear feet per acre of coarse woody debris with a minimum diameter of 10 inches (where materials are available). (See Table with 2301.)
b. Design vegetation management activities, including prescribed fire, to maintain ten sound logs per acre (eight logs minimum length 10 feet, 10 inches diameter; two logs minimum length 10 feet, 20 inches diameter) to provide future den sites, resting sites, and prey habitat within areas currently occupied by martens or with high potential for occupancy. (See Table with 2301.)
STANDARD

Reason for Change:

To reduce the risk of adverse impacts to marten habitat.

Original:

3102. Where caves are important nurseries or hibernacula for sensitive bat species, protect the caves and their microclimates when designing management activities (e.g., timber harvest, road construction, recreation facilities).

GUIDELINE

Revised:

3102. ALT3 - Where caves and mines are nurseries or hibernacula for bats, protect the caves and mines and their microclimates when designing management activities (e.g., timber harvest, road construction, recreation facilities). Protect known bat day and night roosts.

GUIDELINE

Reason for Change:

To reduce the risk of adverse impacts to bat habitat.

Original:

3103. For the snail "species of special concern," conserve habitat at colonies identified by Frest and Johannes in their 1993 report.

STANDARD

Revised:

3103. ALT2 - Ensure that all known colonies of sensitive snail species (Cockerell's striate disc and Cooper's Rocky Mountain snail) are protected from adverse effects of livestock use and other management activities. For the remaining snail species, conserve habitat at colonies identified by Frest and Johannes in their 1993 report.

STANDARD

3103. ALT3 - Ensure that all identified colonies (as indicated in Frest 1993, and subsequent Frest report [expected in 2001]) of the following two regionally sensitive snail species: Discus shimeki (Pilsbry, 1890); Oreohelix strigosa cooperi (Binney, 1958); and the following five snail species: Vertigo arthuri (von Martens, 1882); Vertigo paradoxa (Sterki, 1900); Catinella gelida (Baker, 1927); Oreohelix strigosa n. subsp.; Oreohelix strigosa berryi (pilsbry, 1915), are protected from adverse effects of livestock use and other management activities.

STANDARD

Reason for Change:

To reduce the risk of adverse impacts to these snail species.

Original:

3104. Conserve habitat for sensitive plants and animals associated with moist soil conditions during development of springs or seeps as water facilities.

GUIDELINE

Revised:

3104. ALT3 - Protect habitat for sensitive plants and animals associated with moist soil conditions. Do not develop springs or seeps as water facilities where sensitive species exist.

GUIDELINE

Reason for Change:

To reduce the risk of adverse impacts to sensitive plants and animals.

Original:

3107. Consider the use of one, or a combination of the following protection measures, to protect sensitive plants or their habitat during and after trail, road and highway construction activities:

a. To the extent possible avoid the following: disturbing locations with known populations of sensitive plant species; removing riparian or wetland vegetation; filling or dredging the riparian area or wetland; diverting stream flow from the current channel.

b. Install silt fences above wet areas to prevent storm runoff from washing silt into the stream or wetland.

c. Reseed and/or replant cut and fill slopes with native seed and/or native plants promptly, to control erosion and for prevention of noxious weed infestations. Use hydro mulch, jute mesh, or a type of erosion control blanket on disturbed areas that are steep and/or adjacent to the riparian area.

d. If temporary stream diversions are necessary, determine the seasonal timing such that diversions would have the least potential to adversely affect sensitive plant populations.

GUIDELINE

Revised:

3107. ALT3 - Consider the use of one, or a combination of the following protection measures, to protect sensitive plants or their habitat during and after trail, road and highway construction activities:

a. Avoid the following: disturbing locations with known populations of sensitive plant species; removing riparian or wetland vegetation; filling or dredging the riparian area or wetland; diverting stream flow from the current channel.

b. Install silt fences above wet areas to prevent storm runoff from washing silt into the stream or wetland.

c. Reseed and/or replant cut and fill slopes with native seed and/or native plants promptly, to control erosion and for prevention of noxious weed infestations. Use hydro mulch, jute mesh, or a type of erosion control blanket on disturbed areas that are steep and/or adjacent to the riparian area.

d. If temporary stream diversions are necessary, determine the seasonal timing such that diversions would have the least potential to adversely affect sensitive plant populations.

GUIDELINE

Reason for Change:

To clarify item a.

Original:

3108. Limit activities in at least three goshawk nest stands (approximately 30 acres each) in each historically active territory. Use historical nest stands as a first priority, and other structurally and compositionally appropriate stands as a second priority.

STANDARD

Revised:

3108. ALT2&3 - The following additional protective measures will apply relative to the northern goshawk for all projects involving the removal of trees in suitable habitat, except those done for the express purpose of enhancing goshawk habitat:
a. A goshawk nest survey must be conducted prior to any projects in forested areas.
b. If the project area includes a historically active nest or a replacement stand associated with a historically active territory, this acreage will be excluded from the project.
c. If a historically active territory occurs within one-half mile of the project area and protected acreage has not yet been identified, the project analysis will determine whether some of the protected acreage should occur within the project area.
d. If the pre-project survey identifies a previously unknown active nest, the project analysis will determine where protected acreage will be located.

STANDARD

Reason for Change:

To reduce risk of adverse impacts to goshawks by protecting nesting habitat.

Original:

3109. Limit activities in at least three replacement nest stands in each goshawk territory that will be suitable when existing sites are no longer functional.

STANDARD

Revised:

3109. ALT2 - In all cases, protected acreage will include 180 acres best suited for nesting habitat within one-half mile of the historically active or currently active nest. The acreage need not be contiguous but must occur in 30-acre units or larger. If these conditions cannot be met, then the acreage will include stands that are not currently suitable but that could be managed to meet nesting conditions over time. Activities within these stands should be limited to those that aid in maintaining or enhancing the stand's value for goshawks.

STANDARD

Reason for Change:

To reduce risk of adverse impacts to goshawks by protecting nesting habitat.

Revised:

3109. ALT3 - In all cases, protected acreage will include 180 acres best suited for nesting habitat within one-half mile of the historically active or currently active nest or within the goshawk territory. The acreage need not be contiguous but must occur in 30-acre units or larger. If these conditions cannot be met, then the acreage will include stands that are not currently suitable but that could be managed to meet nesting conditions over time. Activities within these stands should be limited to those that aid in maintaining or enhancing the stand's value for goshawks.

STANDARD

Reason for Change:

To reduce risk of adverse impacts to goshawks by protecting nesting habitat.

Original:

3111. Minimize human-caused disturbances (e.g.,road traffic, construction activities) not present at nest initiation in active goshawk nest areas from March 1 through September 30.

STANDARD

Revised:

3111. ALT2 - From March 1 through September 30, minimize additional human-caused noise and disruption beyond that occurring at the time of nest initiation (e.g. road traffic, timber harvests, construction activities) within one-fourth mile of all active goshawk nests.

STANDARD

Reason for Change:

To clarify original guideline.

Revised:

3111. ALT3 - From March 1 through August 31, minimize additional human-caused noise and disruption beyond that occurring at the time of nest initiation (e.g. road traffic, timber harvests, construction activities) within one-fourth mile of all active goshawk nests.

STANDARD

Reason for Change:

To clarify and adjust timeframe specific to the Black Hills National Forest.

Original:

3114. Treatments in goshawk fledgling habitat associated with active and alternate nests should be designed to enhance prey species habitat, structural, and compositional diversity.

GUIDELINE

Revised:

3114. ALT2 - Design silvicultural prescriptions and manage activities to enhance prey species habitat by maintaining vegetative diversity and striving for a balance of structural stages, from stand initiation to late successional, within goshawk fledgling habitat (approximately 420 acres around each historically active goshawk nest and alternate nests).

Post-Fledging Family Area Balance of Structural Stages:

Tree Size Class	Diameter range (inches)	Minimum canopy closure %	Percent of balance (range)
1, Grass/forb/shrub	0-1	None	10 (7-13)
2, Seedling/sapling	1-5	None	10 (7-13)
3, Young forest	5-9	None	20 (15-25)
4, Mid-aged forest	9-14	50	13 (8-18)
4, Mid-aged forest	9-14	60	7 (2-12)
5, Mature forest	14-20	50	20 (15-25)
6, Old forest	>= 20	50	20 (15-25)

GUIDELINE

3114-a. ALT3 - Design silvicultural prescriptions and manage activities to enhance prey species habitat by maintaining vegetative diversity and striving for a balance of structural

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stages, from stand initiation to late successional, within goshawk fledgling habitat (approximately 420 acres around each historically active goshawk nest and alternate nests).

Post-Fledging Family Area Balance of Structural Stages:

Tree Size Class	Diameter range (inches)	Minimum canopy closure %	Percent of balance (range)
1, Grass/forb/shrub	0-1	None	10 (7-13)
2, Seedling/sapling	1-5	None	10 (7-13)
3, Young forest	5-9	None	20 (15-25)
4, Mid-aged forest	9-14	50	13 (8-18)
4, Mid-aged forest	9-14	60	7 (2-12)
5, Mature forest	14-20	50	20 (15-25)
6, Old forest	>= 20	50	20 (15-25)

3114-b. ALT3 - Design silvicultural prescriptions and management activities to enhance habitat for prey species by maintaining vegetative diversity and striving for a balance of structural stages, from stand initiation to late successional, across the ponderosa pine forested portion of the landscape. Design management activities to attempt to replicate natural vegetative patterns and patch size.

Foraging Area Balance of Structural Stages:

Tree Size Class	Diameter range (inches)	Minimum canopy closure %	Percent of balance (range)
1, Grass/forb/shrub	0-1	None	10 (7-13)
2, Seedling/sapling	1-5	None	10 (7-13)
3, Young forest	5-9	None	20 (15-25)
4, Mid-aged forest	9-14	40	20 (15-25)
5, Mature forest	14-20	40	20 (15-25)
6, Old forest	>= 20	40	20 (15-25)

GUIDELINE

Reason for Change:

To reduce risks of adverse impacts to goshawks and enhance habitat for goshawk prey species.

New:

3116. ALT3 – Avoid creating barriers (i.e. new open roads) between red-bellied snake hibernacula and wetlands.

STANDARD

Reason for Addition:

To reduce the risk of adverse impacts to red-bellied snakes and their habitat.

New:

3117. ALT3 - Where timber harvest activities occur in stands adjacent to potential marten habitat (spruce sites or conifer sites with significant spruce component) maintain approximately 1 pile of woody material per 2 acres to create near-ground structure for marten prey species.

STANDARD

Reason for Addition:

To enhance habitat for marten prey species.

New:

3118. ALT3 - Maintain existing black-tailed prairie dog populations on the forest.

STANDARD

Reason for Addition:

To reduce the risk of adverse impacts to black-tailed prairie dog populations.

Original:

3201. Meet the following habitat capability when implementing projects:

a. Habitat capability for species currently at or below 50 percent in the analysis area should not decrease more than 10 percent due to the project (i.e., a species at 40 percent should not decrease more than 4 percent);

b. Habitat capability for species above 50 percent in the analysis area should not decrease to below 45 percent in the analysis area due to the project;

c. Post-project habitat capability should increase for species selected to benefit from implementation;

GUIDELINE

Revised:

DELETED

~~**3201. Meet the following habitat capability when implementing projects:**~~

~~**a. Habitat capability for species currently at or below 50 percent in the analysis area should not decrease more than 10 percent due to the project (i.e., a species at 40 percent should not decrease more than 4 percent);**~~

~~**b. Habitat capability for species above 50 percent in the analysis area should not decrease to below 45 percent in the analysis area due to the project;**~~

~~**c. Post-project habitat capability should increase for species selected to benefit from implementation.**~~

GUIDELINE

Reason for Change:

This is replaced by the additional protective measures to reduce the risk of adverse impacts to species habitats. Wildlife biologists will evaluate species habitat needs/conditions.

Original:

3204. Protect active raptor nests. Consider potential effects of disturbance, nesting phenology, human activities existing at the onset of nest initiation, species, topography, forest cover, and other appropriate factors when designing protection.

GUIDELINE

Revised:

3204. ALT3 - Protect known current and historic raptor nests (other than goshawks). Consider potential effects of disturbance, nesting phenology, human activities existing at onset of nest initiation, species, topography, forest cover, nest protection standards and recommendations used by state or federal agencies, and other appropriate factors when designing protection.

GUIDELINE

Reason for Change:

To reduce the risks of adverse impacts to other raptors.

Original:

3207. Protect known bat nursery roosts and hibernacula during those critical periods.

STANDARD

Revised:

3207. ALT3 - Protect known bat nursery roosts and hibernacula.

STANDARD

Reason for Change:

Clarify that it's to protect bat nursery roosts and hibernacula at all times.

Original:

3208. Use seasonal closures for known nursery roosts and hibernacula where there are conflicts with people. Work with interested groups to design closures and recreation opportunities that will not adversely impact bats during critical periods.

GUIDELINE

Revised:

3208. ALT3 - Use seasonal closures for known nursery roosts and hibernacula where there are conflicts with people. Work with interested groups to design closures and recreation opportunities that will not adversely impact bats.

GUIDELINE

Reason for Change:

To reduce the risks of adverse impacts to bats and their habitat.

Original:

3209. If it is necessary to close mines or caves that function as important bat habitat, closures shall be designed so that bat movement is not impeded.

STANDARD

Revised:

3209. ALT3 - Evaluate abandoned mines for bat habitat potential prior to closure. If it is necessary to close mines or caves that function as bat habitat, closures shall be designed so that bat movement is not impeded.

GUIDELINE

Reason for Change:

To reduce the risks of adverse impacts to bat species using abandoned mines.

New:

3215.

Marten Habitat:

Cover Type	Structural Stage	Additional Stand Characteristics
White Spruce	3B, 3C, 4B, 4C, 5	~
Ponderosa Pine	~	Adjacent to white spruce stands listed above. >=30% total basal area in white spruce. >=40% total canopy cover percent.

Note: The actual boundary of high potential habitat may not follow existing stand boundaries.

3215. - ALT2&3 - All vegetation management projects should be designed to prevent further decrease in patch size of late-successional forests within areas currently occupied by martens or with high potential for occupancy. Seek opportunities to increase connectivity of such areas. Maintain microclimate conditions within potential marten habitat (spruce sites or conifer sites with significant spruce component). In areas identified as important connectivity corridors for marten, maintain canopy closure and density (e.g. do not thin). Avoid building roads in high potential marten habitat.

STANDARD

Reason for Addition:

To reduce the risks of adverse impacts to marten habitat by maintaining patches of late-succession within areas currently occupied by martens or with high potential for occupancy.

New:

3.1-2503. ALT2 and ALT3 – Protect sensitive plant populations in designated Botanical Areas from adverse impacts of domestic livestock grazing.

STANDARD

Reason for Addition:

To clarify protection of sensitive plant populations within designated Botanical Areas as per the Deputy Chief's direction.

Original:

3.31-3202. Deer and elk habitat effectiveness in a planning unit should at least meet the following values. Projects in planning units currently below these values should result in increased habitat effectiveness.

Elk Summer = 50 percent

Elk Winter = 45 percent

Deer Summer = 50 percent

Deer Winter = 45 percent

GUIDELINE

Corrected:

3.31-3202. ALT2&3 - **Deer and elk habitat effectiveness in a planning unit should at least meet the following values. Vegetative management projects in planning units currently below these values should result in increased habitat effectiveness.**
Elk Summer = 40 percent
Elk Winter = 35 percent
Deer Summer = 37 percent
Deer Winter = 33 percent

GUIDELINE

Reason for Change:

Correction to reflect corrected GIS HABCAP model outputs after program errors were discovered and corrected related to deer and elk cover and forage values.

Original:

3.32-3202. Deer and elk habitat effectiveness in a planning unit should at least meet the following values. Projects in planning units currently below these values should result in increased habitat effectiveness.

Elk Summer = 50 percent

Elk Winter = 45 percent

Deer Summer = 50 percent

Deer Winter = 45 percent

GUIDELINE

Corrected:

3.32-3202. ALT2&3 - **Deer and elk habitat effectiveness in a planning unit should at least meet the following values. Vegetative management projects in planning units currently below these values should result in increased habitat effectiveness.**
Elk Summer = 39 percent
Elk Winter = 36 percent
Deer Summer = 41 percent
Deer Winter = 35 percent

GUIDELINE

Reason for Change:

Correction to reflect corrected GIS HABCAP model outputs after program errors were discovered and corrected related to deer and elk cover and forage values.

Original:

4.1-3201. Deer and elk habitat effectiveness in a planning unit should at least meet the following values. Projects in planning units currently below these values should result in increased habitat effectiveness.

Elk Summer = 50 percent

Elk Winter = 45 percent

Deer Summer = 50 percent

Deer Winter = 45 percent

GUIDELINE

Corrected:

4.1-3201. ALT2&3 - **Deer and elk habitat effectiveness in a planning unit should at least meet the following values. Vegetative management projects in planning units currently below these values should result in increased habitat effectiveness.**
Elk Summer = 39 percent
Elk Winter = 36 percent
Deer Summer = 41 percent
Deer Winter = 35 percent
GUIDELINE

Reason for Change:

Correction to reflect corrected GIS HABCAP model outputs after program errors were discovered and corrected related to deer and elk cover and forage values.

Original:

5.1-3201. Deer and elk habitat effectiveness in a planning unit should at least meet the following values. Projects in planning units currently below these values should result in increased habitat effectiveness.

Elk Summer = 50 percent

Elk Winter = 45 percent

Deer Summer = 50 percent

Deer Winter = 45 percent

GUIDELINE

Corrected:

5.1-3201. ALT2&3 - **Deer and elk habitat effectiveness values in a planning unit should at least meet the following values. Vegetative management projects in planning units currently below these values should result in increased habitat effectiveness.**
Elk Summer = 43 percent,
Elk Winter = 34 percent,
Deer Summer = 40 percent,
Deer Winter = 35 percent
GUIDELINE

Reason for Change:

Correction to reflect corrected GIS HABCAP model outputs after program errors were discovered and corrected related to deer and elk cover and forage values.

Original:

5.1A-3201. Deer and elk habitat effectiveness in a planning unit should at least meet the following values. Projects in planning units currently below these values should result in increased habitat effectiveness.

Elk Summer = 50 percent

Elk Winter = 45 percent

Deer Summer = 50 percent

Deer Winter = 50 percent

GUIDELINE

Corrected:

5.1A-3201. ALT2&3 - **Deer and elk habitat effectiveness values in a planning unit should at least meet the following values. Vegetative management projects in planning units currently below these values should result in increased habitat effectiveness.**
Elk Summer = 34 percent,
Elk Winter = 33 percent,
Deer Summer = 39 percent,
Deer Winter = 39 percent

GUIDELINE

Reason for Change:

Correction to reflect corrected GIS HABCAP model outputs after program errors were discovered and corrected related to deer and elk cover and forage values.

Original:

5.2A-3201. Deer and elk habitat effectiveness in a planning unit should at least meet the following values. Projects in planning units currently below these values should result in increased habitat effectiveness.

Elk Summer = 50 percent

Elk Winter = 45 percent

Deer Summer = 50 percent

Deer Winter = 45 percent

GUIDELINE

Corrected:

5.2A-3201. ALT2&3 - **Deer and elk habitat effectiveness values in a planning unit should at least meet the following values. Vegetative management projects in planning units currently below these values should result in increased habitat effectiveness.**
Elk Summer = 40 percent,
Elk Winter = 35 percent,
Deer Summer = 37 percent,
Deer Winter = 33 percent

GUIDELINE

Reason for Change:

Correction to reflect corrected GIS HABCAP model outputs after program errors were discovered and corrected related to deer and elk cover and forage values.

Original:

5.4-3203. Deer and elk habitat effectiveness in a planning unit should at least meet the following values. Projects in planning units currently below these values should result in increased habitat effectiveness.

Elk Summer = 60 percent

Elk Winter = 55 percent

Deer Summer = 55 percent

Deer Winter = 50 percent

GUIDELINE

Corrected:

5.4-3203. ALT2&3 - **Deer and elk habitat effectiveness in a planning unit should at least meet the following values. Vegetative management projects in planning units currently below these values should result in increased habitat effectiveness.**
Elk Summer = 54 percent,
Elk Winter = 47 percent,
Deer Summer = 45 percent,
Deer Winter = 46 percent
GUIDELINE

Reason for Change:

Correction to reflect corrected GIS HABCAP model outputs after program errors were discovered and corrected related to deer and elk cover and forage values.

Original:

5.4A-3201. Meet the following habitat capability when implementing projects:

a. Maintain or increase habitat capability for species whose habitat capability is at or below 50 percent.

b. For species whose habitat capability is greater than 50 percent, do not decrease habitat capability by more than 20 percent as a result of the project.

c. Post-project habitat capability should increase for species selected to benefit from project implementation.

d. For aquatic habitat, this guideline should be implemented by stream reach.

In assessing habitat capability, consider bird species listed especially for Norbeck Wildlife Preserve (Appendix L) in addition to other species. GUIDELINE

Revised:

DELETED
~~**5.4A-3201. Meet the following habitat capability when implementing projects:**~~
~~**a. Maintain or increase habitat capability for species whose habitat capability is at or below 50 percent.**~~
~~**b. For species whose habitat capability is greater than 50 percent, do not decrease habitat capability by more than 20 percent as a result of the project.**~~
~~**c. Post-project habitat capability should increase for species selected to benefit from project implementation.**~~
~~**d. For aquatic habitat, this guideline should be implemented by stream reach.**~~
~~**In assessing habitat capability, consider bird species listed especially for Norbeck Wildlife Preserve (Appendix L) in addition to other species.**~~
GUIDELINE

Reason for Change:

Replaced with additional habitat protection measures.

Original:

5.4A-3202. Deer and elk habitat effectiveness in a planning unit should at least meet the following values. Projects in planning units currently below these values should result in increased habitat effectiveness.

Elk Summer = 65 percent

Elk Winter = 65 percent

Deer Summer = 60 percent

Deer Winter = 60 percent

GUIDELINE

Corrected:

5.4A-3202. ALT2&3 - **Deer & elk habitat effectiveness in a planning unit should at least meet the following values. Vegetative management projects in planning units currently below these values should result in increased habitat effectiveness.**
Elk Summer = 46 percent,
Elk Winter = 43 percent,
Deer Summer = 42 percent,
Deer Winter = 38 percent

GUIDELINE

Reason for Change:

Correction to reflect corrected GIS HABCAP model outputs after program errors were discovered and corrected related to deer and elk cover and forage values.

Original:

5.4A-3203. Protect active goshawk nest sites by prohibiting timber harvest activities which were not occurring at nest initiation and by deferring treatment within the nest stand (approximately 30 acres each). In addition, prohibit road construction, skidding, and other timber harvest activities which were not occurring at nest initiation within one-fourth mile of the active nest site between March 1 and September 30.

STANDARD

Revised:

5.4A-3203. ALT3 - **Protect active goshawk nest sites by prohibiting timber harvest activities which were not occurring at nest initiation and by deferring treatment within the nest stand (approximately 30 acres each). In addition, prohibit road construction, skidding, and other timber harvest activities that were not occurring at nest initiation within one-fourth mile of the active nest site between March 1 and August 31.**

STANDARD

Reason for Change:

To adjust timeframes to be specific to the Black Hills National Forest.

Original:

5.43-3202. Deer and elk habitat effectiveness in a planning unit should at least meet the following values. Projects in planning units currently below these values should result in increased habitat effectiveness.

Elk Summer = 55 percent

Elk Winter = 50 percent

Deer Summer = 60 percent

Deer Winter = 50 percent

GUIDELINE

Corrected:

5.43-3202. ALT2&3 - **Deer & elk habitat effectiveness in a planning unit should at least meet the following values. Vegetative management projects in planning units currently below these values should result in increased habitat effectiveness.**
Elk Summer = 46 percent,

Elk Winter = 43 percent,
Deer Summer = 42 percent,
Deer Winter = 38 percent

GUIDELINE

Reason for Change:

Correction to reflect corrected GIS HABCAP model outputs after program errors were discovered and corrected related to deer and elk cover and forage values.

Original:

5.6-3202. Deer and elk habitat effectiveness in a planning unit should at least meet the following values. Projects in planning units currently below these values should result in increased habitat effectiveness.

Elk Summer = 65 percent

Elk Winter = 55 percent

Deer Summer = 60 percent

Deer Winter = 50 percent

GUIDELINE

Corrected:

5.6-3202. ALT2&3 - **Deer & elk habitat effectiveness in a planning unit should at least meet the following values. Vegetative management projects in planning units currently below these values should result in increased habitat effectiveness.**
Elk Summer = 46 percent,
Elk Winter = 43 percent,
Deer Summer = 42 percent,
Deer Winter = 38 percent

GUIDELINE

Reason for Change:

Correction to reflect corrected GIS HABCAP model outputs after program errors were discovered and corrected related to deer and elk cover and forage values.

Original:

8.2-3203. Deer and elk habitat effectiveness in a planning unit should at least meet the following values. Projects in planning units currently below these values should result in increased habitat effectiveness.

Elk Summer = 50 percent

Elk Winter = 45 percent

Deer Summer = 50 percent

Deer Winter = 45 percent

GUIDELINE

Revised:

8.2-3203. ALT2&3 - **Deer and elk habitat effectiveness in a planning unit should at least meet the following values. Vegetative management projects in planning units currently below these values should result in increased habitat effectiveness.**
Elk Summer = 40 percent,
Elk Winter = 35 percent,
Deer Summer = 37 percent,
Deer Winter = 33 percent

GUIDELINE

Reason for Change:

Correction to reflect corrected GIS HABCAP model outputs after program errors were discovered and corrected related to deer and elk cover and forage values.

New:

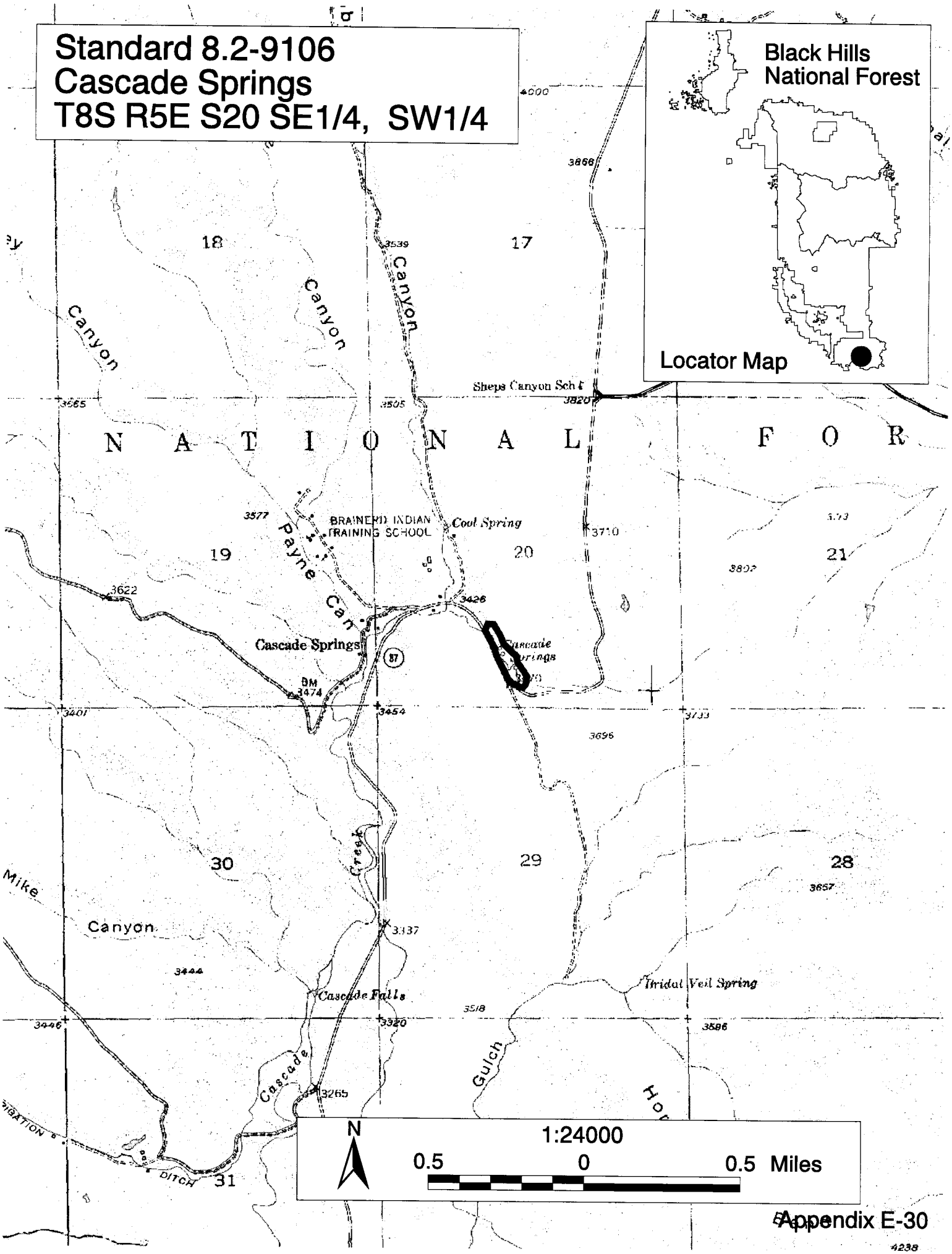
8.2-9106. ALT3 - No new developments, including road and trail construction, in the Cascade Creek/Spring area. See map next page - T. 8 S., R. 5 E., Sec. 20, SE ¼ SW 1/4

STANDARD

Reason for Addition:

To reduce the risk of adverse impacts to sensitive plants.

Standard 8.2-9106
Cascade Springs
T8S R5E S20 SE1/4, SW1/4



Changes to page II-42 pertaining to Management Indicator Species (MIS):

Original:

Species of Special Interest

- White-tailed Deer (Odocoileus virginianus)
- Mule Deer (Odocoileus hemionus)
- Elk (Cervus elaphus)
- Merriam's Turkey (Meleagris gallepavo merriami)
- Mountain Goat (Oreamnos americanus)
- Brown Creeper (Certhia americana)
- Mountain Lion (Felis concolor)
- Black Bear (Ursus americanus)

Revised:

Species of Special Interest

- **White-tailed Deer (Odocoileus virginianus)**
- **Mule Deer (Odocoileus hemionus)**
- **Elk (Cervus elaphus)**
- **Merriam's Turkey (Meleagris gallepavo merriami)**
- **Mountain Goat (Oreamnos americanus)**
- **Brown Creeper (Certhia americana)**
- **Mountain Lion (Felis concolor)**
- **Brook trout (Salvelinus fontinalis)**
- **Brown trout (*Salmo trutta*)**
- **Finescale dace (*Phoxinus neogaeus*)**
- **Lake chub (Couesius plumbeus)**
- **Mountain sucker (Castostomus platyrhynchus)**

Reason for Change:

The Black Hills lacks a confirmed breeding black bear population at this time; and to add aquatic management indicator species (MIS) as instructed in the October 12, 1999 Appeal Decision.

Chapter Four Monitoring and Evaluation Strategy

Changes to Monitoring Precision:

Original:

MONITORING ITEMS

The following table illustrates how each program is monitored using different approaches, from reports to data base screening to sampling. Further details about units of measure, indicators, sample designs, precision and reliability are provided in the Monitoring and Evaluation Implementation Guide.

ACTIVITY OR RESOURCE	ITEM	REFERENCE	LEVEL[1]	APPROACH[2]	P/R[3]	FREQ[4]
SENSITIVE SPECIES	Sensitive Species (Plant and Animal)	Objective 221	1,2,3	Sample; RIS, GIS, Habitat Capability Models, Research	B	3

[1]Regionwide Level (1); Ecological Province and Section Level (2); Local or Project Level (3)

[2]Techniques used to collect and store monitoring information.

[3]Precision/Reliablity

[4]Frequency of Reporting in Years

Revised:

MONITORING ITEMS

The following table illustrates how each program is monitored using different approaches, from reports to database screening to sampling. Further details about units of measure, indicators, sample designs, precision and reliability are provided in the Monitoring and Evaluation Implementation Guide.

ACTIVITY OR RESOURCE	ITEM	REFERENCE	LEVEL[1]	APPROACH[2]	P/R[3]	FREQ[4]
SENSITIVE SPECIES	Sensitive Species (Plant and Animal)	Objective 221	1,2,3	Sample; RIS, GIS, Habitat Capability Models, Research	**A**	3

[1]Regionwide Level (1); Ecological Province and Section Level (2); Local or Project Level (3)

[2]Techniques used to collect and store monitoring information.

[3]Precision/Reliablity

[4]Frequency of Reporting in Years

Reason for Change:

Increase precision of monitoring.

Glossary:

Additions:

Proper functioning condition (PFC)
The minimum standard for assessing the condition of riparian-wetland areas. PFC is a qualitative method based on quantitative science and can be used for determining and prioritizing the type and location of quantitative inventory or monitoring desired to meet specific objectives.

Microclimate
The climate conditions within a small or local habitat that is well defined. The climate of a small, specific place within an area as contrasted with the climate of the entire area. For example, the microclimate of a riparian area is different from that of the surrounding coniferous forest because of increased humidity, a higher rate of transpiration, more shade, and increased air movement.

Mesic
Having, characterized by, or adapted to a moderate or a well-balanced supply of moisture; "mesic habitats" are forest that is more moist and cool. Mesic habitats are usually located along drainages, at the base of slopes, or on northerly exposures. [ant: xeric, hydric]

Vegetation Structural Stages
A generalized description of forest growth and aging stages based on the majority of the trees in the specific diameter distributions of the stand. For the goshawk balance of structural stages for the Phase I Amendment, six growth and aging stages were identified. As an example, if the majority of the stems of a stand (based on basal areas) were in the 9-14 inch diameter class, the stand would be classified as a structural stage 4 (adapted from Reynolds, et.al. 1992, p. 90).

The diameter range and description for the balance of structural stages are:

Stage	DBH range (inches)	Description
1	0-1	Grass/forb/shrub
2	1-5	Seedling/sapling
3	5-9	Young forest
4	9-14	Mid-aged forest
5	14-20	Mature forest
6	20+	Old forest

The following tables show how the vegetation structural stage classes correspond to Region 2's structural stage classes.

Post-Fledging Family Area Balance of Structural Stages:

Vegetation Structural Stages Adapted to the Black Hills				
Tree Size Class	**Diameter range (inches)**	**Minimum canopy closure %**	**Percent of balance (range)**	**Correlation to Region 2 Structural Stage****
1 grass/forb/shrub	0-1	None	10 (7-13)	1, 2
2 seedling/sapling	1-5	None	10 (7-13)	3A, 3B, 3C (in part)
3 young forest	5-9	None	20 (15-25)	3A, 3B, 3C (in part)
4 mid-aged forest	9-14	50	13 (8-18)	4B (in part) and 4C
4 mid-aged forest	9-14	60	7 (2-12)	4B (in part) and 4C
5 mature forest	14-20	50	20 (15-25)	4B (in part) and 4C
6 old forest	>= 20	50	20 (15-25)	4B (in part) and 4C

** The Region 2 Structural Stages are provided for comparison purposes only. The percent of balance and canopy closure requirements apply to tree size classes only, not to the Region 2 structural stages. Region 2 structural stage 5 is not shown, as it is not a calculated value in Resource Information System (RIS).

Foraging Area Balance of Structural Stages

Vegetation Structural Stages Adapted to the Black Hills				
Tree Size Class	**Diameter range (inches)**	**Minimum Canopy Closure %**	**Percent of balance (range)**	**Correlation to Region 2 Structural Stage****
1 grass/forb/shrub	0-1	None	10 (7-13)	1,2
2 seedling/sapling	1-5	None	10 (7-13)	3A, 3B, 3C (in part)
3 young forest	5-9	None	20 (15-25)	3A, 3B, 3C (in part)
4 mid-aged forest	9-14	40	20 (15-25)	4B, 4C
5 mature forest	14-20	40	20 (15-25)	4B, 4C
6 old forest	>= 20	40	20 (15-25)	4B, 4C

** The Region 2 Structural Stages are provided for comparison purposes only. The percent of balance and canopy closure requirements apply to tree size classes only, not to the Region 2 structural stages. Region 2 structural stage 5 is not shown, as it is not a calculated value in Resource Information System (RIS).

Original:

Appendix L: Supplemental Species Information:

BLACK HILLS THREATENED, ENDANGERED OR SENSITIVE SPECIES

Following is a list of federally listed threatened, endangered and proposed species, and sensitive species designated by the regional forester, found currently or historically in the Black Hills.

Sensitive Species - Wildlife

Marten (*Martes americana*)

Lynx (*Felis lynx*)

Dwarf Shrew (*Sorex nanus*)

Black-backed Woodpecker (*Picoides arcticus*)

Northern Three-toed Woodpecker (*Picoides tridactylus*)

Golden-crowned Kinglet (*Regulus satrapa*)

Cooper's Rocky Mountain Snail (*Oreohelix strigosa cooperi*)

Cockerell's Striate Disc (*Discus shimeki cockerellii*)

Northern Goshawk (*Accipiter gentilis*)

Merlin (*Falco columbarius*)

Pygmy Nuthatch (*Sitta pygmaea*)

Purple Martin (*Progne subis*)

Olive-Sided Flycatcher (*Contopus borealis*)

Osprey (*Pandion haliaetus*)

Lewis' Woodpecker (*Melanerpes lewis*)

Fox Sparrow (*Passerella iliaca*)

Northern Leopard Frog (*Rana pipiens*)

Tiger Salamander (*Ambystoma tigrinum*)

Tawny Crescent Butterfly (*Phycoides batesii*)

Swift Fox (*Vulpes velox*)

Upland Sandpiper (*Bartramia longicauda*)

Loggerhead Shrike (*Lanius ludovicianus*)

Regal Fritillary (*Speyeria idalia*)

Black Hills Red-bellied Snake (*Storeria occipitomaculata pahasapae*)

Milk Snake (*Lampropeltis triangulum*)

Fringed-tailed myotis (*Myotis thysanodes pahasapensis*)

Townsend's Big-eared Bat (*Plecotus townsendii*)

Spotted Bat (*Euderma maculatum*)

Revised:

Appendix L: Supplemental Species Information:

BLACK HILLS THREATENED, ENDANGERED OR SENSITIVE SPECIES

Following is a list of federally listed threatened, endangered and proposed species, and sensitive species designated by the regional forester, found currently or historically in the Black Hills.

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Golden-crowned Kinglet (*Regulus satrapa*)
Cooper's Rocky Mountain Snail (*Oreohelix strigosa cooperi*)
Cockerell's Striate Disc (*Discus shimeki cockerellii*)
Northern Goshawk (*Accipiter gentilis*)
Merlin (Falco columbarius)
Pygmy Nuthatch (*Sitta pygmaea*)
Purple Martin (*Progne subis*)
Olive-Sided Flycatcher (*Contopus borealis*)
Osprey (Pandion haliaetus)
Lewis' Woodpecker (*Melanerpes lewis*)
Fox Sparrow (Passerella iliaca)
Northern Leopard Frog (*Rana pipiens*)
Tiger Salamander (*Ambystoma tigrinum*)
Tawny Crescent Butterfly (*Phycoides batesii*)
Swift Fox (*Vulpes velox*)
Upland Sandpiper (Bartramia longicauda)
Loggerhead Shrike (*Lanius ludovicianus*)
Regal Fritillary (*Speyeria idalia*)
Black Hills Red-bellied Snake (Storeria occipitomaculata pahasapae)
Milk Snake (Lampropeltis triangulum)
Fringed-tailed myotis (Myotis thysanodes pahasapensis)
Townsend's Big-eared Bat (*Plecotus townsendii*)
Spotted Bat (Euderma maculatum)
Black-tailed prairie dog (*Cynomys ludovicianus)*

Reason for Change:

The Black Hills is not included in the range of lynx . The black-tailed prairie dog was recently added to the Region 2 list of sensitive species.

Record Of Decision:

Corrections Or Additions

Original:

Page ROD-52:

Reasons for My Decision

In accordance with 36 CFR 219.20, I have determined that 1,073,598 acres are suitable for grazing and browsing. I have considered physical, biological, environmental and economic factors, as well as other mutually exclusive uses in this determination, and the FEIS shows that this level of grazing is compatible with other multiple uses.

Corrected:

Reasons for My Decision
In accordance with 36 CFR 219.20, I have determined that 1,037,598 acres are suitable for grazing and browsing. I have considered physical, biological, environmental and economic factors, as well as other mutually exclusive uses in this determination, and the FEIS shows that this level of grazing is compatible with other multiple uses.

Reason for Change:

Typing error - number of acres.

Original:

Page ROD-52:

2. Sand Creek

The Sand Creek Area is approximately 14 miles east of Sundance, Wyoming. It is essentially unroaded and because of topography, the area is considerably isolated from the sights and sounds of humans. It is part of a larger area which was inventoried as roadless and released from Wilderness consideration in the 1984 Wyoming Wilderness Act. Approximately 9,900 of the original 12,400 acres remain undeveloped and essentially unroaded.

In the Revised Plan, a portion of the area is available for scheduled timber harvest. The balance is managed in a largely unroaded condition for late successional forest or botanical conditions. The area is one of the few intact late successional landscapes in the Black Hills. Relatively denser tree canopy conditions in this part of the Forest were documented as early as 1898. In addition, the portion to be managed as a Botanical Area has one of the largest concentrations of rare plants in the northern Black Hills.

Table ROD-6 shows the applicable management areas.

Table ROD-6. Management areas for Sand Creek.

Management Area	Acres
3.7 - Late Successional Forest Landscape	4,864
4.1 - Limited Motorized Use and Forest Product Emphasis	3,163
3.1 - Botanical Area	1,043
5.1 - Resource Production Emphasis	878

Corrected:

2. Sand Creek

The Sand Creek Area is approximately 14 miles east of Sundance, Wyoming. It is essentially unroaded and because of topography, the area is considerably isolated from the sights and sounds of humans. It is part of a larger area which was inventoried as roadless and released from Wilderness consideration in the 1984 Wyoming Wilderness Act. Approximately 7,700 of the original 12,400 acres remain undeveloped and essentially unroaded.

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Table ROD-6 shows the applicable management areas.

Table ROD-6. Management areas for Sand Creek.

Management Area	Acres
3.7 - Late Successional Forest Landscape	5,154
4.1 - Limited Motorized Use and Forest Product Emphasis	1,315
3.1 - Botanical Area	1,042
5.1 - Resource Production Emphasis	141
5.4 – Big Game Winter Range Emphasis	46
5.6 – Forest Products, Recreation and Big Game Emphasis	1

Reason for Change:

Mapping error. Original acreage was calculated in GIS using incorrect coverage. The map in the Final Environmental Impact Statement Appendices on page C-22 depicts the correct area, and the above 'corrected' displays the acreage for this mapped area.

Final Environmental Impact Statement: Appendix C:

Corrections Or Additions:

Original:

Page C-9, acreage for Sand Creek, Alternative G:

SAND CREEK		
ALTERNATIVE	MANAGEMENT AREA	ACRES
A	5.1 Resource Production Emphasis	9,948
B	5.1 Resource Production Emphasis	9,948
C	1.2 Areas Recommended For Wilderness	9.948
D	3.1 Botanical Areas 3.7 Late Successional Forest Landscapes 5.1 Resource Production Emphasis 5.4 Big Game Winter Range Emphasis	1,043 6,219 1,418 1,268
G	3.1 Botanical Areas 3.7 Late Successional Forest Landscapes 4.1 Limited Motorized Use & Forest Product Emphasis 5.1 Resource Production Emphasis	1,043 4,864 3,163 878
H	3.1 Botanical Areas 3.7 Late Successional Forest Landscapes 5.1 Resource Production Emphasis 5.4 Big Game Winter Range Emphasis	1,156 2,358 1,800 4,634
I	1.2 Areas Recommended For Wilderness 1.42 Core Restoration	9,938 10
J	5.1 Resource Production Emphasis 5.4 Big Game Winter Range Emphasis	3,201 6,747
X	5.1 Resource Production Emphasis	9,948

Revised:

SAND CREEK		
ALTERNATIVE	MANAGEMENT AREA	ACRES
A	5.1 Resource Production Emphasis	9,948
B	5.1 Resource Production Emphasis	9,948
C	1.2 Areas Recommended For Wilderness	9.948
D	3.1 Botanical Areas 3.7 Late Successional Forest Landscapes 5.1 Resource Production Emphasis 5.4 Big Game Winter Range Emphasis	1,043 6,219 1,418 1,268
G	3.1 Botanical Areas 3.7 Late Successional Forest Landscapes 4.1 Limited Motorized Use & Forest Product Emphasis 5.1 Resource Production Emphasis 5.4 Big Game Winter Range 5.6 Forest Products, Recreation and Big Game Emphasis	1,042 5,154 1,315 141 46 1
H	3.1 Botanical Areas 3.7 Late Successional Forest Landscapes 5.1 Resource Production Emphasis 5.4 Big Game Winter Range Emphasis	1,156 2,358 1,800 4,634
I	1.2 Areas Recommended For Wilderness 1.42 Core Restoration	9,938 10
J	5.1 Resource Production Emphasis 5.4 Big Game Winter Range Emphasis	3,201 6,747
X	5.1 Resource Production Emphasis	9,948

Reason for Change:

Mapping error. Original acreage was calculated in GIS using incorrect coverage. The map in the Final Environmental Impact Statement Appendices on page C-22 depicts the correct area, and the above 'corrected' displays the acreage for this mapped area.

Appendix F

Following are new monitoring items that will be included in the Monitoring Guide. These items were developed in response to the Interim Direction.

Monitoring Item 4: Water – Watershed Health

Sub-Item 4c(2): Stream Health Range – Stream Habitat Integrity

Authority: Level Three

Indicators: Changes to stream parameters over time.

Method of Data Collection:

- Monumented Cross-section
- Longitudinal Profile Measurement
- Bed and Bank Material Characterization
- Discharge Measurement
- *See 'Stream channel reference sites: an illustrated guide to field technique", Harrelson 1994.*

Unit of Measure: Number of Sites

Sample Design: Up to nineteen references (sites) reaches scattered across the Forest will be chosen. They represent the best stream conditions across the Forest. Also additional sites will be established as needed for project or program monitoring.

Data Precision and Reliability: Class A

Frequency of Reporting: 5 years

Information Storage System: NRIS

Responsibility: Forest Hydrologist with assistance from District personnel.

Cost: Set up: $1,600 per site. Includes permanent setup, data collection and data processing.

Monitoring Item 18a: Sensitive Plant Species

Authority: Forest Plan

Indicators: Individual species monitoring. Population persistence.

Method of Data Collection: Field monitoring using the Black Hills Sensitive Plant Survey/Monitoring Form, or Global Positioning System with Data Dictionary.

Unit of Measure: Populations (sites)

Sample Design: (Indicated by species below)

General: Based on survey information for these species, it appears that the number of populations, or the number of individuals at single populations, is largely influenced by climatic conditions (i.e. several wet years in a row; several drought years) and factors such as canopy closure. In addition, various exotic species and/or noxious weeds have potential to invade certain sites. These influences, along with other disturbances that could impact portions of populations, served as factors driving the monitoring design for each of the species below. Abundance of populations (single occurrences versus multiple occurrences, how species occur geographically (i.e. multiple drainages) across the Forest, species habitats (i.e. riparian habitats with flooding characteristics that can remove and/or result in recolonization of species) and species with a higher potential of risks were also used as factors in the design of the monitoring. For the species that have a good Black Hills geographical distribution, along with a larger number of sites and many individuals per site, the monitoring design included the selection of key monitoring sites. Consultation with the Rocky Mountain Research Station occurred on monitoring design for all plant species listed.

If monitoring indicates that populations are absent or severely degraded (i.e. noxious weeds), active measures should be taken (i.e. noxious weed control).

- ***Viola selkerkii* (Great Spurred Violet)**

Elk, recreation (off trail use, rock climbing), fire, and noxious weed invasion are the known or potential impacts or threats to *V. selkerkii*. With any of the threats, there is no expectation that all population sites would be lost at any one time because fire wouldn't carry in many of the areas due to rock formations, elk use does not occur at every site, rock climbing does not occur at every site and noxious weed invasion potential is not likely at many of the sites.

"Violet Valley" (Norbeck) is the largest population site (out of eight currently known sites) of *V. selkerkii*, and is the population that has the potential for the largest combination of potential threats (elk use, fire, noxious weed proximity). Due to the location of the "Violet Valley" population, it is likely that any moisture-induced decline (due to climatic change) would be detected first at this population site. Because of these factors, monitoring of this

population could serve as a "barometer" to indicate whether or not other sites should be monitored.

The "trigger" to monitor additional *Viola selkerkii* sites: if lose persistence of more than one of the 4 largest subpopulations (there are 8 sub-populations at this site) at the "Violet Valley" site, look at two other populations of *V. selkerkii* in other drainages.

The Forest has good data for *V. selkerkii* from a wet climatic period for many sites. The question is, do these same sites have violets in the drought years. Climatic events and fire trigger more monitoring. Need to monitor every year until get through a drought cycle.

Monitoring of this species needs to occur during the flowering period, which is typically May 10th to 30th.

***Monitoring Design*:**

1. On an annual basis, monitor presence/absence of four largest sub-populations at "Violet Valley". If one or more of the four largest sub-populations at "Violet Valley" are not present, document the reason (i.e. drought, elk, noxious weeds) if can be determined. Select two other population sites in other drainages to monitor presence/absence to determine if other populations are being affected in the same way.
2. If severe drought occurs, need to monitor for presence/absence at known sites.
3. Monitor for presence/absence at known sites a minimum of 1 out of 5 years (all sites need to be monitored in the same year).

- ***Adiantum capillus veneris* (Southern Maidenhair Fern), and *Epipactis gigantea* (Giant Helloborine)**

The FS administers two ends of the only known *A. capillus-veneris* population located within the Black Hills. All except for 4 acres within the middle of the population are owned, or are under a conservation agreement with The Nature Conservancy (new Whitney Preserve). The only known occurrence of *E. gigantea* is located at the Cascade Springs portion of the FS administered lands, on the Whitney Preserve (TNC) and on the private land, but is not located at the Cascade Falls portion (FS) where required habitat likely does not occur.

Recreation and noxious weeds are the current identified potential threats to these species. Canada thistle, Russian olive, and salt cedar are current invaders of the Cascade Creek Valley. Purple loosestrife is not known to occur within the Cascade Creek Valley, or anywhere close by, but due to its aggressive nature, if it were to invade, it would have the potential to wipe out riparian natives such as these two species.

Counting individuals as a form of quantitative monitoring is problematic as some areas are inaccessible or involve high risk of damage (steep slopes) to species by monitoring samplers, and due to *A. capillus-veneris* having rhizomatous growth characteristics.

Monitoring of *E. gigantea* needs to occur during the blooming period (June). Monitoring of *A. capillus-veneris* could occur anytime throughout the growing season.

Monitoring Design:

1. Monitor presence/absence of patches along stream transects on an annual basis. If the number of patches decline by 10% or more, consult on a more rigorous design with the Rocky Mountain Research Station.
2. Recreation nick points -- Document any nick points that actually extend into populations.
3. Monitoring of water level is by USGS at the Gauging Station (located at the lower end of Cascade Springs – FS). Use this information to monitor water levels at the site.
4. Noxious weeds – document any weeds and erosion patches. Take active control and restoration measures.

- ***Salix serrisima* (Autumn Willow)**

Currently, the only known occurrence of *S. serrisima* on lands administered by the Black Hills National Forest is located within the McIntosh Fen Botanical Area. Noxious weeds were identified as posing the most concern for this species at this site. Canada thistle currently occurs within this botanical area. Purple loosestrife is not known to occur at the site, or anywhere close by, but is very aggressive and has the potential to wipe out all riparian natives, including *S. serrisima* if it invades the fen. A historically altered hydrologic regime (ditching while in private ownership; current lack of beaver activity) continues to put some level of stress on the willows at this site. An existing snowmobile trail crosses the botanical area, but does not occur in the same specific area as *S. serrisima*.

Monitoring of *S. serrisima* needs to occur in June during the blooming period.

Monitoring Design: On an annual basis:

- GPS ends of two sites within the Botanical Area
- Count individuals during the blooming period. If the number of individuals declines by more than 10%, consult on a more rigorous design with the Rocky Mountain Research Station.
- Install a minimum of two Piezometer(s) and take measurements annually to note any changes in water level.
- Noxious weeds – document any weeds. Take active control measures.

- ***Lycopodium complanatum* (Trailing Clubmoss)**

There is currently one known population of *L. complanatum* located on Forest Service administered lands in the Black Hills. Another potential site, thought to be private, is located near Strawberry.

Based on site visits to the known population on Forest Service administered land there are no apparent ongoing impacts to the species. Immediately adjacent private land has no obvious activities currently occurring, but it is not known how current use could change and affect the population. There is a mining claim close by, but is unknown if it is a placer mine in the bottom, or is a mine adit on slope below the population, or what effect there could be from it. The effect that fire, or lack of fire, has on this species is unknown. However, continuity of highly flammable, dense pine stands adjacent to population sites are of concern for this species. The steep slope that the population site occurs on does not appear accessible to cattle. There is a steep drop off from the population down to an adjacent road. Tansy is located roughly ¼ downstream on a riparian floodplain, but does not occur on the slope where the *L. complanatum* is located.

L. complanatum is identifiable throughout the growing season and could be monitored from May until September.

Monitoring Design:
Spatial – GPS a line around extent of the population. Return to and document Strawberry site to determine if on Forest Service administered lands. If on Forest Service, gather additional baseline data and GPS spatial extent. Monitor presence/absence on an annual basis, along with documenting spatial extent. If the extent declines by 10% or more, consult on a more rigorous design with the Rocky Mountain Research Station.

- ***Platanthera orbiculata* (Large Roundleaf Orchid**

The current known sites supporting *P. orbiculata* are clustered in three primary areas, each within a different geological type: 1) Bearlodge Mountains, 2) Northwestern Black Hills (contains the largest cluster of sites), and 3) Black Elk Wilderness.

Potential threat of most current concern to this species is fire suppression that has resulted in an increased density of ponderosa pine and spruce adjacent to *P. orbiculata* sites. The threat of catastrophic fire could have an intense impact on *P. orbiculata* population clusters.

Given the unpredictable nature of this species, its dependency on high soil moisture (it would not be unusual for all individuals from many of the sites to disappear during dry years) and the fact that all census data was collected in a wet year, the monitoring plan should include revisiting all sites during a dry year and counting the number of individuals present. Documenting presence/absence information on all sites during dry years will provide more information on the climatic association to this species and display whether or not appearance or disappearance of this plant is tied to moisture or to some other influence.

Monitoring of this plant should occur during the blooming period in late June to July. The plant is identifiable later in the season, and monitoring could take place in early August, if the need arises.

Monitoring Design:

1. Annually monitor presence/absence of known site locations in Bearlodge proper: PLOR4-2 and -3 (continue to attempt to relocate PLOR4-1)
2. Annually monitor presence/absence Black Elk Wilderness locations: PLOR4-23, -24 and -25
3. Annually monitor presence/absence of three key monitoring population sites in the northwestern Black Hills: PLOR-6, -12, -19. If any of the key monitoring population sites are not present (refer to discussion above regarding climatic ties), document reason if it can be determined (i.e. drought, fire, noxious weeds). Additional sites will be assessed for suitability to serve as a key monitoring site.
4. If drought occurs, need to monitor for presence/absence at known sites and count the number of individuals present.

- ***Equisetum scirpoides* (Dwarf Scouring Rush)**

The recommendation is to remove this species from the R2 Sensitive Species List(14 of 24 sites had over 1000 stems in 2000). Survey and baseline monitoring information has been gathered on 24 sites on Forest Service administered land within the Black Hills, and there is documentation on eight other sites. This species occurs on a variety of geological types, at different elevations, along drainages with varying aspects, and in different watersheds.

A primary threat identified for this species could be the invasion of purple loosestrife into the sites that are located within riparian areas. Purple loosestrife is not currently known to occur at any of the sites (site information last updated in 2000) or anywhere close by, but if it invades any of the areas, it is very aggressive and has the potential to impact *E. scirpoides*. Grazing does occur at some *E. scirpoides* sites, but direct or indirect impact to plant is unknown as to whether it has a beneficial or harmful effect, or both (due to depth of rhizomes, whether the disturbance may benefit establishment of the species, if the grazing is detrimental to riparian system in which the species occurs, etc.). However, data gathered provides good evidence that this species is persisting in high numbers on enough sites to make a good case for a high probability of persistence.

E. scirpoides is identifiable throughout the growing season, and monitoring could take place from the middle of May until the first of September.

Monitoring Design:
A presence/absence and estimate of aerial extent of key populations will be used to monitor this plant species at key locations a minimum of once every five years. If purple loosestrife is documented to occur at any of the key locations, or the population is absent (i.e. due to flooding, drought, fire), then need to select another of the known populations to serve as a key location for monitoring. Purple loosestrife located at any key location will also serve as a "trigger" to check other known populations for this noxious weed.

Key monitoring locations of *E. scirpoides*:

1. EQSC-2 (Crow Peak Trailhead and part of population within Higgins Gulch BA – Northern Hills).
2. EQSC-10 (Castle Creek - Mystic)
3. EQSC-26 (Fawn Creek – BL)

- ***Sanguinaria canadensis* (Bloodroot)**

S. canadensis, occurring in the northern/northeastern Black Hills, is the one of the most abundant R2 Sensitive Species on the Forest. Species information suggests that bloodroot has characteristics which resist grazing impacts. Bloodroot is reported to be toxic to humans, therefore it may be toxic to livestock. Trampling by livestock may damage the shallow, succulent rhizomes, however the plants are typically in wooded areas that are less accessible than areas more desirable by grazing cattle. Field visits were made to many of the known sites in 2000 and most of the populations appeared to be compatible with the level of cattle use in the area. The current assessment is that species viability for bloodroot is not in danger from grazing management based on the current number of site records (30+), the numbers of individual clumps per site (ranging from 5 individuals, to hundreds to thousands), and that many of the population sites are on vacant allotments. There is currently not enough information about the individual population sites to conclude that the differences in the relative sizes of population sites are attributed more to differences in grazing pressure than to differences in other attributes of the sites (i.e. drainage aspect, overstory cover).

A number of the sites are adjacent to roads. Noxious weeds (Tansy and Canada thistle are known from some of the sites) appear to be the most serious threat to *S. canadensis*, both from the standpoint of invasion and from treatment. Continuity of highly flammable, dense pine stands adjacent to population sites are also of concern for this species.

Noxious weeds at bloodroot sites become high priority for control efforts. Treat adjacent noxious weed areas adjacent to *S. canadensis*, or keep Tansy from setting seed. Use control efforts that are least likely to impact or kill *S. canadensis* individuals. Wicking weeds at key/core population sites could be effective.

The Forest has taken a conservative approach for this species and monitoring. This approach involved: 1) designating a sufficient number of "core" populations that are protected from livestock grazing to result in a high probability of maintaining the species' viability in the Black Hills; 2) implementing quantitative monitoring to assess presence/absence of the populations; and 3) a periodic re-evaluation assessment, based on new data gathered from population sites. "Core" populations, or those deemed critical to the maintenance of the *S. cana*densis metapopulaton, were chosen based on two criteria: their relative size, and geographical distribution. Using the size criteria, the three largest populations were designated as "core" populations. Including the geographical distribution, a total of 11 populations were designated as "core" populations. These populations are located within vacant allotments.

S. canadensis is identifiable most of the growing season. Monitoring is best accomplished during the blooming period (usually April) before emerging grasses and forbs, and emerging leaves on shrubs and trees hide *S. canadensis* individuals.

Monitoring Design:

1. At identified key populations GPS location information is to be gathered along the perimeter. Annually monitor presence/absence of key populations.
2. During a drought year, gather GPS locations of the perimeter of known populations. If any key populations are absent, need to select another to monitor.
3. Noxious weeds – document any weeds. Take active control measures, such as those identified above.

Key Monitoring Sites for *S. canadensis*:

1. 704 (False Bottom site)
2. 803 (Lost Gulch-main population/Pillar Peak Allotment)
3. 807 (Runkle Allotment)

- ***Scirpus cyperinus* (Woolgrass, Woolrush)**

This species will be re-evaluated as to whether it continues to merit status on the R2 Sensitive Species List. If it continues to merit status, monitoring will occur on identified "key" populations on a periodic basis. This monitoring will cease if further evaluation reveals that it no longer merits status on the R2 Sensitive Species List.

A primary threat identified for this species would be if drainages it is located in was to be invaded by purple loosestrife. Purple loosestrife is not known to occur at any of the sites or anywhere close by, but if it comes into any of the areas, it is very aggressive and has the potential to impact *S. cyperinus*.

S. cyperinus is most identifiable August 15 and until November 1. Monitoring needs to take place during this time frame.

Monitoring Design:

1. Monitor key monitoring sites for presence/absence a minimum of once every five years.
2. If purple loosestrife is documented to occur in or adjacent to any of the key locations, or if absence of a key location is documented, then need to select another key population for monitoring purposes. Purple loosestrife located at any key location will also serve as a "trigger" to check other known populations for this noxious weed. Take active treatment measures if purple loosestrife is located.

Key monitoring sites for *S. cyperinus*:

1. SCCY-14 East end (area that contains 300+ clumps)
2. SCCY-18 (Cook Lake Site)
3. SCCY- 36 (Lucky Gulch)

- ***Muhlenbergia glomerata* (Marsh Muhly)**

A number of new population sites of this species have been located. The majority of the newer sites are not located in riparian or boggy areas, but on sites with a mesic moisture regime and on a variety of geological types. Therefore, *M. glomerata* has a broader ecological amplitude in the Black Hills than previously thought. Because of the new information obtained on the species habitat preferences and the additional sites that have been located, this species will be re-evaluated as to whether it continues to merit status on the R2 Sensitive Species List. If it continues to merit status, the following monitoring design will be used.

A primary threat identified for this species could be the invasion of purple loosestrife into the sites that are located within riparian areas. Purple loosestrife is not currently known to occur at any of the sites (site information last updated in 2000) or anywhere close by, but if it invades any of the areas, it is very aggressive and has the potential to impact *M. glomerata*. Another observation that was made this year is that where overstory canopy closure was increasing, *M. glomerata* appeared to be decreasing. More vigorous mats, or clumps, of this species were noted to occur in open areas that did not contain an overstory. Presence or absence, or expansion and contraction of population sites are likely associated with climatic events.

Monitoring of *M. glomerata* needs to occur in August when it is the most identifiable.

Monitoring Design:

1. Monitor presence/absence of key populations once every five years. If one of the key populations is absent, document the reason for the absence if it can be determined (i.e. drought, flood, fire). Select another known or newly located site to serve as a key monitoring site.
2. If purple loosestrife is documented to occur at any of the key locations for monitoring, and the persistence of that population is lost, then need to select another key monitoring site. Purple loosestrife located at any key monitoring site will also serve as a "trigger" to check other known populations for this noxious weed. Take active treatment measures if purple loosestrife is located.

Key monitoring sites for *M. glomerata*:
MUGL-9 (Corral Creek on the Northern Hills District)
MUGL-1 (McIntosh Fen on the Mystic District)
MUGL-4A (Planting Spring on the Bearlodge District)

- ***Carex alopecoidea* (Foxtail Sedge)** Based on recent confirmation (2000) of the identity of *Carex alopecoidea* and that it does occur on lands administered by the Black Hills National Forest, baseline data will be gathered on this species in 2001. An estimate of aerial extent, numbers of population patches and other additional baseline data will be gathered. Consultation on monitoring design in will occur with the Rocky Mountain Research Station in FiscalYear 2002, and will use data collected on this species.

Data Precision and Reliability: Class A

Frequency of Reporting: Annually.

Information Storage System: Forest Database (potentially National Database system, when available), GIS system, Forest Plan Monitoring Files, the respective State Heritage Programs. Herbarium vouchers will be sent to the Rocky Mountain Herbarium in Laramie, WY.

Responsibility: Supervisor's Office and Districts

Cost: Combined monitoring cost estimate for all the sensitive plants listed above, including end-of-season data compilation, GIS/database management, revision of monitoring strategies, and ongoing consultation with the Rocky Mountain Research Station ---$98,000/annually.

Additional species have the potential to be added to the R2 Sensitive Species List. More noxious weed invasions (i.e. purple loosestrife) have the potential to occur within the Black Hills. Both will increase the need for more monitoring and the cost of monitoring can be expected to increase.

Monitoring Item 18b: Reptiles and Amphibians

Authority: Forest Plan, Level 3

Indicators: Population Trends and occurrence of the Northern leopard frog. Sighting records of Tiger Salamanders, Black Hills red-bellied snakes, and milk snakes.

Method of Data Collection: Site evaluations at 25 percent of the 100-index sites forest wide. Documentation of species sightings records.

Unit of Measure: Abundance and distribution of northern leopard frogs, and habitat condition.

Sample Design: Approximately three annual visits to 25 percent of 100 forest wide locations containing populations of the northern leopard frog. Frog abundance and habitat conditions will be gathered and documented.
Sighting records (including habitat condition documentation) for tiger salamander, Black Hills red-bellied snake, and milk snake will be maintained.

Data Precision and Reliability: Class A (northern leopard frog), Class B (tiger salamander, Black Hills red-bellied snake, and milk snake)

Frequency of Reporting: Four years

Information Storage System: Fauna Module of the NRIS database

Responsibility: Districts with synthesis of data by Supervisor's Office

Cost: Approximately $24,000 set up costs associated with locating 100 sites and collecting baseline data. Yearly cost of $6000 for annual monitoring of selected sites.

Set up Costs:

Data collection, Personnel cost	= $14,000
Vehicle cost	= $2000
Data synthesis, Personnel cost	= $3000
Miscellaneous supplies	= $1000
Overhead, 20% of total cost	= $4000

Annual Costs:

Data collection, Personnel cost	= $3000
Vehicle cost	= $1000
Data synthesis, Personnel cost	= $500
Miscellaneous supplies	= $500
Overhead, 20% of total cost	= $1000

Monitoring Item 18c: Bats

Authority: [36 CFR 219.19], Level 2

Indicators: Trends of wintering bats.

Method of Data Collection: Counts at winter roosts.

Unit of Measure: Numbers of bats found at known hibernacula.

Sample Design: Counts of hibernating bats at known hibernacula. Individual hibernacula would be surveyed once in a two-year period.

Data Precision and Reliability: Class A.

Frequency of Reporting: Every two years.

Information Storage System: Fauna module of the NRIS database.

Responsibility: Districts with synthesis of data by the Supervisors Office.

Cost: Approximately $6000 annually.

Data collection, Personnel cost	= $3000
Vehicle cost	= $500
Data synthesis, Personnel cost	= $1000
Miscellaneous supplies	= $500
Overhead, 20% of total cost	= $1000

Monitoring Item 18d: Management Indicator and Region 2 Sensitive Birds

Authority: Level 2.

Indicators: Population trends of individual bird species.

Method of Data Collection: Point transects, nocturnal transects, Forest wide surveys, colony counts, expert surveys

Unit of Measure: Density estimates

Sample Design: Sample distance-sampling techniques (Buckland et al. 1993) will be used during all transect surveys, and density estimates of bird species will be derived using program DISTANCE (Thomas et al. 1998). In the event that distance-sampling techniques do not prove to be useful, data will be analyzed using more traditional techniques (e.g., Fixed radii).

Data Precision and Reliability: Class A

Frequency of Reporting: Annually

Information Storage System: Project File and Fauna Module in NRIS Database.

Responsibility: Supervisors Office

Cost: Costs are associated with agreement. First year set up cost of $117,000, and approximately $90,000 annually there after.

Monitoring Item 18e: Butterflies

Authority: Level 2

Indicators: Trends of Butterflies on Index sites, and vegetative composition at Index sites.

Method of Data Collection: Biannual transects at Index sites.

Unit of Measure: Numbers of butterflies caught at Index sites, and population density of host plants at Index sites.

Sample Design: One transect at each established Index site for the regal fritillary and the tawny crescent. Each transect will be used to collect data on plants and butterflies.

Data Precision and Reliability: Class A.

Frequency of Reporting: Biannually.

Information Storage System: Fauna module of the NRIS database.

Responsibility: Districts with data synthesis at the Supervisors Office.

Cost: Approximately $12,000 biannually for data collection and synthesis.

Data collection, Personnel cost	= $6500
Vehicle cost	= $2000
Data synthesis, Personnel cost	= $1000
Miscellaneous supplies	= $500
Overhead, 20% of total cost	= $2000

Monitoring Item 18f: Management Indicator Species, Fish

Authority: [36 CFR 219.19], Level 2

Indicators: Trends of identified fish populations in selected stream segments.

Method of Data Collection: Every other year, electro fishing.

Unit of Measure: Numbers of fish species at electro fishing stations

Sample Design: 28 electro fishing stations, at least four stations per species.

Data Precision and Reliability: Class A

Frequency of Reporting: Every four years.

Information Storage System: Fauna module of the NRIS database.

Responsibility: Supervisors office, with occasional assistance from District personnel.

Cost: Every other year cost of $36,000 for data gathering and synthesis.

Data collection, Personnel cost	= $21,500
Vehicle cost	= $3500
Data synthesis, Personnel cost	= $3000
Miscellaneous supplies	= $2000
Overhead, 20% of total cost	= $6000

Monitoring Item 18g: Marten

Authority: [36 CFR 219.19], Level 2

Indicators: Trends in population, and habitat use.

Method of Data Collection:
(1) Track plate surveys in high potential habitat.
(2) Track plate surveys in randomly selected habitats.

Unit of Measure: Positive track plate occurrences.

Sample Design: (1) Approximately 117 track plates, located in high potential habitat, will be monitored between January and March every four to five years, to estimate trends in marten abundance.
(2) Approximately 25 random sites will be monitored between January and March each year to identify habitat usage of the American Marten.

Data Precision and Reliability: Class A for sample design #1 and Class B for sample design #2

Frequency of Reporting: Every four years.

Information Storage System: Fauna module of the NRIS database.

Responsibility: Districts with synthesis of data by the Supervisor's Office.

Cost: Cost of approximately $60,000 every four years for population trend monitoring, and yearly cost of $15,250 for random surveys.

Four-year costs:

Data collection, Personnel cost	= $39,000
Vehicle cost	= $5000
Data synthesis, Personnel cost	= $4000
Miscellaneous supplies	= $2000
Overhead, 20% of total cost	= $10,000

Annual Random Sampling costs:

Data collection, Personnel cost	= $10,000
Vehicle cost	= $1250
Data synthesis, Personnel cost	= $1000
Miscellaneous supplies	= $500
Overhead, 20% of total cost	= $2500

Monitoring Item 18h: Snails

Authority: [36 CFR 219.19], Level 2

Indicators: Habitat conditions and presence of specimens.

Method of Data Collection: Surveys of index sites

Unit of Measure: Vegetative diversity, site characteristics and percent ground disturbance at index sites.

Sample Design: Each "index" site identified in the Frest report(s) that could be affected by forest management will be monitored on a rotating basis, so that each site is monitored every four years. Data will be collected regarding vegetative composition, site characteristics and percent ground disturbance. Depending upon site conditions, or changes there of, samples may be taken and sent to qualified individuals for analysis of snail species composition.

Data Precision and Reliability: Class A.

Frequency of Reporting: Four years.

Information Storage System: Fauna module of the NRIS database**.**

Responsibility: Districts with synthesis of data by the Supervisor's Office.

Cost: Approximately $18,000 annually for surveys and reporting.

Data collection, Personnel cost	= $9000
Vehicle cost	= $2000
Data synthesis, Personnel cost	= $3000
Miscellaneous supplies	= $1000
Overhead, 20% of total cost	= $3000

Monitoring Item 18i: Goshawks

Authority: [36 CFR 219.19], Level 2

Indicators: Nesting activity.

Method of Data Collection: Site visits to historically known nest territories for which activity is suspected or possible.

Unit of Measure: Nest site activity;

Sample Design: Annual visits to known nest sites (those known to have the potential of being active). Sites will be visited between 1-June and 30 July.

Data Precision and Reliability: Class A

Frequency of Reporting: Yearly.

Information Storage System: Fauna module of the NRIS database.

Responsibility: Districts with data synthesis by the Supervisor's Office.

Cost: Cost of approximately $13,800 annually for nest site monitoring.

Annual costs:

Data collection, Personnel cost	= $8,000
Vehicle cost	= $2000
Data synthesis, Personnel cost	= $500
Miscellaneous supplies	= $1000
Overhead, 20% of total cost	= $2300

Appendix G

Biological Assessment
And
Biological Evaluation

4/30/01

Phase I Forest Plan Amendment
Supplement to the Forest Plan

Biological Assessment And Biological Evaluation

Threatened, Endangered and Sensitive Species

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BIOLOGICAL ASSESSMENT and EVALUATION FOR THE FOREST PLAN AMMENDMENT (Phase I)

Introduction

This Biological Assessment/ Biological Evaluation analyzes the potential effects on federally listed Threatened and Endangered species and R2 Sensitive Species that are known or suspected to occur on the Black Hills National Forest. This supplement to the original combined Biological Assessment (BA) and Biological Evaluation (BE) was prepared for the Phase I Revised Forest plan Amendment as required by section 7 of the Endangered Species Act (ESA), as amended, and the USDA Forest Service Threatened, Endangered, and Sensitive, Plant and Animal Species Policy (FSM 2670). This document describes the occurrence of and the amendment effects on species that are Federally listed or proposed for Threatened or Endangered status. This document also serves as a BE by including equivalent information on Forest Service, Region 2 Sensitive species. The BE is not required under ESA, but is required by the Forest Service for internal programs and activities (FSM 2672.4). FSM 2672.42 and 2672.43 establishes Standards and suggested procedural 'steps' for conducting biological evaluations. The Region 2 supplement 2600-94-2 provides Regional direction on steps for conducting a BE.

In the Phase I analysis, alternatives were developed that complied with specific requirements identified in the October 12, 1999 Deputy Chief's Appeal Decision for the Black Hills National Forest (USDA Forest Service, October 12, 1999)). This BA/BE follows guidance provided in the October 12, 1999 Appeal Decision, as well as guidance provided in discretionary review decisions[1] of the Revised Land and Resource Management Plans for three Forests located in the Rocky Mountain Region. Among the factors considered in analysis of viability are the overall multiple use objectives for the planning area, mitigation measures to be developed at the project level, and the available scientific information on:

- Trends in the quantity, quality, and distribution of habitat for fish and wildlife species for which the Forest Service has determined that viability concerns exist;
- Trends in abundance and distribution of such species, to the extent such data are available;

[1] Discretionary Review Decision On The Chief's Appeal Decision Regarding the Routt National Forest Revised Land and Resource Management Plan; Rocky Smith, et al. (Appeal #98-13-00-0032); Biodiversity Associates, et al (Appeal #98-13-00-0037).

[1]Discretionary Review Decision on the Chief's Appeal Decision Regarding the Rio Grande National Forest Revised Land and Resource Management Plan; Colorado Environmental Coalition, et al. (Appeal #97-13-00-0057).

[1]Discretionary Review Decision on the Chief's Appeal Decision Regarding the Arapahoe and Roosevelt National Forests and Pawnee National Grassland Revised Land and Resource Management Plan; Colorado Environmental Coalition, et al. (Appeal #98-13-00-0020).

- The habitat needs of such species and how they are affected by management activities; and
- Habitat and population trends of management indicator species, to the extent such data are available.

An Environmental Assessment (EA) is being prepared for the Phase I Amendment to the Revised Black Hills National Forest Land and Resource Management Plan (USDA Forest Service 1997). The comparison of effects for each alternative is discussed in the Environmental Assessment. This document describes the effects of the selected alternative.

Proposed Amendment

The WO Revised Forest Plan- Appeal Decision directed the Black Hills National Forest to further analyze species viability. It also gave the Forest interim direction to follow until species viability could be further analyzed.

The proposed amendment incorporates the Interim Direction language, as modified by information gathered during the expert interview process conducted by this Forest since receiving the Appeal Decision. Primary focus is implementing all environmentally protective Guidelines as Standards, protecting Sensitive plant and Sensitive snail colony locations from adverse effects, modifying American marten and goshawk direction, and increasing standing dead (snags) density and size Standards, across the landscape. In some cases, based on information gathered during the expert interviews, additional Standards were created to increase protection of Sensitive species to increase the probability of maintaining management options for Sensitive species during this (5 year) Phase I Amendment period.

The proposed amendment, Alternative 2, modified to incorporate the interim direction measures provided in the October 12, 1999 Appeal Decision (USDA Forest Service 1999) and modified by information from the expert interviews. It includes Standards and Guidelines designed to reduce the level of risk to the sustainability of Sensitive species, while maintaining management options during the re-analysis process. Following the October 12, 1999 Appeal Decision (USDA Forest Service 1999), expert interviews were conducted with scientific experts to obtain information on Region 2 Sensitive plant species, the results of which are referenced in this document (USDA Forest service 2000). The judgments provided from the Expert Interview Summary (USDA Forest Service October 2000) assume the implementation of Standards and Guidelines for each alternative.

The modifications to Alternative 2 are to add additional protection measures for wildlife and plant species and their associated habitats. The intent of the modifications is to reduce risk of adverse effects to a wider range of Management Indicator Species and Sensitive species. The modifications to Alternative 2 as discussed in the Phase I EA would be include the following measures:

- Revised Standard 3103 to clarify snail species habitat protection.

- Revised Guidelines 1401, 3207, and 3208 to increase protection for bats.
- Revised Guideline 2304 would continue the prohibition of cutting of standing dead trees for fuelwood, except in designated areas.
- Revised Guidelines 2303 and 2306 pertain to the distribution of snags and live tree replacements to meet the minimum snag objective.
- Add new Standard 3116 for red-bellied snake protection.
- Add new Standard 3117 to provide for woody material piles for American marten prey species habitat.
- Add new Standard 3118 to maintain existing black-tailed prairie dog populations.
- Add new Standard 8.2-9106 to provide additional protection of sensitive plants in the Cascade Creek/Cascade Spring area.

Alternative 2, as modified, includes the interim direction identified in the October 12, 1999 Appeal Decision, along with additional direction to further reduce adverse risk to sensitive species. (See Decision Notice Appendix for a full listing of the changes to the 1997 Revised Forest Plan). These revised and new standards and guidelines are based on the best available science pertinent to a number of plant and wildlife species and their conditions of existence on the Black Hills and were developed from interviews with experts in biological science fields and review of scientific literature. The following list outlines the majority of the changes to the 1997 Revised Forest Plan as noted in the Phase I EA:

- Certain guidelines would be treated as standards. See Decision Notice Appendix for a complete listing and new measures by alternative.
- Revised Standard 3109 to include 180 acres of the best available nesting habitat for northern goshawk to be located within a half-mile of existing nests.
- Revised Guideline 3114 to provide a balance of forest structural stages within ponderosa pine forested areas in 420-acre post-fledging family areas.
- Revised Guideline 3111 to identify a quarter-mile "no new disturbance" zone around active goshawk nests.
- Add new Standard 3215 for American marten habitat. No decrease in patch size of late succession habitats currently occupied or with high potential for American marten occupancy would be allowed
- Revised Standard 2308 to provide adequate down woody material in high potential American marten habitat.
- Revised Standards 2301 and 2302. These measures relate to snag habitat requirements. Standard 2301 would be revised to provide two to four snags per acre, based on aspect, averaged across the watershed, for ponderosa pine types. Twenty-five percent of the snags must be at least 20 inches in diameter or largest diameter available. In forest types other than ponderosa pine, provide six snags per acre at least 10 inches in diameter or the largest diameter available. Standard 2302 includes direction to move toward the snag objective.
- Add new Standard 3.1-2503 to provide additional protection of sensitive plant populations in Botanical Areas.

The Phase I Amendment will be short term. The Phase I EA notes the reevaluation of species viability and diversity, the Phase II analysis, is anticipated to take two to five years to complete. This timeframe was referred to due to changes in the planning regulations and other regulations that may affect the analysis timeframe. The Forest intends to complete the Phase II analysis within three years. Information gathering efforts for the Phase II process are currently underway.

In addition to the standards and guidelines, direction found in the Forest Service Manuals (FSM) will continue to be followed, including direction for Region 2 Sensitive species located at FSM 2670 and Management Indicator Species direction located at FSM 2621.

A refinement to Alternative 2 was made after the interviews with the scientists. The refinement pertains to the following interim direction measure:

"Conduct surveys for sensitive species under the following conditions, unless such species are known not to be present: 1) the project area is within the known or suspected range of the species and suitable habitat exists within the proposed project area, and, 2) the type of activity being proposed is known or suspected to be potentially detrimental to the species. Surveys should address spatial and temporal scale considerations. Existing habitat and population data may be used. This information should be used in project planning and analysis. In situations where adequate population data do not exist, and where such data would be difficult to obtain, the project analysis may be based on the assumption that the species is present, and the project designed accordingly to provide sufficient protection such that there is a low likelihood of adverse effects to the species or its habitat within the project area." (1999 Appeal Decision)

The assumption of presence of sensitive species, where suitable habitat exists and population information is lacking, will be made during project level analyses and may involve maintaining or managing to improve suitable habitat for sensitive species. This approach would allow the Forest to continue to provide suitable habitat for sensitive species. In particular, for northern goshawk an approach for managing for "presumed" post-fledging family areas was developed in response to concerns related to providing goshawk nesting habitat, which was identified as the limiting factor, across the Forest (2000 Expert Interview Summary). "Presumed post-fledging family areas" is explained as follows: During project level analyses known goshawk territories would be reviewed. In areas that would support a goshawk territory, and where adequate survey information is lacking, presumed post-fledging family areas would be identified and managed to provide nesting habitat and to move toward a balance of structural stages (Guideline 3114). This approach is designed to account for undiscovered nests or territories by providing for nesting habitat across the Forest.

List of Species Covered in this Document and the Overall Finding for Each Species

Federal Threatened and Endangered Species

Threatened, Endangered, and Proposed Species potentially occurring on the Black Hills National Forest were identified through informal consultation with the US Fish and Wildlife Service (USFWS). This informal process continues quarterly with the most recent consultation occurring on December 5, 2000. Table 1 lists the Threatened and Endangered Species that may occur on the Black Hills National Forest.

Table 1. Threatened and Endangered Species potentially occurring on the Planning Area.

Species	Scientific Name	Status	Summary of BA/BE Finding
American Burying Beetle	*Nicrophorous americanus*	Endangered	May affect, not likely to adversely affect.
Bald eagle	*Haliaeetus leucophalus*	Threatened	May affect, not likely to adversely affect.
Black-footed ferret	*Mustela nigripes*	Endangered	No affect

Forest Service Sensitive Species

The Forest Service, Region 2, has identified Sensitive plant and animal species. Table 2 lists the Sensitive species that occur on the Black Hills National Forest, and summarizes the findings of this document. Note: An abbreviation "May Impact Individuals…" is substituted for the entire FSM wording of "May adversely impact individuals, but not likely to result in a loss of viability on the planning area, nor cause a trend to federal listing or a loss of species viability range-wide".

Table 2. Region 2 Sensitive Species on the Black Hills National Forest.

Species Name	Scientific Name	Summary of BE Finding
American Marten	*Martes americana*	May impact individuals…
Swift Fox	*Vulpes velox*	No impacts
Black-tailed Prairie Dog	*Cynomys ludovicianus*	May impact individuals…
Dwarf Shrew	*Sorex nanus*	May impact individuals…
Fringe-tailed Myotis	*Myotis thysanodes pahapensis*	May impact individuals…
Townsend's Big-eared Bat	*Plecotus townsendii*	May impact individuals…
Spotted bat	*Euderma Maculatum*	No impact
Northern Goshawk	*Accipiter gentiles*	May impact individuals…
Olive-sided Flycatcher	*Contopus borealis*	May impact individuals…
Pygmy Nuthatch	*Sitta pygmaea*	May impact individuals…
Black-backed Woodpecker	*Picoides arcticus*	May impact individuals…
Three-toed Woodpecker	*Picoides tridactylus*	May impact individuals…
Lewis' Woodpecker	*Melanerpes lewis*	May impact individuals…
Golden-crowned Kinglet	*Regulus satrapa*	May impact individuals…
Purple Martin	*Progne subis*	No impacts
Fox Sparrow	*Passerilla iliaca*	May impact individuals…
Merlin	*Falco columbarius*	May impact individuals…

Species Name	Scientific Name	Summary of BE Finding
Upland Sandpiper	*Bartramia longicauda*	May impact individuals...
Loggerhead Shrike	*Lanius ludovicianus*	May impact individuals...
Osprey	*Pandion haliatus*	May impact individuals...
Black Hills Red-bellied Snake	*Storeria occipitomaculata pahasapae*	May impact individuals...
Milk Snake	*Lampropeltis triangulum*	May impact individuals...
Northern Leopard Frog	*Rana pipiens*	May impact individuals...
Tiger Salamander	*Ambyostoma tigrinum*	May impact individuals...
Tawny Crescent Butterfly	*Phycoides batesii*	May impact individuals...
Regal Fritillary	*Speyeria idalia*	May impact individuals...
Cooper's Rocky Mountain Snail	*Oreohelix strigosa cooperi*	May impact individuals...
Striate Disc	*Discus shemiki*	May impact individuals...
American Trailplant	*Adenocaulon bicolor*	May impact individuals...
Northern Arnica	*Arnica lonchophylla*	May impact individuals...
Greater Bladder Sedge	*Carex intumescens*	May impact individuals...
Long-stalk Sedge	*Carex pedunculata*	May impact individuals...
Treelike Clubmoss	*Lycopodium dendroideum*	May impact individuals...
Southern Maidenhair Fern	*Adiantum capillus-veneris*	May impact individuals...
Giant Helleborine	*Epipactis gigantea*	May impact individuals...
Large Round Leaf Orchid	*Platanthera orbiculata*	May impact individuals...
Great-spurred Violet	*Viola selkirkii*	May impact individuals...
Trailing Clubmoss	*Lycopodium complanatum*	May impact individuals...
Bloodroot	*Sanguinaria canadensis*	May impact individuals...
Dwarf Scouring Rush	*Equisetum scirpoides*	May impact individuals...
Marsh Muhly	*Muhlenbergia glomerata*	May impact individuals...
Fox Tail Sedge	*Carex alopecoidea*	May impact individuals...
Woolrush	*Scirpus cyperinus*	May impact individuals...
Autumn Willow	*Salix serrisima*	May impact individuals...
Autumn Coralroot	*Corallorhiza odontorhiza*	No determination.
Prairie Moonwort	*Botrychium campestre*	No determination.

Pre-field Review

The FEIS-BA/BE adequately addressed requirements of the pre-field review. However, since that document was written there has been additional survey information collected and literature reviews conducted. In some cases natural history information for Sensitive species contained in that analysis has been made more current. Additional scientific information has been provided either by peer-reviewed literature or from species-specific scientific experts that were interviewed in spring 2000.

Natural Heritage Database Records, Ranger District data, literature reviews, survey results from the Ranger Districts, independent research, layperson reports, and communication with experts served as the basis for determining the inclusion of, and effects upon, Sensitive species in the Revised Land Resource and Management Plan Final Environmental Impact Statement, implemented in 1997 (USDA Forest Service 1996, FEIS H-3).

Following the 1999 Forest Plan Appeal Decision, a Plant Monitoring Task Team (see end notes) was assembled to develop a monitoring protocol to address Sensitive plant species viability issues identified in the Appeal Decision. Information was compiled on Black Hills Sensitive plant species population locations and distribution, the biology and ecology of each species, and viability issues associated with Sensitive plant populations. State and regional authorities were included on the team to re-evaluate the Sensitive plant species list to ensure that all species merited Sensitive species ranking. The re-evaluation of Sensitive species ranking for Black Hills National Forest were based upon habitat information and population location information obtained during monitoring and field surveys. Species were evaluated using the same system originally used to designate them as Sensitive. Five of the 18 Sensitive plant species on the Black Hills National Forest have been recommended for removal from the Region 2 Sensitive Species list following the re-ranking process: American trailplant (*Adenocaulon bicolor*), Northern arnica (*Arnica lonchophylla*), Long-stalk sedge (*Carex pedunculata*), Bladder sedge (*Carex intumescens*) and Tree-like clubmoss (*Lycopodium dendroideum*) (Ode in Expert Interview Summary). A monitoring need was identified for the remaining thirteen Sensitive plant species.

Field Reconnaissance

Field reconnaissance has continued since the completion of the Revised Plan FEIS-BA/BE. Additional field survey data and information primarily collected during project planning continues to be gathered on a variety of Sensitive plant and animal species.

Monitoring protocols for Sensitive plants, established in response to the Forest Plan Appeal Decision, were implemented during the 2000 field season. Of the thirteen Sensitive plant species being monitored, two species, *Botrychium campestre* and *Corallorhiza odontorhiza* have very limited historical occurrence information and have not been relocated at previously reported locations to date. Surveys for these species will continue, however, no up-to-date information on their habitats or status in the Black Hills is currently available. Nine of the eleven remaining species were monitored in 2000. All 11 species will be monitored in 2001. Survey for all Sensitive plant species was conducted in 2000.

Biological Assessment for Threatened and Endangered Species

The FEIS-Biological Assessment (USDA Forest Service 1996, Appendix H) addressed the following Federally listed species; American burying beetle, bald eagle, peregrine falcon, black-footed ferret, and gray wolf. The peregrine falcon has been de-listed since then, and the gray wolf does not occur on the Forest and there is no indication of emigration into the Black Hills. These two species are not discussed further in this Biological Assessment.

No determination is made for the Canada lynx. Published in the Federal Register on March 24, 2000 was the "Determination of Threatened Status for the Contiguous U.S. Distinct Population Segment of the Canada Lynx and Related Rule, Final Rule". In that

determination under the heading of *Other Reports or Sightings,* it lists sightings in South Dakota. It also states: "These records are outside of the southern boreal forests where most lynx occurrences are found. We conclude that these unsuitable habitats are unable to sustain lynx and that these records represent dispersing individuals that are lost from the meta-population unless they return to the boreal forest. We do not consider these States to be within the contiguous U.S. range of lynx."

The sections of the Revised Forest Plan (USDA Forest Service 1996) Biological Assessment and Biological Evaluation provide a good description of the distribution and natural history for these species. Please refer to the Revised Forest Plan BA/BE for more information on species distribution and life history.

American Burying Beetle

The American burying beetle is not likely to occur in the Black Hills because there is no indication that these beetles were associated with western montane forests (USDA Forest Service 1996, Appendix H). Potential habitat likely occurs in the southern Hills where grasslands are adjacent to water and riparian habitats (USDA Forest Service 1996, Appendix H). The two major threats to this species are the reduction of optimum size prey, especially the young of passenger pigeons (*Ecopistes migratorius*) and greater prairie chickens (*Tympanuchus cupido*); and fragmentation of their natural habitats of Eastern deciduous forests and Midwest prairies (USDA Forest service 1996, Appendix H). The activities proposed in all alternatives were analyzed in the Revised Forest Plan and effects are not expected to increase for American burying beetles. Treating Guidelines as Standards would likely reduce risks to this species negligibly. Guideline 3104 is modified to protect plants and animals associated with moist soil conditions. It does not allow development of springs or seeps as water facilities where Sensitive species exist. This may further reduce risks to this species.

The process of cutting timber was not implicated in the Recovery Plan as a causal agent in the decline of this beetle. Grazing could be beneficial where vegetation cover is reduced, facilitating carrion location. The Recovery Plan does not emphasize grazing as a major influence in the decline of this species. Recreation activities are limited to specific sites and are not likely to affect enough area to impact these beetles.

There is no evidence that these beetles ever resided in the Black Hills. American burying beetles have not been found in the Black Hills area. The southern Hills may have some potential habitat, especially along the Cheyenne River bottom, but this area is outside the Forest jurisdiction (other ownership). Based on this information, it is determined that this amendment may affect the American burying beetle, but is not likely to adversely affect.

Bald Eagle

The bald eagles are present in the Black Hills during winter, usually arriving in early November. Roosts and feeding areas are important considerations on the wintering grounds (USDA Forest Service 1996, Appendix H). There are no known traditional roosts in the Black Hills, but the ponderosa pine landscape provides the requisite access

to potential roost structures. Feeding opportunities occur throughout the Forest, especially along heavily traveled roads due to the availability of deer carcasses (USDA Forest service 1996). In all alternatives, Standard 3101 provides for the protection of roost sites, should they be discovered. Human activities are prohibited within 100 yards of roost sites between November 15 and March 1. Timber harvest is to be avoided in stands being used by bald eagles on a transitory basis. Additionally, roosting habitat opportunities for the bald eagle are likely to improve, somewhat, because of the increased snag density Standard and recruitment of large diameter green trees across the landscape. Individual perches may be lost due to timber harvest or other activities. Based on this information, it is determined that this amendment may affect the bald eagle, but is not likely to adversely affect it.

Black-footed Ferret

The Revised Forest Plan BA gives a good description of the natural history of black-footed ferrets. The two threats likely to be most significant are habitat conversion to croplands and prairie dog poisoning (USDA Forest Service 1996). Black-footed ferrets are closely tied to prairie dog colonies. The Black Hills National Forest currently has less than 200 acres of prairie dog colonies (USDA Forest service 1996). Ferrets need prairie dog towns over 11,000 acres in size (USDA Forest Service 1996). Ferrets are not found in forested habitats so timber harvest would have no effect. Prairie dog towns on the Forest are included in grazing allotments, but these towns are too small to support ferrets. Based on this information, there will be no effects on black-footed ferrets.

Biological Evaluation for Sensitive Species

American Marten

American marten, a carnivorous mammal about the size of a house cat, were distributed historically throughout coniferous forests of North America (Bennett 1984). The Revised Forest Plan BE (USDA Forest Service 1996, Appendix H) gives a thorough overview of marten distribution and life history.

American martens are associated with a narrow range of habitats, generally mesic, late-succession coniferous forests, with large amounts of deadfall, rock outcrops, or other complex near ground structure (Buskirk and Ruggiero 1994). Rocks, low lying branches, fallen logs, stumps, lush forb and shrub vegetation, and subnivean sites provide both thermal and protective cover as well as foraging habitat (Davis 1983, Spencer 1987, Buskirk 1984). Range-wide, martens occupy many habitat types dominated by conifer trees (Allen 1984), but they show preference for areas dominated by spruce, fir, and hemlock species (Buskirk and Ruggiero 1994). Marten generally avoid habitats that lack overhead cover (Buskirk and Ruggiero 1994). Marten stay close to overhead cover, and are intolerant of habitat types lacking at least 30 percent canopy cover (Buskirk and Powell 1994, Clark et al. 1989). A study in California suggested a preference for 40 to 60 percent canopy cover at both resting and foraging sites, and avoidance of stands with less than 30 percent canopy closure (Spencer et al. 1983). Allen (1984) assumed that stands of mature or over-mature coniferous forests, comprised of 40 percent fir or spruce, with a total canopy closure greater than 50 percent, provided near optimal winter habitat. Hargis et al. (1999) found that martens were nearly absent from landscapes having greater than 25 percent non-forest cover. Ponderosa pine is not considered optimum habitat, although there is evidence that martens use pine habitat in the Black Hills (Fredrickson 1981). Range maps in the marten literature do not include the Black Hills, but historical records exist (USDA Forest Service 2000).

Based on recorded observations in the Black Hills marten are generally associated with dense, white spruce dominated forested stands. Because of a 're-introduction' effort by SDGF&P in the 1980's, and subsequent studies and observation reports this animal has a small, scattered breeding population in the Black Hills that is focused around two separate north and south distribution centers (Spearfish Canyon and Black Elk Wilderness Area). An ongoing study has documented that animals are attempting to move from one area to another (Dorothy Fescke, pers. Comm.).

Little information is available in the literature to suggest adequate levels of downed large logs for marten. This amendment maintains and average of 50 linear feet of large down woody material across the planning unit. This is consistent with desired conditions in Reynolds et al. (1992). Reynolds et al. (1992) recommends three large, downed logs per acre (at least 12 inches diameter and 8 feet long) in ponderosa pine forests and five large, downed logs in spruce forest types. These total 36 and 40 linear feet per acre respectively. Reynolds et al. (1992) was used for comparison because many goshawk prey species, such as squirrels and other small rodents, are also marten prey. This

amendment also defines the amount of large, downed woody material to be left in areas occupied by marten or with a high potential for occupancy: ten sound logs per acre (8 logs 10 feet long and 10 inches in diameter, and two logs 10 feet long and 20 inches in diameter).

The amendment also increases the number and size of the snag component, increases the large tree component, and prevents further decrease in patch size of late-successional forests in areas currently occupied by martens or with a high potential for occupancy.

The proposed amendment modifies the snag direction in the 1997 Revised Forest plan to include the interim snag direction (October, 12 1999). Within the associated watershed, for each vegetation management project, retain the following minimum densities of hard snags at least 25' feet in height.

- Ponderosa pine on north-or east facing slopes.... retain an average of 4 snags per acre > 10"dbh, collectively of which 25% must be > 20"dbh.
- Ponderosa pine on south- or west facing slopes...retain an average of 2 snags per acre > 10"dbh, collectively of which 25% must be > 20"dbh.
- If 20" DBH or 25 feet high snags are not available, retain snags in the largest size class available.
- Other forest types: Retain a minimum average of 6 snags per acre >10" DBH, but chosen from the largest diameter class available.
- Identify roads to be closed at project completion to protect snags from removal.
- During vegetation management activities in ponderosa pine, retain *sufficient* number of green trees > 20"dbh or from the largest diameter class available, to move towards or maintain an average minimum density of one large green tree per acre within the associated watershed, for the purpose of snag recruitment. Retention trees can be clustered or individual.

There is no information available on the number of snags needed to maintain marten populations. Experts interviewed (USDA Forest service 2000) suggested that two snags per acre are sufficient if they are large enough. The new snag Standards increase the number of snags required and requires 25% of the snags to be over 20" DBH, or of the largest diameter class available. The increase I the large green tree component will contribute to more large snags and downed logs to provide potential subnivean access sites.

Martens prefer old or mature forests with much near ground structure such as snags and logs (Buskirk and Powell 1994). Late successional forests in areas where marten occur or are likely to occur (Spruce stands) would not decrease over the next 5 years as designed into the Standards and Guidelines. Timber harvest, road building, or other activities that effect canopy closure, snag densities, and downed woody material would not occur in spruce stands over the next 5 years. Therefore, marten habitat, and marten populations, would be maintained over the next 5 years, until the Phase II amendment.

Determination: May adversely affect individual American marten, but is not likely to result in a loss of viability on the Planning Area, nor cause a trend towards federal listing or a loss of species viability range-wide

Swift Fox

The Revised Forest Plan BE (USDA Forest Service 1996, Appendix H) gives a thorough overview of swift fox distribution and life history. The swift fox is a constituent of the Great Plains, associated primarily with moderate to rolling terrain of the short- and mid-grass prairies (Uresk and Sharps 1986, Jones et al. 1983). Prairie dog towns provide the primary food items in the Northern Great Plains (Uresk and Sharps 1986). It is not found in forested habitats.

Potential habitat is limited to the southern portion of the Forest where there are seven prairie dog colonies comprising about 200 acres, the largest of which is 80 acres. The large expanses of open prairies needed by the swift fox occur to some degree in the southern Black Hills, but not to the extent needed to maintain a population (USDA Forest Service 2000). The southern Black Hills, and to some degree the northwest Black Hills, may be suitable transitory habitat for swift foxes moving from one location to another (USDA Forest Service 2000). Prairie dog towns on the Forest are too small to support swift foxes. Based on this information, no impacts are expected on swift fox.

Determination: No impacts.

Black-tailed Prairie Dog

The prairie dog is a diurnal, burrowing rodent, 13-16 inches in length, and weighing up to three pounds (Higgins et al. 2000). It prefers short-grass or mixed-grass prairies (Higgins et al. 2000). This species is a game species regulated by the SDGF&P Department. The prairie dog has been designated a statewide pest since 1984 (SDWPCC) in which control operations may occur. On February 4, 2000 the USF&W Service determined that listing the black-tailed prairie dog as a threatened species was warranted but precluded by other higher priority actions. It is currently considered a candidate species for listing. While the black-tailed prairie dog currently remains designated as statewide pest in South Dakota, a recent state statute has created a new category for wildlife management (Species of Management Concern) and the process for reclassifying the prairie dog is in progress. The species was added to the R2 (Rocky Mountain) Regional Foresters Sensitive Species List, effective July 1, 2000.

The Black Hills National Forest currently has approximately 200 acres of black-tailed prairie dog 'towns'. There are 4 or 5 small towns, the largest being approximately 80 acres, located in small prairie communities of the southern Black Hills in the vicinity of Edgemont, SD. Wind Cave National Park, south of Custer, SD also has a small prairie dog complex. Current Forest prairie dog conservation activities focus on maintaining the current level of occupied habitat. Recreational shooting can occur at all of these town locations with the exception of Wind Cave National Park. These animals are subject to

natural disease and predation. Prairie dog towns have remained stable on the Forest regardless of shooting activities and disease. Poisoning of prairie dogs is not permitted on Black Hills NF lands.

All of the prairie dog towns on the Black Hills National Forest occur within grazing allotments. Black-tailed prairie dogs were found to be more abundant in heavily grazed areas than in ungrazed areas in southwestern South Dakota (Uresk et al. 1982). No other activities are expected on existing prairie dog towns.

Determination: May adversely affect individual black-tailed prairie dogs, but is not likely to result in a loss of viability on the Planning Area, nor cause a trend towards federal listing or a loss of species viability range-wide.

Dwarf Shrew

The Revised Forest Plan BE (USDA Forest Service 1996, Appendix H) gives a thorough overview of dwarf shrew distribution and life history. It is unknown whether the Black Hills has a population of dwarf shrews (USDA Forest Service 2000). Three specimens have been collected from prairie habitats around, but not within, the Black Hills (Turner 1974, Higgins et al. 2000). The assumption is that interior prairies are potentially suitable in the Black Hills. In Wyoming this shrew is a rare resident of coniferous forests, aspen, alpine rock outcrops, talus and mountain-foothill shrublands (Oakleaf et al. 1992).

Grazing can affect habitat of these prairie species by altering the structure and composition of herbaceous plants. Season-long grazing rarely results in uniform use across a pasture. Some areas are grazed frequently throughout the season, whereas other places receive light or no grazing. This is especially true when transitory range in forested habitats is considered. Rotation systems provide rest from livestock grazing either for an entire season or a portion of the grazing period. During the deferment there is regrowth, depending on the time of year. All of the species in this group evolved in the presence of ungulate grazing. Excessive grazing that leaves little residual cover and eventually causes compositional conversions can be detrimental to these prairie associates. The trend under any alternative would be to convert season-long pastures to rotation systems as circumstances allow. Residential developments and conversions of grasslands/prairies on private lands can reduce available habitat. Grazing that leaves little residual cover could reduce effective habitat for the dwarf shrew and its prey. Conformance with the allowable use Guidelines should conserve suitable habitat for this mammal. Management activities over the next five years may impact individual specimens if they occur on the Forest, but the overall capability to support the species would be neutral to slightly negative (USDA Forest Service 2000).

Determination: May adversely affect individual dwarf shrews, but is not likely to result in a loss of viability on the Planning Area, nor cause a trend towards federal listing or a loss of species viability range-wide.

Bats

Townsend's Big-eared bat
Fringed Myotis
Spotted bat

The Revised Forest Plan BE (USDA Forest Service 1996, Appendix H) gives a thorough overview of distribution and life history for these three Sensitive bats, and is incorporated by reference. The Townsend's big-eared bat and the fringed myotis both are known to use caves and abandon mines as roost sites. The fringed is also known to use snags, rock outcrops, stumps, and human structures as roost sites (USDA Forest Service 2000, USDA Forest Service 1996 Appendix H). Occasionally Townsend's will also use human structures, snags and rock outcrops as day roosts (USDA Forest Service 2000, Higgins et al. 2000). Abandoned mines may provide a buffer against the loss of natural caves due to private development (USDA Forest Service 2000).

Riparian habitat and water sources are also important features of bat habitat. Open water is important because bats obtain water while flying. Riparian habitats are important for insect production and provide foraging opportunities (USDA Forest Service 2000). Excessive livestock grazing, and degradation of water catchments and ponds reduces the value of this habitat to bats (Pierson et al. 1999).

The spotted bat is not suspected to be present in the Black Hills. Potential habitat may exist in places like Spearfish Canyon but to date these bats have not been recorded any closer to the Black Hills than Big Horn County, Wyoming (USDA Forest Service 2000, USDA Forest Service 1996 Appendix H). Numerous surveys have been done and no spotted bats have been found, despite the fact that they are easily detected (they are audible to the human ear) and identified (USDA Forest Service 2000).

None of the Alternatives are expected to impact spotted bats. If undiscovered populations exist on the Forest, They are likely to be in inaccessible areas not affected by management activities.

The major issues for bats on the Forest are:

- Disturbance inside caves during critical periods from recreational caving,
- Snag densities,
- Closing of abandoned mines that function as bat habitat in place of natural caves,
- Disturbance to cave and mine openings that change the airflow pattern and temperature regime within the caves and mines.

The amendment will treat all environmentally protective Guidelines as Standards. Treating Guidelines as Standards could improve direction when considering management actions that have the potential to affect caves, mines or other significant bat habitat. Standard 3209 would continue to be considered as a Guideline. This is to take into account that some abandon mines are extremely high-risk to public safety and would not benefit bats for very long due to the rapidly deteriorating condition.

The fringed bat is known to utilize standing dead trees (snags) as roost sites. How many snags per acre are required is not known, but more snags are generally better (USDA Forest Service 2000). The amendment increases the Standard for snag retention and live (green) tree recruitment. It also increases the snag density and size requirements as outlined in the Washington Office appeal decision (October 12, 1999). .

The proposed amendment modifies the snag direction in the 1997 Revised Forest plan to include the interim snag direction (October, 12 1999). Within the associated watershed, for each vegetation management project, retain the following minimum densities of hard snags at least 25' feet in height.

- Ponderosa pine on north-or east facing slopes.... retain an average of 4 snags per acre > 10"dbh, collectively of which 25% must be > 20"dbh.
- Ponderosa pine on south- or west facing slopes...retain an average of 2 snags per acre > 10"dbh, collectively of which 25% must be > 20"dbh.
- If 20" DBH or 25 feet high snags are not available, retain snags in the largest size class available.
- Other forest types: Retain a minimum average of 6 snags per acre >10" DBH, but chosen from the largest diameter class available.
- Identify roads to be closed at project completion to protect snags from removal.
- During vegetation management activities in ponderosa pine, retain *sufficient* number of green trees > 20"dbh or from the largest diameter class available, to move towards or maintain an average minimum density of one large green tree per acre within the associated watershed, for the purpose of snag recruitment. Retention trees can be clustered or individual.

The amendment also modifies Guideline 3102 to include mines in addition to natural caves and known day and night roosts. The amendment also increases the "avoid ground disturbance" zone around cave openings from 100' to 500' feet to be consistent with Pierson et al. (1999).

The amendment addresses all components necessary for sustaining bat populations (USDA Forest Service 2000). There may be some continued declines of fringe-tailed myotis, but the species is not likely to be lost over the next 5 years (USDA Forest Service 2000).

Determination: May adversely affect individual Townsend's big-eared bats and fringe-tailed myotis, but is not likely to result in a loss of viability on the Planning Area, nor cause a trend towards federal listing or a loss of species viability range-wide.

No impacts are expected for spotted bat since it is unlikely they occur on the Forest and potential habitat (cliffs) is relatively inaccessible.

Northern Goshawk

The Revised Forest Plan BE (USDA Forest Service 1996, Appendix H) gives an overview of goshawk distribution and life history, and is incorporated by reference. The northern goshawk is a raptor that is adapted to forested habitats. In the Black Hills it nests in mature, dense pine, but will occasionally nest in other species like mature quaking aspen depending on site conditions. Often referred to as a 'habitat generalist' the goshawk will prey on a variety of small birds and mammals foraging over a wide range of forest conditions. Critical to goshawk nesting success and long-term survival is the availability of suitable nesting habitat, which is limited to dense or moderately dense stands of large diameter trees, and the availability of prey and the condition of prey habitat. Diverse structural and compositional vegetative conditions are preferred (USDA Forest Service 1996, Appendix H).

The following information is taken from recent interviews of goshawk experts (USDA Forest Service 2000). Prey composition is an integral part of goshawk management. There is limited information on prey use in the Black Hills. Goshawks in the Black Hills likely prey on American robins (*Turdus migratorius*), black-headed grosbeaks (*Pheucticus melanocephalus*), evening grosbeaks (*Coccothraustes vespertinus*), gray jay (*Perisoreus canadensis*), blue jay (*Cyanocitta cristata*), Clark's nutcracker (*Nucifraga columbiana*), hairy woodpeckers (*Picoides villosus*), long-eared owl (*Asio otus*), mourning dove (*Zenaida macroura*), pinyon jay (*Gymnorhinus cyanocephalus*) in winter, red-naped sapsucker (*Sphyrapicus nuchalis*), and turkey (*Meleagris gallopavo*) polts, as well as those species mentioned in the Forest Plan BA/BE (USDA Forest Service 2000, Appendix H). Flickers, tree squirrels, rabbits, and jays are likely the most important prey species. Tassel-eared squirrels (*Sciurus aberti*), an important prey item in the Southwestern United States, are absent in the Black Hills, but red squirrels (*Tamiasciurus hudsonicus*) likely substitute for them in goshawk diets in the Black Hills. Red squirrels are probably very important prey items, but further research would be necessary to determine if squirrels or other species are critical. Steller's jays (*Cyanocitta stelleri*) are also an important prey item elsewhere that is absent from the Black Hills. Gray jays may fill in for Steller's jays in the Black Hills, but they are smaller and less abundant than Steller's jays usually are elsewhere. Prey species available to goshawks in the Black Hills appear similar to those in the Southwestern United States.

Because no single prey species is likely to be abundant enough to support goshawk populations, habitats for multiple species are necessary (Reynolds et al. 1992). Important habitat attributes include snags, downed logs, woody debris, large trees, openings, herbaceous and shrubby understories, and an intermixture of various forest vegetative structural stages (Reynolds et al. 1992). Reynolds et al. (1992) recommends 2 snags per acre (greater than 18 inches diameter) and 3 large, downed logs per acre (at least 8 feet long) in ponderosa pine habitats.

The Forest Plan Final EIS BA/BE (USDA Forest Service 1996, Appendix H) identified ponderosa pine structural stages 4C and 5 (i.e., dense mature forests and old growth), at least 25 to 30 acres in size, as likely affording the best nesting habitat for goshawks in the Black Hills. However, goshawks are not restricted to nesting in these stands and could

use stands with lower canopy cover as well, such as structural stage 4B (USDA Forest Service 2000). Goshawks exhibit high site fidelity (Reynolds and Joy 1998) and may use lower quality habitat but not produce young (USDA Forest Service 2000). It is important to provide nesting habitat across the landscape, outside of known territories (USDA Forest Service 2000).

Goshawk habitat would be better if within-stand diversity was higher, and irregular shaped patches of different ages occurred (USDA Forest Service 2000). From looking at Parrish et al (1996), it is likely there was once a higher large tree density and irregular pattern to the trees (USDA Forest Service 2000).

The Forest Plan Final EIS BA/BE (USDA Forest Service 1996, Appendix H) estimates an average of about 30 nesting pairs of goshawks on the Forest annually, though exact numbers probably vary annually. There are 144 known nests on the Black Hills National Forest. There are likely more goshawks on the Black Hills than are currently known. Current data is not adequate to determine population status (USDA Forest Service 2000).

Down woody material requirements are similar to those recommended by Reynolds et al. (1992). The amendment maintains 50 linear feet of large, downed logs (minimum 10 inches diameter) on conifer-forested sites. Although it does not describe the number of logs to remain, the overall length will be greater than that recommended in Reynolds et al. (1992).

The amendment increases the snag requirements from 1.08 snags per acre to 2-4 snags per acre in ponderosa pine and 6 snags per acre in other forested types, averaged over the watershed. This is consistent with recommendations in Reynolds et al. (1992). The amendment prohibits the cutting of standing dead trees for fuelwood, except in designated areas.

The amendment includes changes in the goshawk Standards and Guidelines (3108-3114). The following additional protective measures will apply relative to the northern goshawk for all projects involving the removal of trees in suitable habitat, except those done for the express purpose of enhancing goshawk habitat: A goshawk nest survey must be conducted prior to any projects in forested areas. If the project area includes a historically active nest or a replacement stand associated with a historically active territory, this acreage will be excluded from the project. If a historically active territory occurs within one-half mile of the project area and protected acreage has not yet been identified, the project analysis will determine whether some of the protected acreage should occur within the project area. If the pre-project survey identifies a previously unknown active nest, the project analysis will determine where protected acreage will be located. In all cases, protected acreage will include 180 acres best suited for nesting habitat within one-half mile of the historically active or currently active nest. The acreage need not be contiguous but must occur in 30-acre units or larger. If these conditions cannot be met, then the acreage will include stands that are not currently suitable but that could be managed to meet nesting conditions over time. Activities within these stands should be limited to those that aid in maintaining or enhancing the

stand's value for goshawks. This guidance is consistent with Reynolds et al. (1992) as a nest management strategy.

The amendment also includes the following management for goshawk post-fledging family areas (PFA):

> Design silvicultural prescriptions and manage activities to enhance prey species habitat by maintaining vegetative diversity and striving for a balance of structural stages, from stand initiation to late successional, within goshawk post-fledging family area (approximately 420 acres around each historically active goshawk nest and alternate nests).

This direction is consistent with post fledging habitat recommendation in Reynolds et al. (1992).

The assumption of presence of sensitive species, where suitable habitat exists and population information is lacking, will be made during project level analyses and may involve maintaining or managing to improve suitable habitat for sensitive species. During project level analyses known goshawk territories would be reviewed. In areas that would support a goshawk territory, and where adequate survey information is lacking, presumed post-fledging family areas would be identified and managed to provide nesting habitat and to move toward a balance of structural stages (Guideline 3114). This approach is designed to account for undiscovered nests or territories by providing for nesting habitat across the Forest.

This direction is designed to address concerns with the "known nest" strategy that would be otherwise applied to these watersheds. The experts interviewed identified a concern for a strategy that focused only on currently known nests. The selected alternative identifies potential nests in addition to those currently known in these watersheds. This approach is also designed to address the direction in the Black Hills Forest Plan Appeal Decision (October 12, 1999) to assume presence for Sensitive species unless the species is known not to be present. This provides the landscape approach other than that suggested in the expert interviews (USDA Forest Service 2000).

This strategy is based on the work in the Southwest United States (Reynolds et al. 1992). In the Southwest, it was found that a balance of structural stages was the best long-term solution for providing prey habitat; otherwise a bottleneck is produced in the other structural stages (USDA Forest Service 2000). A balance of structural stages is desired across all forest types except perhaps hardwoods (it may be more important for aspen to be managed for aspen-specific values). This does not include natural meadows, only forested acres. It is acceptable for structural stages to vary by a few percent (as shown in the tables above), but an overall balance is recommended (USDA Forest Service 2000). For goshawks, the earliest and latest structural stages are the most critical (USDA Forest Service 2000). The goal is to manage landscapes in patches with variable tree spacing (USDA Forest Service 2000). Managing for too much of the later structural stages would be detrimental as well, since it would produce a bottleneck just as does managing for too

much in the early structural stages (USDA Forest Service 2000). Individual goshawks may be impacted by management activities, but the landscape approach is likely to provide for goshawk nesting and foraging habitat well dispersed across the Forest.

There is little data on goshawk population and demography in the Black Hills. Based on existing data, it is not certain that there is a viable population of goshawks in the Black Hills (USDA Forest Service 2000). Therefore, this analysis is based on the potential risk involved in the management strategy.

There are 144 known goshawk nests on the Black Hills National Forest. Known nest densities are generally higher in the northern and central Hills and become sparse in the southern Hills. The Jasper Fire destroyed 9 nests and altered nesting habitat such that these nests will not likely be used until the forest regenerates to maturity. This is a 6% reduction in nests on the Forest. Another nest was lost in the April 2000 snowstorm. This brings the reduction in nests to about 7 percent. These nests were not active in 2000 before the natural events occurred. One of the nests lost in the Jasper Fire has been known to be active in recent years. These goshawks may try to establish a territory outside the burned area. The potential success of this is unknown due to the limited data on population density in the Black Hills.

It is unknown which nests on the Forest are most productive. All nests are not monitored every year; therefore, it is not known how many of these nests are active. If we assume the Revised Forest Plan (USDA Forest Service 1996) estimate of 30 active pairs on the Forest is true, then about 21% of the nests on the Forest are active in any given year. Using this percentage, this would mean that 2 of the nests lost last year (Jasper Fire and Snowstorm) were probably active in any given year. Potentially active nesting pairs could have been reduced from 30 to 28 for any given year. We know this fluctuates annually due to environmental fluctuations and other stochastic events.

This amendment is an improvement in goshawk habitat over the Revised Forest Plan (1997). Snags and large down logs are increased in this amendment. This should benefit habitat for woodpeckers and small mammals that serve as goshawk prey in the long term. However, the benefits of these strategies in the form of improved habitat will likely not be realized in the next 5 years. The strategy is a long-term strategy and will take several treatments over multiple decades to attain the desired balance of structural stages within goshawk PFAs.

Alternative 2, as modified, provides an approach to providing goshawk nesting habitat well distributed across the Forest. Forest management projects are expected to occur on three percent of the Forest annually, or about 15 percent of the Forest over the next 5 years. Not all of this is in forested habitats. Approximately 11 percent of the forested acres will be treated in the next 5 years. Within these projects, about 10 percent of the landscape will be managed as goshawk nesting habitat and post-fledging family areas (600 acres out of each 6000 acre goshawk territory). These areas will be managed consistent with suggestions in Reynolds et al. (1992). In the remainder of the forest, other standards and guidelines will reduce the risk to goshawks. For example, elk cover

requirements will contribute additional forested areas in a mature stage, which will contribute to goshawk nesting and foraging habitat. Marten habitat management will also contribute additional mature, closed canopy spruce and pine stands, which will also contribute to goshawk nesting and forging habitat and prey habitat. Considering the improved protections for goshawk nesting habitat and PFAs, and the relatively low level of activities expected in the next five years, Alternative 2, as modified, will likely provide for goshawk population viability over the next five years.

The lack of a landscape approach to providing a balance of structural stages across watersheds increases the risk to goshawks (relative to Alternative 3). In these areas, the focus of management is on known and 'presumed' nesting habitat and Post-fledging Family Areas (PFA). There is a slight risk of negative effects on goshawk populations as a result of activities outside known and predicted nesting habitat and PFAs, especially given the fact that not enough is known about goshawk population status in the Black Hills (USDA Forest service 2000) to predict population viability.

The following measures will be conducted to ensure goshawk habitat protection:

1) Protect the most critical habit elements: nests and post-fledging family areas, in both known and presumed goshawk territories. (Forest Supplement to FSM)
2) Project surveys will continue to determine areas currently in use by goshawks, and to identify areas to be managed for post-fledging family areas around known nest sites and around suitable nesting habitat in presumed territories;
3) Continue to include habitat management and mitigation at the project level which is tailored to the actual on-the-ground conditions; and
4) Conduct Forest-wide monitoring of historical nest sites for which activity is suspected or possible annually during the interim period. Some sites, such as the nine nests that were lost in the Jasper Fire would not continue to be monitored annually for activity due to the alteration in habitat and change from suitable nesting habitat to unsuitable nesting habitat. Newly located nest sites will be monitored annually during the interim period. (Appendix F)

The above measures provide an adequate interim strategy, beyond the known nest strategy, to provide for continued viability of goshawks on the Black Hills National Forest.

Determination: May adversely affect individual goshawks, but is not likely to result in a loss of viability on the Planning Area in the next 5 years, nor is it likely to cause a trend towards federal listing or a loss of species viability range-wide in the next 5 years. This determination carries a fair amount of uncertainty due to the lack of population and habitat data.

Olive-sided Flycatcher

The Revised Forest Plan BE (USDA Forest Service 1996, Appendix H) gives a thorough overview of distribution and life history for olive-sided flycatchers, and is incorporated by reference. Tall, prominent trees and snags or trees with spike tops, which serve as

singing and foraging perches, along edges provide foraging (on flying insects) habitat (USDA Forest Service 2000). In South Dakota, this species is an uncommon migrant and possible breeder in the Black Hills (South Dakota Ornithologists' Union 1991).

Activities currently taking place on the Forest, such as timber harvest, are likely to benefit the flycatcher (USDA Forest Service 2000). Current activities create edges where timber harvest activities occur. This amendment increases the snag and large tree requirements, thus increasing the chances that large trees, snags and spike top trees will occur near edges. This amendment provides a distribution of all age and size classes across the goshawk PFA (Guideline 3114), which will likely provide sufficient edges along openings. The amendment is not likely to result in loss of population viability. Individual flycatchers may be impacted as some larger trees are harvested.

Harvesting standing dead trees for firewood can reduce snags and spike-top trees. This amendment restricts the cutting of standing dead trees for firewood, which will help reduce the loss of perches for the olive-sided flycatcher.

Determination: May adversely affect individual olive-sided flycatchers, but is not likely to result in a loss of viability on the Planning Area, nor cause a trend towards federal listing or a loss of species viability range-wide.

Pygmy Nuthatch

The Revised Forest Plan BE (USDA Forest Service 1996, Appendix H) gives a thorough overview of pygmy nuthatch distribution and life history, and is incorporated by reference. The nuthatch is a weak cavity excavator and tends to select soft, large snags. Snags and old trees over 19 inches DBH are most beneficial (USDA Forest Service 1996, USDA Forest Service 2000). A winter persistence strategy is communal roosting, whereby many individuals use the same roost, which exemplifies the necessity of large diameter snags that provide roost cavities (USDA Forest Service 2000). Clark et al. (1989) recommended 3 to 5 snags per acre in excess of 19 inches DBH.

An uncommon permanent resident in the Black Hills, the pygmy nuthatch seems adapted to various coniferous forest types. Here it is associated with mature, large diameter pine, park-like stands. In Colorado, the bird is more likely to be found in mid-to late-seral, open, park-like stands of ponderosa pine at relatively low elevations (USDA Forest Service 2000).

This amendment changes the snag Standard (3201) to:

- Ponderosa pine on <u>north-or east facing slopes</u>.... retain an average of **4** snags per acre > 10"dbh, collectively of which 25% must be > 20"dbh.
- Ponderosa pine on <u>south- or west facing slopes</u>...retain an average of **2** snags per acre > 10"dbh, collectively of which 25% must be > 20"dbh.
- If 20" DBH or 25 feet high snags are not available, retain snags in the largest size class available.

This amendment reduces the risk to pygmy nuthatches by improving the likelihood on occurrence of larger trees and snags, well distributed across the watershed (Guideline 2306). The snag density is less than Clark et al. (1989), to account for local snag occurrences (Lentile et al. 2000).

This amendment also prohibits cutting of standing dead trees for fuelwood, except in designated areas, during the 5-year Phase I amendment period. This added protection increases the possibility of maintaining management option for the pygmy nuthatch over the next 5 years.

Determination: May adversely affect individual pygmy nuthatches, but is not likely to result in a loss of viability on the Planning Area, nor cause a trend towards federal listing or a loss of species viability range-wide.

Woodpeckers

Black-backed Woodpecker

The Revised Forest Plan BE (USDA Forest Service 1996, Appendix H) gives a thorough overview of black-backed woodpecker distribution and life history, and is incorporated by reference. The black-backed woodpecker is at the southern edge of its range in the Black Hills. The species is rare here, as it is across most of its range in the U.S. (USDA Forest Service 2000). Black-backed woodpeckers in the northern Black Hills have been found in sapling and pole-sized pine with moderate canopy cover, and elsewhere in the Black Hills they have been found in sapling and pole-sized pine with open canopy cover (USDA Forest Service 2000). They have also been seen in two-storied, mature and old ponderosa pine stands that have ponderosa pine regeneration in the understory (USDA Forest Service 2000). Information reviewed in Dixon and Saab (2000) shows nest snags average about 15 inches.

The black-backed woodpecker reaches highest abundance in large areas where insects are prolific such as stand-replacing burns and beetle-killed areas (USDA Forest Service 2000). Fire suppression and post-fire salvage logging adversely affect this species (Dixon and Saab 2000). Agency goals that reduce the chances of large wildfires may have negative consequences for this species (Dixon and Saab 2000). Wisdom et al. (2000) recommends conservation of selected forested stands greater than 387 hectares (956 acres). Wisdom et al. (2000) recommends where post-fire salvage logging occurs, retain snags in clumps rather than evenly spacing, retain greater than 104-123 snags per hectare (42-50 snags per acre) greater than 23 cm (9 inches) in DBH. Wisdom et al. (2000) recommends allowing wildfires to burn in some forests to produce stand-replacing conditions and subsequent beetle outbreaks, and avoiding post-fire salvage logging in portions of large burned forests for five years after the fire.

Three-toed Woodpecker

The Revised Forest Plan BE (USDA Forest Service 1996, Appendix H) gives a thorough overview of three-toed woodpecker distribution and life history, and is incorporated by reference.

The following information is taken from recent interviews of woodpecker experts (USDA Forest Service 2000). The three-toed woodpecker is at the southern edge of its range in the Black Hills. It is seldom reported in the Black Hills, but is most likely to use large stands of mature or old spruce. The three-toed woodpecker is similar to the black-backed woodpecker in that it reaches highest abundance in areas where insects are prolific (i.e., burned and beetle-killed areas). The best conditions are usually provided during the first ten years after a fire or beetle outbreak.

In order to persist on the landscape between these events, the forest matrix must include large stands (hundreds of acres) of old or large trees. These green areas provide suitable nesting and foraging habitat to maintain a low woodpecker density until an outbreak event or fire promotes the species to higher abundance. Pine beetles and other bark beetles are a very important year-round food source, and have a great effect on the woodpecker's abundance, distribution, and long-term viability. Three-toed woodpeckers are a standing-tree bole specialist, and normally use the top third of a tree.

Lewis' Woodpecker

The Revised Forest Plan BE (USDA Forest Service 1996, Appendix H) gives a thorough overview of Lewis' woodpecker distribution and life history, and is incorporated by reference.

The following information is taken from recent interviews of woodpecker experts (USDA Forest Service 2000). Lewis' woodpeckers begin colonizing large burned areas within a year after fire, and become fairly abundant within three to four years. Trees must be damaged, and preferably occur in a mosaic pattern with undamaged trees. An example of this is where pre-fire pockets of dead or dying trees flare up during fire. Good habitat is provided mostly by uncontrolled wildfires, but controlled burns may contribute habitat as well. Pre-fire conditions preferred by Lewis' woodpeckers in Idaho were characterized by moderate (40-70%) canopy closure, 19 inches average tree DBH", and relatively low snag densities (compared to black-backed woodpeckers). Large diameter snags, spike-topped trees, and weakened green trees are all important to the species. Because the bird cannot excavate hard materials, it prefers soft, decayed snags; however, if none are available, pairs may usurp other species from their cavities (e.g., bluebirds, flickers, hairy woodpeckers). Although snags may be essential, their availability alone does not guarantee use by the species. .

Effects

The proposed amendment modifies the snag direction in the 1997 Revised Forest plan to include the interim snag direction (October, 12 1999). Within the associated watershed, for each vegetation management project, retain the following minimum densities of hard snags at least 25' feet in height.

- Ponderosa pine on north-or east facing slopes.... retain an average of 4 snags per acre > 10"dbh, collectively of which 25% must be > 20"dbh.
- Ponderosa pine on south- or west facing slopes...retain an average of 2 snags per acre > 10"dbh, collectively of which 25% must be > 20"dbh.
- If 20" DBH or 25 feet high snags are not available, retain snags in the largest size class available.
- Other forest types: Retain a minimum average of 6 snags per acre >10" DBH, but chosen from the largest diameter class available.
- Identify roads to be closed at project completion to protect snags from removal.
- During vegetation management activities in ponderosa pine, retain *sufficient* number of green trees > 20"dbh or from the largest diameter class available, to move towards or maintain an average minimum density of one large green tree per acre within the associated watershed, for the purpose of snag recruitment. Retention trees can be clustered or individual.

The snag Standards and Guidelines in the amendment are consistent with snag size recommendations in Dixon and Saab (2000). Recent expert interviews (USDA Forest Service 2000) on woodpeckers indicate similar conclusions. These Standards are consistent with snag densities found by Lentile et al. (2000) in unlogged portions of the Black Hills National Forest. Lentile et al. (2000) found that natural, near equilibrium snag populations (> 10 inches DBH) in the Black Hills have a mean density of 3.6 snags per acre and are predominately ponderosa pine.

The amendment adds direction to prohibit cutting of standing dead trees for fuelwood, except in designated areas. It is important to protect snags, especially large ones, especially where snag densities are below the snag requirements (USDA Forest Service 2000). This amendment also adds direction to focus on opportunities for leaving snags in clumps rather than individually. This is consistent with information in Wisdom et al (2000) and from recent expert interviews (USDA Forest Service 2000).

The amendment includes a Forest-wide approach to goshawk management that should benefit woodpeckers as well (Guidelines 3114). The strategy provides a diversity of sizes and age-classes of trees, distributed across the goshawk PFA. While this does not address the need for large expanses of old growth, it will likely assure that mature and old forests are well represented across the Forest. This combined with the snag Standards will likely maintain population for woodpeckers over the next 5 years.

Letting wildfire occur on portions of the Forest is not an option at this time, due to prevalence of interspersion of private land and dwellings throughout the Forest. Large, stand replacing fires have occurred on the Forest over recent years. The most recent, the Jasper Fire, burned approximately 83,500 acres in August of 2000. The area burned in a mosaic in the southern portion of the fire, which should provide excellent habitat for woodpeckers over the next 5 years.

The Jasper Fire value Recovery EIS has been prepared to recover timber values. Approximately 20 percent of the burned forested acres will be harvested. The value

recovery project in the Jasper Fire follows the suggestions of Wisdom et al (2000) and Dixon and Saab (2000) for leaving large areas untreated areas and leaving abundant, clumped snags where harvest occurs.

Determination: May adversely affect individual black-backed, three-toed and Lewis' woodpeckers, but is not likely to result in a loss of viability on the Planning Area, nor cause a trend towards federal listing or a loss of species viability range-wide.

Golden-crowned Kinglet

The Revised Forest Plan BE (USDA Forest Service 1996, Appendix H) gives a thorough overview of golden crowned kinglet distribution and life history, and is incorporated by reference. Their prime habitat is mid- to late-seral spruce with large diameter trees. They tend to nest high in the canopy of dominant trees, and place their nests out on a limb. They may use deciduous forests during winter (USDA Forest Service 2000). This bird is a spruce obligate, and this cover type has a limited distribution (21,681 acres or about 2 percent of the Forest landbase) in the Black Hills. Habitat for this kinglet follows the distribution of spruce. Concentrations are located primarily southwest of Lead/Deadwood. White spruce structural stages 4A, 4B, 4C, and 5 are considered high capability summer habitat by the HABCAP model for this species. Currently there are 19,110 acres, representing 1,911 territories (10 acres/pair) available USDA Forest Service 1996). Under the 1997 Revised Forest Plan the extent of this habitat would be 19,873 acres (1,987 potential territories) after 10 years.

The additional direction for marten habitat in this amendment will reduce activities in spruce habitats. This will maintain current spruce level over the next 5 years. As a result, this amendment is not likely to reduce habitat for golden-crowned kinglets over the next 5 years.

Determination: May adversely affect individual golden-crowned kinglets, but is not likely to result in a loss of viability on the Planning Area, nor cause a trend towards federal listing or a loss of species viability range-wide

Purple Martin

The Revised Forest Plan BE (USDA Forest Service 1996, Appendix H) gives a thorough overview of purple martin distribution and life history, and is incorporated by reference. In South Dakota this species is considered a common summer resident in the east, with a few occurrences during spring migration west to the Black Hills (South Dakota Ornithologists' Union 1991). Otherwise, they are absent from the Black Hills. Suitable habitat is available in the Black Hills as open mature stands of ponderosa pine and the ecotone between forests and grasslands/meadows (USDA Forest service 1996). Purple martins are absent from apparently suitable environment over its wide range, including the Black Hills; however, biologists are not sure of the reason (Terres 1991).

Determination: Because purple martins occur in the Black Hills only to a limited extent during migrations, no impacts are expected.

Fox Sparrow

The Revised Forest Plan BE (USDA Forest Service 1996, Appendix H) gives a thorough overview of fox sparrow distribution and life history, and is incorporated by reference. The fox sparrow is associated with riparian areas. It uses fairly dense shrubby areas of mid- to late-succession. Good habitat is often found where streams leave forested habitats and enter meadows (USDA Forest Service 2000). This species is Sensitive to effects of grazing because removal of escape cover or nest camouflage increases its susceptibility to predation (USDA Forest Service 2000).

If riparian and grazing Guidelines are implemented properly, there will likely be adequate residual stubble height and woody plants (USDA Forest Service 2000). This amendment modifies Guideline 3104 to protect habitat for Sensitive plants and animals associated with moist soil conditions. This will improve riparian area management over the next 5 years.

Other protective measures contained in the 1997 Revised plan or modified by the amendment also ensure proper riparian area management. These are:

- In the water influence zone next to perennial and intermittent streams, lakes, and wetlands, allow only those land treatments that maintain or improve long-term stream health.
- Do not degrade ground cover, soil structure, water budgets, or flow patterns in wetlands.
- Vegetative type conversion should only be done in riparian areas to reestablish riparian vegetation for the protection and/or enhancement of those ecosystems.
- As opportunities arise, and need dictates, relocate or implement mitigation measures for roads, trails, watering tanks, ponds, water catchments, and similar facilities currently located within the Water Influence Zone.
- Locate camping sites for contractual purposes (e.g., mining, logging, etc.) such that channel and riparian areas are not impacted.
- Prohibit log landing, decking areas and mechanical slash piling within riparian areas unless the integrity of the riparian area can be protected (e.g., frozen, snow-covered ground conditions).
- Livestock and wild herbivore allowable forage use or residual levels on rangelands by grazing system and range condition are:
  RESIDUAL LEVELS FOR WETLANDS AND RIPARIAN AREAS
  Residual levels (or remaining height of key plant species) can be prescribed for riparian areas in the AMP or the annual letter of operating instructions (AOI) to the livestock permittee. Residual levels will be based upon specific objectives for the location in question and take into account season of use and range conditions. Allowable use and/or residual levels:
    - These Guidelines are for key management species within key grazing areas for range condition classes of satisfactory and unsatisfactory, as determined through a range analysis.

- Proper utilization is dependent upon species of vegetation, intensity of use, and frequency and season of use. These Guidelines are general in nature; they assume typical conditions and are based on key areas being grazed by domestic livestock only once per growing season each year. Different percent utilization may be allowed based on specific resource conditions or special management systems, if documented in an allotment management plan or annual operation instructions.
- Utilization of willow, shrubs, woody vines or young deciduous trees (such as aspen, birch and oak) in any year by livestock or wildlife is limited to browsing only 40 percent of the total individual leaders produced in that year (not to be confused with 40 percent use on each and every leader produced).
- Remove livestock from the grazing unit or allotment when further utilization on key areas in that year will exceed proper allowable use or prescribed residual level in the Forest Plan, AMP, or AOI for either grass and forbs or shrubs.

If riparian and grazing Guidelines are implemented properly, there will likely be adequate residual stubble height and woody plants (USDA Forest Service 2000).

Determination: May adversely affect individual fox sparrows, but is not likely to result in a loss of viability on the Planning Area, nor cause a trend towards federal listing or a loss of species viability range-wide.

Merlin

The Revised Forest Plan BE (USDA Forest Service 1996, Appendix H) gives a thorough overview of merlin distribution and life history, and is incorporated by reference. Merlin habitat can be described as where forest meets grassland, or where meadows/open pine forest complexes reach at least 100 acres (USDA Forest Service 2000). Merlins exhibit high site fidelity to their nesting area, and will usually return to same nest year after year (USDA Forest Service 2000). Habitat in the Black Hills may occur on too small a landscape, and if merlins breed there they may occur in low numbers. The Black Hills may be periphery range for the merlin (USDA Forest Service 2000).

The 1997 revised Forest plan includes an objective to restore the grassland (meadow and prairie) communities across the Forest by 10 percent over 1995 conditions. Direction in the 1997 Revised Forest plan to treat tree encroachment into meadows is likely sufficient for maintaining habitat (USDA Forest Service 2000).

Protection of nest sites is also important. The 1997 Revised Forest plan contains direction to protect active raptor nests. Raptor nests are often inactive for a year or two while alternate nests are used. There is a risk that inactive nests could be lost. This amendment modifies this direction to include protection for all known raptor nests, current or historic. Conversions of mature pine along meadow/prairie edges to younger, smaller structure could reduce the amount of suitable nesting habitat. Ample ecotone

habitat with a mature forest component habitat would be abundant under any of the alternatives

Determination: May adversely affect individual merlins, but is not likely to result in a loss of viability on the Planning Area, nor cause a trend towards federal listing or a loss of species viability range-wide.

Upland Sandpiper

The Revised Forest Plan BE (USDA Forest Service 1996, Appendix H) gives a thorough overview of upland sandpiper distribution and life history, and is incorporated by reference. In the Black Hills, lower elevation prairies, both interior and at the edge of the Forest boundary, are considered suitable habitat (USDA Forest service 1996). This sandpiper nests in tall grass and feeds on insects in short grass (USDA Forest Service 2000). Because large expanses of grassland occur are limited on the Forest, and breeding groups are small and isolated from other populations, the species could be at risk (USDA Forest Service 2000).

Timber harvest activities that increase meadows could be a benefit to upland sandpipers USDA Forest Service 2000). Two activities have potential negative effects – travel management and livestock grazing. Off road vehicle use in meadows could be detrimental to individual upland sandpipers, particularly if wet areas are damaged. Grazing can be beneficial to upland sandpiper habitat if it provides a variety of vegetation heights (USDA Forest Service 2000). Heavy grazing can reduce nesting habitat.

The 1997 Revised Forest plan includes direction that addresses these concerns. Standard 1304 and Guideline 9108 are intended to minimize vehicle damage in riparian areas. Guideline 2502, which encourages rotational livestock grazing, could be applied to provide a mosaic of vegetation heights. These Guidelines are treated as Standards in this amendment. Effects will be limited to individuals, and are not likely to cause a loss in population viability in the next 5 years.

Determination: May adversely affect individual upland sandpipers, but is not likely to result in a loss of viability on the Planning Area, nor cause a trend towards federal listing or a loss of species viability range-wide.

Loggerhead Shrike

The Revised Forest Plan BE (USDA Forest Service 1996, Appendix H) gives a thorough overview of loggerhead shrike distribution and life history, and is incorporated by reference. Habitat is generally brushy, savannah areas with possibly some tree species. It is not very abundant in forested habitats (USDA Forest Service 2000). The species is not common in the Black Hills and suitable habitat probably occurs where pine trees are encroaching into the larger prairies and some mixed-prairie areas in the southern Black Hills (USDA Forest Service 2000).

Literature suggests shrikes prefer habitats with scattered trees within an open landscape. In the Black Hills, this open landscape design rarely exists. Forested stands that lie adjacent to grasslands/prairies, however, may be suitable for Loggerhead Shrikes. Forest-wide, there are 510,918 acres of suitable habitat. Since grassland/prairie communities would be retained under all alternatives, this figure is not expected to change. Without regard to elevation, the better habitats are found on the southern and western edges of the Forest

Removal of encroaching pine in meadows may make some habitat unsuitable, although not enough area would be treated over the next five years to adversely affect shrike populations (USDA Forest Service 2000).

Determination: May adversely affect individual loggerhead shrikes, but is not likely to result in a loss of viability on the Planning Area, nor cause a trend towards federal listing or a loss of species viability range-wide.

Osprey

The Revised Forest Plan BE (USDA Forest Service 1996, Appendix H) gives a thorough overview of osprey distribution and life history, and is incorporated by reference. Because osprey feed exclusively on fish, they are tied closely to large bodies of water (USDA Forest service 1996, USDA Forest Service 2000). Known nests in the Black Hills are adjacent to reservoirs. One is located in a power-pole adjacent to a reservoir.

Two factors have undoubtedly played a role in the recent osprey range expansion into the Black Hills. First, reservoir construction during the past century created lake habitats, which were naturally absent. Second, game fish have been introduced into the streams and reservoirs. Game fish, especially trout species, added to the forage base for osprey. Without these two changes osprey would not be expected to breed in the Black Hills.

The 1997 Revised Forest plan contains direction to protect active raptor nests. The amendment modifies the direction on the 1997 Revised Forest Plan to protect known active or historic nests. Known nests are located near recreation areas where little habitat alteration will occur. Seasonal timing restriction will be used to avoid impacts during active periods on a site-specific basis.

This amendment modifies the snag and large tree requirements in the 1997 Revised Forest Plan. This amendment increases the snag requirements from 1 snag per acre to 2-6 snags per acre, depending on location. Twenty-five percent of the snags should be over 20 inches DBH or of the largest diameter class available. This amendment also requires that sufficient green trees be left to ensure at least 1 large green tree per acre over 20 inches DBH, averaged over the watershed (Guideline 2306). These changes may increase availability of nesting structures by increasing the large tree and snag component near reservoirs.

Determination: May adversely affect individual osprey, but is not likely to result in a loss of viability on the Planning Area, nor cause a trend towards federal listing or a loss of species viability range-wide.

Black Hills Red-bellied Snake

The Revised Forest Plan BE (USDA Forest Service 1996, Appendix H) gives a thorough overview of red-bellied snake distribution and life history, and is incorporated by reference. The Black Hills subspecies is an isolated population, with the nearest population about 300 miles away near Aberdeen, South Dakota (USDA Forest Service 2000). Little data is available specific to the Black Hills. The northern Black Hills likely provides more habitat than other parts of the Black Hills. These snakes are tied to mesic sites such as wetlands, riparian areas, and wet meadows (USDA Forest Service 2000). Stumps and downed wood are also important. Logs maintain moist conditions and as roots decay, they provide cover (USDA Forest Service 2000). Den sites are often in rocky cracks and crevices (USDA Forest Service 2000).

Timber harvest potentially removes habitat by removing down woody material. The 1997 Revised Forest plan contains Standards and Guidelines (2307 and 2308) that maintain at least 50 linear feet of large logs per acre on conifer forested sites after timber harvest. This will likely provide the needed large woody material for red-bellied snakes.

This amendment requires that sufficient down woody debris be maintained in marten habitat or where marten are likely to occur. This amendment also defines the amount of large, downed woody material to be left in areas occupied by marten or with a high potential for occupancy: ten sound logs per acre (8 logs 10 feet long and 10 inches in diameter, and two logs 10 feet long and 20 inches in diameter). This Standard provides for additional large down woody material in marten habitat (Spruce sites), which are normally moist sites suitable for red-bellied snakes as well. This should provide additional measures for maintaining red-bellied snake populations.

One potential threat to these snakes is roads located between hibernacula and moist, wet meadows (USDA Forest Service 2000). Vehicle traffic can kill snakes as they move between the two areas. This amendment contains an additional measure to restrict management activities that create barriers (for example, open roads) between hibernacula and wetlands.

Enhancement of hardwood communities may enhance red-bellied snake habitat (USDA Forest Service 2000). All alternatives contain an objective to increase the hardwood communities.

Determination: May adversely affect individual Black Hills Red-bellied snakes, but is not likely to result in a loss of viability on the Planning Area, nor cause a trend towards federal listing or a loss of species viability range-wide.

Milk Snake

The Revised Forest Plan BE (USDA Forest Service 1996, Appendix H) gives a thorough overview of milk snake distribution and life history, and is incorporated by reference. The milk snake is generally secretive and hard to find. There is little data to describe abundance in the Black Hills. Habitats include moist sand or gravel (glaciated areas) and rocky canyons in ponderosa pine (USDA Forest Service 2000).

A variety of habitats are used by this species including semiarid to damp coastal bottom land to the Rocky Mountains and tropical hardwood forests, open deciduous woodland, meadows, rocky hillsides, prairies, high plains, sand dunes, farmland and suburban areas (Behler and King 1979). Records are scattered throughout the southern half of the state. Although data is lacking, it is possible that the range extends into the western Black Hills as well. Occurrence information is limited most likely due to the lack of inventories, its secretive nature, and nocturnal habits (USDA Forest Service 2000).

The 1997 Revised Forest Plan and the amendment alternatives contain no direction specifically for milk snakes. Direction that benefits the Red-bellied snake, such as down woody material requirements, will also likely benefit the milk snake. Ground disturbing activities are not likely to occur on typical habitats such as rocky canyons. Mining may affect some individuals, but is not likely to occur on a scale that would affect population status.

Hardwood and prairie/meadow restoration may be beneficial to this snake. Both would produce greater understory biomass enhancing habitat for the snakes and their invertebrate prey. At the Forest level, habitat would not change substantially under any alternative. All alternatives contain an objective to increase the hardwood communities.

Determination: May adversely affect individual milk snakes, but is not likely to result in a loss of viability on the Planning Area, nor cause a trend towards federal listing or a loss of species viability range-wide.

Northern Leopard Frog

The Revised Forest Plan BE (USDA Forest Service 1996, Appendix H) gives a thorough overview of leopard frog distribution and life history, and is incorporated by reference.

The following information is taken from recent interview of amphibian experts (USDA Forest Service 2000). Leopard frogs over-winter in permanent water that does not freeze solid. Historically, these frogs were likely most abundant in small ponds and lakes without fish. Loss of beaver ponds has likely reduced the availability of leopard frog breeding habitat. With this loss, frogs have moved from beaver ponds into stock ponds. Water catchments without predatory fish often have numerous frogs. These frogs may have historically occupied streams and associated ponds, but they do not reproduce well in moving water. Historically, before non-native predatory fish were introduced, predation on leopard frogs may have been limited. Leopard frogs can co-exist with predatory fish only if the fish are not abundant, and if shallow water is available.

Wetlands/riparian areas play an essential role throughout the year. Historically, habitat in the Black Hills would have been the abundant riparian beaver dam complexes. The number of beaver dam complexes in the Black Hills has been reduced substantially in the last century (Parrish et al. 1996). Pond habitats seem to be the preferred habitat for leopard frogs. However, a study in Nebraska (Lynch 1978) pointed out the value of riverine habitats as well. They commonly bred in slow moving backwaters, depositing egg masses behind debris or sandbars in swift streams. These conditions occur in Black Hills streams where coarse woody debris, depositional bars, and boulder groups create slackwater in streams.

The 1997 Revised Forest Plan includes Standards and Guidelines (1301 – 1306) for managing riparian areas and wetlands. These Standards and Guidelines allow only those treatments that maintain or improve long-term stream health, and protect the integrity of riparian areas and wetlands. Standard 1304 encourages relocating or implementing mitigation measures for roads, trails, watering tanks and similar facilities currently located within the water influence zone. Impacts over the next five years are expected to be neutral or slightly negative (USDA Forest Service 2000). Negative effects are possible because water catchments are not normally included in the riparian and wetland definitions. The Forest will likely still have frogs in five years, but if there is not adequate protection for water catchments and ponds there could population declines (USDA Forest Service 2000). Negative effects could be greater if a major drought period followed heavy riparian grazing (USDA Forest Service 2000).

This amendment modifies Standard 1304 to include water catchments as suggested in the expert interviews (USDA Forest Service 2000).

Determination: May adversely affect individual leopard frogs, but is not likely to result in a loss of viability on the Planning Area, nor cause a trend towards federal listing or a loss of species viability range-wide.

Tiger Salamander

The Revised Forest Plan BE (USDA Forest Service 1996, Appendix H) gives a thorough overview of tiger salamander distribution and life history, and is incorporated by reference.

Tiger salamanders are amphibians that inhabit both upland and aquatic habitats during their life cycle. They are found in a variety of situations from sea level to 11,000 feet where the substrate is conducive to burrowing (Gehlbach 1967). This species is found throughout the Black Hills up to about 6,900 feet elevation (USDA Forest Service 1996). As adults, they are restricted to moist microhabitats such as leaf litter and coarse woody material (Cohn 1994). Ponds, springs, reservoirs and slower moving streams were suitable breeding habitat in the Black Hills. Historically in the Black Hills, tiger salamanders and other amphibians probably depended to a large degree on stream habitats and associated beaver dam complexes, and natural springs, because there were

no natural lakes (USDA Forest service 1996). Currently, because adults are dependent on mesic conditions, the best habitats in the Black Hills are probably along riparian margins, and upland quaking aspen and white spruce stands.

The following information is taken from recent interview of amphibian experts (USDA Forest Service 2000). Tiger salamanders are frequently found in the same habitats as leopard frogs. Salamander habitat is generally drier and does not always include permanent water. Breeding sites for salamanders include ponds, temporary waters, or any sort of non-flowing system where water is present for six to eight weeks. They seem to require deep water and have been observed using ponds lined with bentonite. It is not likely that they use waters containing predatory fish. Adult tiger salamanders spend most of their lives underground, and emerge infrequently, mainly on wet nights. They do not excavate their own burrows, but instead use passageways of other small mammals. They can often be found in prairie dog towns.

Measures that benefit leopard frogs will likely benefit tiger salamanders as well. Effects are expected to be similar to those of the leopard frog. The 1997 Revised Forest Plan includes Standards and Guidelines (1301 – 1306) for managing riparian areas and wetlands. These Standards and Guidelines allow only those treatments that maintain or improve long-term stream health, and protect the integrity of riparian areas and wetlands. Standard 1304 encourages relocating or implementing mitigation measures for roads, trails, watering tanks and similar facilities currently located within the water influence zone. This amendment modifies Standard 1304 to include water catchments as suggested in the expert interviews (USDA Forest Service 2000).

Determination: May adversely affect individual tiger salamanders, but is not likely to result in a loss of viability on the Planning Area, nor cause a trend towards federal listing or a loss of species viability range-wide.

Tawny Crescent Butterfly

The Revised Forest Plan BE (USDA Forest Service 1996, Appendix H) gives a thorough overview of tawny crescent butterfly distribution and life history, and is incorporated by reference.

In South Dakota this butterfly is restricted to the Black Hills region. The disjunct Black Hills population is likely isolated from conspecifics in North Dakota and Nebraska (USDA Forest Service 1996). The tawny crescent tends to be colonial and is typically found in stream bottoms along the transition zone between deciduous and coniferous forests of the Black Hills (Royer and Marrone 1992). Adults are attracted to exposed moist soils. Adults feed on the nectar of *Aster* spp. and dogbane (*Apocynum spp*), with a preference for *Aster simplex.* Management to conserve habitats should protect the integrity of springs, streams and adjacent habitats (Royer and Marrone 1992). Specifically, spring and stream flows should be maintained or enhanced to provide requisite moist environments (Moffat and McPhillips 1993).

The following information is taken from recent interview of butterfly experts (USDA Forest Service 2000). The tawny crescent butterfly is associated with riparian areas. Black Hills has a disjunct population of the Lakota subspecies, whose main range is in southern Canada. The tawny crescent's preferred habitat (montane, mesic meadows with a conifer component) has decreased in abundance since the Forest was established. The main causes of this are tree encroachment into meadows, and the resultant decrease in available water.

Clearcut logging will not be practiced within riparian areas nor be of sufficient magnitude to impact this species Forest-wide. Treatments that remove pine encroachment into wet meadows will likely benefit the species (USDA Forest Service 2000).

Grazing has the highest potential to impact these butterflies. Treating the riparian Guidelines as Standards in this amendment would likely benefit the butterfly (USDA Forest Service 2000).

This amendment modifies Guideline 3104 to protect habitat for Sensitive plants and animals associated with moist soil conditions. Other protective measures contained in the 1997 Revised plan or modified by the amendment also ensure proper riparian area management. These are:

- In the water influence zone next to perennial and intermittent streams, lakes, and wetlands, allow only those land treatments that maintain or improve long-term stream health.
- Do not degrade ground cover, soil structure, water budgets, or flow patterns in wetlands.
- Vegetative type conversion should only be done in riparian areas to reestablish riparian vegetation for the protection and/or enhancement of those ecosystems.
- As opportunities arise, and need dictates, relocate or implement mitigation measures for roads, trails, watering tanks, ponds, water catchments, and similar facilities currently located within the Water Influence Zone.
- Locate camping sites for contractual purposes (e.g., mining, logging, etc.) such that channel and riparian areas are not impacted.
- Prohibit log landing, decking areas and mechanical slash piling within riparian areas unless the integrity of the riparian area can be protected (e.g., frozen, snow-covered ground conditions).
- Livestock and wild herbivore allowable forage use or residual levels on rangelands by grazing system and range condition are:
  RESIDUAL LEVELS FOR WETLANDS AND RIPARIAN AREAS
  Residual levels (or remaining height of key plant species) can be prescribed for riparian areas in the AMP or the annual letter of operating instructions (AOI) to the livestock permittee. Residual levels will be based upon specific objectives for the location in question and take into account season of use and range conditions. Allowable use and/or residual levels:
    - These Guidelines are for key management species within key grazing areas for range condition classes of satisfactory and unsatisfactory, as determined through a range analysis.

- Proper utilization is dependent upon species of vegetation, intensity of use, and frequency and season of use. These Guidelines are general in nature; they assume typical conditions and are based on key areas being grazed by domestic livestock only once per growing season each year. Different percent utilization may be allowed based on specific resource conditions or special management systems, if documented in an allotment management plan or annual operation instructions.
- Utilization of willow, shrubs, woody vines or young deciduous trees (such as aspen, birch and oak) in any year by livestock or wildlife is limited to browsing only 40 percent of the total individual leaders produced in that year (not to be confused with 40 percent use on each and every leader produced).
- Remove livestock from the grazing unit or allotment when further utilization on key areas in that year will exceed proper allowable use or prescribed residual level in the Forest Plan, AMP, or AOI for either grass and forbs or shrubs.

Riparian Standards and Guidelines will provide adequate protection if implemented properly (USDA Forest Service 2000).

Determination: May adversely affect individual tawny crescent butterflies, but is not likely to result in a loss of viability on the Planning Area, nor cause a trend towards federal listing or a loss of species viability range-wide.

Regal Fritillary

The Revised Forest Plan BE (USDA Forest Service 1996, Appendix H) gives a thorough overview of regal fritillary distribution and life history, and is incorporated by reference. In the Black Hills, the best habitats occur in lower elevation prairies along the outer Forest boundary, and in interior prairies, although tall grass prairies are not predominant in the latter. Two records come from the Black Hills area: Custer State Park in 1946 and Fort Meade Recreation Area in 1985 (Royer and Marrone 1992). The regal fritillary requires open prairies (Royer and Marrone 1992). It is a strong disperser among suitable habitats, unless prairie patches are separated by impassable barriers such as forests (Schweitzer 1995). It has been estimated for the Dakotas that at least 1,000 acres of continuous prairie are required for stable populations. In smaller patches individuals will move in and out depending upon habitat condition (Royer and Marrone 1992).

The following information is taken from recent interview of butterfly experts (USDA Forest Service 2000). The regal fritillary is a strong flyer, so it can travel long distances to areas where populations are not established. As long as grasslands with violets are present, the butterfly could colonize the area. The Black Hills are at the western margin of the butterfly's range, possibly due to increased aridity farther west. The regal fritillary is a grassland species with little naturally occurring habitat in the Black Hills, and because of this, the species may periodically disappear and reappear here.

The 1997 revised Forest plan includes an objective to restore the grassland (meadow and prairie) communities across the Forest by 10 percent over 1995 conditions. Activities that result in prairie and meadow enhancement would likely benefit the regal fritillary (USDA Forest Service 2000). The overall effect of timber harvest is expected to be neutral because this butterfly's association with grassland communities. Adverse impacts from grazing are not expected unless extreme overgrazing occurs (USDA Forest Service 2000). Current grazing management is designed to avoid overgrazing on the Forest. Egg masses are largely protected from grazing because they are present mostly when livestock are not on the Forest (USDA Forest Service 2000).

Properly timed prescribed burns can be very helpful in enhancing long-term prairie conditions by increasing grass and forb cover. Short-term, negative effects could include burning of egg masses. Because of this potential, treating Guideline 3105 ("consider...regal fritillary butterflies prior to burning on prairies or meadows") as a Standard under this amendment would lead to neutral effects rather than negative effects (USDA Forest Service 2000).

Determination: May adversely affect individual regal fritillaries, but is not likely to result in a loss of viability on the Planning Area, nor cause a trend towards federal listing or a loss of species viability range-wide.

Snails

Cooper's Rocky Mountain Snail
Striate Disc

The Revised Forest Plan BE (USDA Forest Service 1996, Appendix H) gives a thorough overview of Cooper's Rocky Mountain snail and striate disc distribution and life history, and is incorporated by reference.

The following information comes from the work of Frest and Johannes (1993) in the Black Hills. Habitat consists of calcareous soils developed on the Pahasapa Limestone, but also the Ordovician Whitewood Formation in lower Spearfish Canyon. They were not found in the gypsum or anhydrite-bearing outcrops (Minnelusa Formation and Minnekahta Limestone) even though these are calcareous derived.

Most sites were lowland wooded areas and talus slopes, generally but not always, north- or east-facing slopes. Most colonies were found in partially closed-canopied ponderosa pine stands with a secondary deciduous component and a diverse understory. White spruce was common at some sites. Riparian woodland colonies were often adjacent to steep, rocky slopes.

In relation to other land snails, *Oreohelix* can thrive with little cover and thin litter. Floodplains above the normal high water mark are excellent habitat. This and other congeners tend to avoid moist areas. Forage consists of partially decayed deciduous leaves and degraded herbaceous material. Under suitable circumstances, it is found on downed wood, tree trunks (up to 28" high) and limestone talus.

The striate disc is often found on relatively undisturbed forested sites with minor insolation, grazing, and logging pressure. None of the sites were immediately adjacent to roads. As with the Cooper's Rocky Mountain Snail, colonies appear to be negatively impacted by road construction, grazing, logging, herbicides, pesticides, and major forest fires. No colonies were located in areas heavily grazed or completely logged. Mining can affect snails either through the clearing of vegetation or via toxic leachates. Conversions of white spruce to ponderosa pine would reduce the natural boreal diversity and adversely affect this snail.

Most of the snail species are effectively sessile, with individuals having limited abilities to make long movements. Consequently, they respond quickly and obviously to disturbances. No colonies were located in areas heavily grazed or completely logged. Colonies appear to be negatively impacted by road construction, grazing, logging, herbicides, pesticides, and major forest fires. Mining can affect snails either through the clearing of vegetation or via toxic leachates. Conversions of white spruce to ponderosa pine would reduce the natural boreal diversity and adversely affect this snail.

Timber harvest, especially clearcuts, can be a threat to colonies. Specifically, clearcuts increase insolation, remove ground cover, have a wider range of extreme ground temperatures, reduce microsite humidity, and decrease community diversity. Patch cuts and limited coppicing may be appropriate if rotations allowed for migration of surrounding populations. Overstory removals may increase insolation to the point that colonies may not survive. Dog-hair ponderosa pine is a threat to snail colonies because of the susceptibility to intense fires, so judicious thinning is recommended for vulnerable colony sites.

The following information is taken from recent expert interviews (USDA Forest Service 2000). These snails are found in mesic environments, next to riparian communities, on calcareous soils and north-facing slopes. They are associated with mesic forest floors because they cannot effectively regulate body fluids, and are susceptible to desiccation. There is a lot of uncertainty surrounding these land snails. There is considerable habitat in the Northern Hills that appears to be suitable for striate disc, but no colonies are present. The striate disc is fairly widely distributed in the western U.S., and the Black Hills populations are at the northeast edge of its range. The Black Hills population is the only one to overlap with the fossil record, indicating a shift towards the West. McDonald felt that the Rocky Mountain snail is endemic to the Black Hills and Forest management activities could have a more significant impact on this species.

There is little precedence for mitigation, but it may be possible and worth attempting if a core number of sites are conserved (Frest and Johannes 1993). In the 1997 Revised Forest plan, habitat will be conserved at the snail "species of special concern" colonies identified by Frest and Johannes in their 1993 report (Standard 3103). This includes the Sensitive snail species. .

In this amendment, Standard 3103 is modified to ensure that all known colonies of snails 'of special concern' are protected from adverse effects of livestock use and other management. The word "protected" generally infers that the area would be deferred from timber harvest and/or fenced from livestock grazing, recreation, or other activities. Colonies would be protected such that activities would not occur on those sites. Known colonies include all the colonies identified in the Frest and Johannes 1993 report and the subsequent report expected in 2001. It also includes all snail "species of special concern" identified in the 1993 report. At least three of these species merit attention (USDA Forest Service 2000). Unknown colonies may still be affected, but the overall population would be maintained over the next 5 years.

Determination: May adversely affect individual Sensitive snails, but is not likely to result in a loss of viability on the Planning Area, nor cause a trend towards federal listing or a loss of species viability range-wide.

Plants

Review of the Alternatives for Sensitive Plant Species

ALTERNATIVE 1: The 1997 Revised Forest Plan applied as written. The October 12, 1999 Appeal Decision found that the Revised Plan did not fully meet all aspects of the intent and requirements of the NFMA and its implementing regulations at 36 CFR 219 with regard to the diversity of plant and animal communities, and species viability. In addition, no weed Management Objectives, Standards or Guidelines for noxious weeds that specifically address their impacts on Sensitive plants or their habitats were included in the 1997 Revised Plan. With respect to Sensitive plant species, neither the indirect nor the cumulative effects of livestock grazing; Standards relating to range that specifically address the control of noxious weeds in allotments; nor the effects of noxious weed control measures were adequately considered.

Under the No Action alternative, Management Objectives and Management Area emphases for Sensitive plants and their habitats would be conducted according to the Standards and Guidelines currently described in the 1997 Revised Forest Plan. Alternative 1 would provide the lowest level of protection of the three alternatives for Sensitive plant species and Botanical Areas. The following existing management direction would apply to all Sensitive plant species and their habitats:

- Sensitive species habitats and Botanical Areas are to be conserved or enhanced (Management Objectives 216 and 221).
- The health of watersheds, soils, organic ground cover, and related ecosystem processes are to be protected from adverse impacts due to road construction and other site disturbing activities (Management Objective 104, Standards 1103, 1105, 1106 and 1112, Guidelines 1102, 1104 and 1108).
- Impacts to groundcover and resulting runoff, and sediment discharge due to ground disturbing activities are to be minimized (Standards 1112 and 1113, Guideline 1115).
- Rangeland condition should be managed to achieve satisfactory conditions within allotments based upon the species in question, site-specific analyses, location and seasonality (Management Objective 302, Guidelines 2501, 2504 and 2505).
- Threats from weed infestation and weed control treatments on Sensitive plants and their associated species are to be minimized and mitigated (Management Objectives 230-232, Standards 4301, 4306 and 4307, Guidelines 4302-4305).
- Negative recommendations or consent denials may be made where minerals exploration and extraction activities would be detrimental to the viability of Sensitive plant populations or their habitats (Guideline 1516).
- Sensitive plant species, among other species of concern, are to be protected from animal damage (Standard 3214).
- Sensitive plants and their habitats should be protected from the adverse impacts of trail, road or highway construction through mitigation or avoidance (Guideline 3107).

- Sensitive species located after contract or permit formation must be protected and appropriately managed (Standard 3115).
- In the Black Elk Wilderness, natural plant communities and successional processes are to be protected and conserved using measures that consider management at the landscape-scale and mitigation of noxious weeds (Standard 1.1A-2101, Guidelines 1.1A-2103, 1.1A-2502 and 1.1A-4301).
- Unique biological features in Botanical Areas, Spearfish Canyon, and developed recreation complexes are to be protected (Management Objective 3.1-201, Standards 3.1-1001, 4.2A-2101 and 8.2-2104).

ALTERNATIVE 2: Incorporates the interim direction provided in the October 12, 1999 Appeal Decision designed to reduce the level of risk and uncertainty regarding the health of the land, watersheds, and plant and animal species while maintaining management options during the re-analysis period. Environmentally protective Guidelines would be treated as Standards under both Alternatives 2 and 3. Alternative 2 direction would provide increased levels of protection for Sensitive plants and their habitats through: restrictions to livestock grazing and related range management activities in designated Botanical Areas and Sensitive plant locations; added protection for Sensitive plants from noxious weeds and weed treatments; and fewer miles of road construction and an associated reduction in noxious weed introduction from Alternative 1 due to a reduction in timber harvest. There is little difference between the three alternatives regarding fire and fuels management.

In addition, under Alternatives 2 and 3, management for occupied American marten habitat, high potential habitats and connectivity areas (as defined in Chapter 2, Table 2-2) would maintain larger patch sizes of late-succession white spruce forest through a decrease in vegetation treatments in these areas. The long-term effects of management for high quality marten habitat could be either positive or negative for Sensitive plant species that occur in boreal spruce/birch or boreal riparian habitats (i.e. *Carex alopecoidea, Equisetum scirpoides*, *Lycopodium complanatum, Platanthera orbiculata* and *Sanguinaria canadensis*). However, these Sensitive plant species' habitat requirements do not directly correspond with marten habitat (USDA Forest Service 2000). Although protective measures for marten may result in additional protection for existing plant populations in the short-term, the resulting trend toward closed-canopy structural stages and exclusion of the disturbances that create new habitats for these species (i.e. hardwood restoration activities and fire-induced birch regeneration) could have short- and/or long-term adverse affects on birch-associated Sensitive plant species. Further evaluation of the effects of marten habitat management on Sensitive plants is recommended (USDA Forest Service 2000). The density of spruce would likely be maintained at current levels during the interim period.

Under Alternative 2, the following additional direction would likely be more protective for Sensitive plants and/or their habitats:

- Treatment of Guideline 1104 as a Standard would require that soil compaction due to ground disturbing activities be minimized, which would be more protective for all plant species, including Sensitive plants, by reducing impacts to soils, ground-cover, and individuals (USDA Forest Service 2000).

- Treatment of Guidelines 2107, 2201, 2202, 2411, 4105 and 1.1A-2103 as Standards would be beneficial to Sensitive plant species (USDA Forest Service 2000) through management of their habitats at the landscape scale.

- Treatment of Guidelines 3106, 3107, 9107, 9108, 9201, 9202 and 1.1A-9103 as Standards may provide more protection for all Sensitive plant populations from impacts associated with road and trail construction, and off-road travel.

- Treatment of Guidelines 3106, 3107 and 4302 as Standards may provide increased protection for all Sensitive plant species by identifying and mitigating noxious weed introduction and spread.

- Treatment of Guidelines 4304 (" Treat individual plants or groups of plants...") and 4305 ("Apply chemical agents at the lowest effective rates...") as Standards would be beneficial to Sensitive species because it would control herbicide application more closely (USDA Forest Service 2000).

- Treatment of Guideline 1516 ("negative recommendations or consent denials will be based on consideration of ... the habitat of individual plant or animal species identified as needing special management...") as a Standard would provide more protection for Sensitive plant species (USDA Forest Service 2000) from the adverse effects of minerals exploration and extraction.

- Revised Standard 2308 would increase the amount of down woody material (DWM) left on site in spruce and pine harvest areas to maintain micro-climate sites and prey habitat for American marten; and new Standard 3215 would require the maintenance of patch sizes of late successional forest in marten habitats, restrict road building in high potential habitat, and restrict thinning in connectivity corridors. Implementation of these Standards may have indirect benefits for Sensitive plant species.

- New Standard 3114 would create structurally diverse stands within northern goshawk post-fledging family areas (approximately 420 acres around 180-acre nest stands) and maintain a historic distribution of structural stages in potential habitats in Ponderosa pine forest, with a trend towards mature structural stages. These activities are not likely to impact Sensitive plant populations and may be beneficial by mimicking natural disturbance and succession regimes, provided that natural successional patterns are allowed to take place (USDA Forest Service 2000).

- New Standard 3.1-2503 ("Protect Sensitive plant populations in designated Botanical Areas from adverse impacts of domestic livestock grazing") would be more

protective for Sensitive plant populations, where livestock may be excluded until Sensitive species surveys have been performed and appropriate mitigation is in place.

The following direction was not considered protective for Sensitive plants by the scientific experts (USDA Forest Service 2000):

- Treatment of Guideline 1202 ("move stream channels only if all other practical alternatives to protect critical resources...") as a Standard would not be more protective for Sensitive plants, where it allows alteration of the landscape (USDA Forest Service 2000).

- Where Guideline 1303 ("vegetative type conversion should only be done in riparian areas to re-establish riparian vegetation for the protection and/or enhancement of those ecosystems") is treated as a Standard, the impacts to Sensitive plant species could be positive or negative, depending on what is done and where (USDA Forest Service 2000).

- Guideline 3.7-2101 ("applicable management activities should replicate biological processes...and strive to replicate natural vegetative patterns and patch size") would not be treated as a Standard under Alternatives 2 and 3, as it was determined to not allow "the range of natural variability desired in the late succession landscape" (USDA Forest Service 2000).

ALTERNATIVE 3: Incorporates interim direction measures from Alternative 2 with refinements for the conditions found on the Black Hills as identified in the Expert Interviews (USDA Forest Service 2000). The scientific experts evaluated the level of risk posed by management activities for Sensitive plant species and their habitats and the resulting recommendations were incorporated into Alternative 3. In addition to treatment of environmentally protective Guidelines as Standards, Alternative 3 is intended to result in a greater reduction of risk to species viability through direction that would address specific Sensitive species concerns. New and revised Standards and Guidelines under Alternative 3 are designed to further reduce risks to Sensitive plant species viability through: restrictions on livestock use of riparian areas and hardwood communities; added protection of Sensitive plants associated with moist soil conditions; and added protection of Sensitive plant populations and their habitats during road, trail and highway construction.

Timber management is generally not considered to be a direct threat to Black Hills Sensitive plant populations as they primarily occur in boreal and riparian habitats, however, the ground-disturbing activities associated with logging should be considered highly impactful (USDA Forest Service 2000). Management for northern goshawk under Alternative 3 may result in an increase in the miles of roads and acres treated, which could potentially negatively affect all Sensitive plant species. Timber harvest would be most likely to directly impact *Corallorhiza odontorhiza*, and *Botrychium campestre* due to their presumed association with pine habitats; however, neither the species'

distributions in the Hills, nor the effects of timber management on *B. campestre* and *C. odontorhiza*, nor are currently known (USDA Forest Service 2000).

Livestock grazing and trailing in riparian areas and birch bottoms was identified as a concern for seven of the thirteen Sensitive plant species addressed in the Expert Interview Summary (USDA Forest Service 2000). Noxious weed invasions were considered a serious threat for most of the Sensitive plant species addressed, particularly for those found in riparian areas and wetlands due to the concentration of livestock grazing, travel, recreation and other management activities in these habitats.

The effects of management for American marten habitat on Sensitive plant populations are not currently known and could be detrimental. For this reason, it was recommended that spruce expansion for marten habitat be evaluated for its effects on *Platanthera orbiculata* habitat, which could be limited or impaired due to reductions in hardwood expansion activities (USDA Forest Service 2000).

In addition to the direction provided in Alternative 2 and treatment of environmentally protective Guidelines as Standards, Alternative 3 contains the following new and revised Standards and Guidelines applicable to Sensitive plant species and their habitats:

- Revised Standard 1304 expands the aquatic environments included in the Water Influence Zone, which could be more protective for Sensitive plant species associated with these habitats.

- Revised Guidelines 2207 and 3104 would increase the level of protection for Sensitive plant populations located in hardwood communities, riparian areas, wetlands and drainage bottoms from the impacts of water structures and associated livestock and wildlife activity.

- Revised Guideline 3107(a) strengthens direction requiring the use of one or more mitigation measures to protect Sensitive plants or their habitats during and after road, trail or highway construction.

- New Guidelines 3114-a and 3114-b would further enhance goshawk fledging and prey habitats through the creation of a balance of structural stages across the ponderosa pine forested portion of the landscape that would result in a more historic distribution of forest structural types across the forest. This direction could provide indirect beneficial effects for sensitive plant species, particularly for those that may occur in pine habitats (i.e. *Botrychium campestre* and *Corallorhiza odontorhiza*). However, this direction is accompanied by an increase in timber harvest and potential increase in road construction and noxious weed introduction.

- Marten habitat management would be the same as in Alternative 2, with the addition of new Standard 3117, which would require that woody material be retained (1.3 piles/hectare) in timber harvest areas adjacent to potential marten habitat. This

direction could impact individuals and/or mitigate negative effects on Sensitive plants by providing protected micro-sites.

- New Standard 8.2-9106 would provide additional protection for botanical resources at Cascade Springs/Creek from adverse impacts of road and trail construction.

THE SELECTED ALTERNATIVE, ALTERNATIVE 2 AS MODIFIED: Incorporates the new and revised Standards and Guidelines under Alternative 3 with northern goshawk direction (New Guideline 3114) from Alternative 2. Alternative 2 As Modified would likely provide a lower level of risk than any of the three alternatives for Sensitive plant species by incorporating fewer miles of roadwork and fewer acres treated under Alternative 2 goshawk direction with the more protective management direction under Alternative 3.

Evaluation of the Selected Alternative for Sensitive Plant Species

Species' distributions and natural histories presented here include only the details and/or new information relevant to the evaluation of the effects of the management alternatives on Black Hills' Sensitive plant species. See the 1997 Revised Forest Plan FEIS Appendix H for additional species information.

Adenocaulon bicolor *(American Trailplant)*

Arnica lonchophylla *(Northern Arnica)*

Carex intumescens *(Greater Bladder Sedge)*

Carex pedunculata *(Long-stalk Sedge)*

Lycopodium dendroideum *(Tree-like Clubmoss)*

Due to more abundant and widespread distributions than previously believed, and the apparently limited effects of management activities upon them, the five species listed above have been determined to no longer merit status on the Region 2 Sensitive Species list by state and regional authorities (Black Hills Sensitive Plant Task Team 2000). For this reason, the scientific experts did not address these species in the Expert Interviews (USDA Forest Service 2000), and the effects of the Selected Alternative on them are not evaluated here.

Determinations

Based upon the above rationale that these five species no longer merit Sensitive species ranking in Region 2, for the proposed alternative, a determination of "May adversely impact individuals, but not likely to result in a loss of viability on the Planning Area, nor cause a trend to federal listing or a loss of species viability range-wide" is made for: *Adenocaulon bicolor* (American Trailplant), *Arnica lonchophylla* (Northern Arnica),

Carex intumescens (Greater Bladder Sedge), *Carex pedunculata* (Long-stalk Sedge), and *Lycopodium dendroideum* (Tree-like Clubmoss).

Adiantum capillus-veneris *(Southern Maidenhair Fern)*

Species Distribution

The species is closely tied to warm, calcareous waters throughout the northern part of its range, wherein the Black Hills population is disjunct and isolated from occurrences in Colorado, Canada and its more southerly distribution (Lellinger 1985; USDA Forest Service 2000). The closest sources for dispersal to the Black Hills are in southwestern Colorado and British Columbia. Like other populations in the northern portion of the species' range, it is associated with a series of warm springs. This population of southern maidenhair fern at Cascade Springs and south along Cascade Creek to Cascade Falls has been known for 100 years, since Bessey's observation in the late 1800s (Bessey 1898). Southern maidenhair fern has likely never occurred at other spring habitats in the Black Hills, with the possible exception of uppermost Hot Springs (USDA Forest Service 2000).

Natural History

In the northern portion of its range, this species requires the climate moderating effect of a constant flow of warm water, as is found at Cascade Springs, which serves to provide enough warmth to prevent lethal freezing of the plants during winter months. For this reason, the species is unlikely to occupy additional habitats in the Black Hills. Because the species reproduces vegetatively (as well as by aerially-borne spores) it may stabilize soils through dense rhizomatous growth; a characteristic that also makes it difficult to determine the actual number of individuals at a given location. Distribution patterns and observations at Cascade Springs and Cascade Falls suggest that the species may colonize new habitats when clumps of the plant are dislodged and become established downstream. Site disturbance likely includes seasonal or episodic flooding of shore-line habitats.

Evaluation of the Selected Alternative for Adiantum capillus-veneris

The only habitat for southern maidenhair fern on the Forest is associated with the warm water springs at Cascade Springs and downstream habitats. Because its local and regional distribution coincides with *Epipactis gigantea*, the effects of management activities on these two species and evaluation of Alternative 2 As Modified are treated together (page 45).

Epipactis gigantea *(Stream Orchid)*

Species Distribution

The species' distribution in the Black Hills is limited to Cascade Springs and portions of Cascade Creek on adjacent private and Nature Conservancy (TNC) property. Monitoring conducted in June 2000 revealed that the population at the 10-acre Cascade Springs site is larger and more widely distributed than previous reports indicated. Stream orchid is strongly associated with the distribution of *Adiantum capillus-veneris* at the site, which was first documented at Cascade Springs in 1898 (Bessey 1898). However, the earliest record of *Epipactis gigantea* at Cascade Springs is from 1929, and it is not known if stream orchid occurred there prior to the springs' development or at other commercially developed springs in the area. At present, stream orchid occupies nearly all suitable habitats at J. H. Keith Cascade Springs Memorial Park: from just below the uppermost spring to the slopes above the first culvert on SD highway 17. The species also occurs downstream along Cascade Creek on private property and within the recently established TNC Whitney Preserve (Ebbert, pers. comm., Nov. 13, 2000).

Natural History

The species is an obligate colonizer (Brunton 1986) that apparently prefers the open, early successional flood bench habitats along the creek and other moist, open areas associated with the springs, creek side slopes and sedge meadows at Cascade Springs. The continuous flow of spring water at a constant, year-round temperature moderates the climate in and around Cascade Springs: a quality essential to the survival of *E. gigantea* in this portion of its range, where it is rarely found far from an immediate warm or hot spring area (Mantas 1993; Marriott 1991a). Limestone walls and pools from the site's development around the turn of the century may provide a calcareous substrate in addition to any minerotrophic quality the water already has.

Effects of Management Activities on **Adiantum capillus-veneris** *and* **Epipactis gigantea**

A. capillus-veneris and *E. gigantea* occur at Cascade Springs and *A. capillus-veneris* at Cascade Falls, both developed recreation areas (M.A. 8.2). The constant warm water flow from Cascade Springs is essential to the occurrence of both species in the Black Hills, but is apparently not affected by local surface modifications, due to its deep source that originates in Hell Canyon (Hayes 1999). Beyond any hydrologic modification, ongoing recreational use and noxious weed invasion are likely the most significant threats to these species, since both Cascade Springs and Cascade Falls were donated to the USDA Forest Service with the requirement that they be maintianed for public use. As a result, the species' habitats are subject to heavy recreational use including fishing, swimming and picnicking, wherein human trampling of stream banks and streamside riparian areas has the potential to adversely affect the viability of populations of *A. capillus-veneris* and *E. gigantea*. The species are located along the water's edge, where trampling, bank destabilization, weed control and mowing are of concern, and about 50% of the habitat is affected (USDA Forest Service 2000). Swimming could potentially impact both species due to the fragility of stream bank soils and presence of Sensitive species populations along stream banks within and adjacent to Cascade Springs and Cascade Falls (USDA Forest Service 2000). However, both species have persisted

during periods of heavy human use, which might suggest that disturbance is not detrimental (USDA Forest Service 2000; Reyher pers. comm., Dec. 21, 2000). Southern maidenhair fern may colonize disturbed habitats very quickly, and although the response of *E. gigantea* is not known, it is suspected to be able to rapidly colonize streamside habitats as well (Williams 1990).

Erosion and noxious weed invasion at Cascade Springs and along Cascade Creek are of immediate concern and the need for language addressing integrated pest management within existing noxious weed Standards was identified by the scientific experts (USDA Forest Service 2000). Sensitive plant populations are threatened by *Eleagnus angustifolia* (Russian olive) and *Cirsium arvense* (Canada thistle) at both sites, and by *Tamarix ramosissima* (salt cedar) at Cascade Falls, and these weedy invaders could potentially overgrow streamside habitats if left unchecked. Periodic disturbance of the riparian canopy and/or removal of invasive woody species may be required to maintain existing habitats and to provide new sites for colonization by *E. gigantea* and *A. capillus-veneris*. Although not yet documented at Cascade Springs, the aquatic invader purple loosestrife (*Lythrum salicaria*) occurs in the Black Hills and should be considered a serious threat to the health and viability of these Sensitive species and their habitats at Cascade Springs and Cascade Falls. It is not clear how weed control activities may affect these species, and the aggressive herbicide treatments required for noxious weed species like leafy spurge would likely be detrimental (USDA Forest Service 2000). Because of the extreme rarity of the springs and downstream habitats, noxious weed invasions and heavy recreational use should be considered detrimental, at least until such time as these species' response to disturbance is better understood. Continued monitoring is needed to identify and prevent negative effects on known occurrences (USDA Forest Service 2000).

The Nature Conservancy (TNC) recently purchased a large portion of the private land surrounding the Cascade Creek drainage between both of the BHNF administered sites where the species occurs: J. H. Keith Cascade Springs Memorial Park and J. H. Keith Cascade Falls. This land contains additional occurrences of both *E. gigantea* and *A. capillus-veneris* and will likely provide additional and/or improved habitats for these species. A cooperative weed management program was implemented in 2000 by the Fall River Ranger District, Nebraska National Forest on both Forest Service and TNC administered lands in Cascade Valley.

Cumulative effects on the species populations and habitats from recreational use of the sites and noxious weed infestation are expected to continue at both sites due to the requirement for public access and the vulnerability of riparian habitats to noxious weed invasion. Impacts due to construction of state highways and trails are expected to be minimal due to recent reconstruction of SD 71 and paving of trails at Cascade Springs and Falls. There is the potential for road construction and development on private (non-TNC) lands adjacent to both sites. Activities such as cattle grazing, noxious weed infestation and development may also occur on adjacent private lands are a potential threat to the health of the springs ecosystem. Because both species occur almost entirely on NFS- or TNC-administered lands, threats to the health of habitats and extant populations are being managed and reduced. Refer to the FEIS Appendix H pages 139 to

142 for additional discussion of cumulative effects.

Evaluation of the Selected Alternative for Adiantum capillus-veneris *and* Epipactis gigantea

Livestock grazing, forest vegetation management and mineral extraction activities will not be conducted at Cascade Springs or Falls during the interim period, and will thereby not effect *Adiantum capillus-veneris* or *Epipactis gigantea* (USDA Forest Service 2000). It should be noted that livestock grazing is detrimental to both species (USDA Forest Service 2000). Due to the recent reconstruction of SD Highway 71, and trail and access road improvements at Cascade Springs and Cascade Falls, no travel management activities are expected to occur during the interim period (USDA Forest Service 2000). Existing Standards and Guidelines have reduced impacts to the habitat in recent years by repositioning SD 71 farther away from Cascade Creek than originally planned (USDA Forest Service 2000). Existing protective measures for developed recreation areas (M.A. 8.2) would apply to *Adiantum capillus-veneris* and *Epipactis gigantea* and their habitats under Alternative 2 As Modified.

The protective direction under Alternative 2 As Modified likely presents the lowest level of risk to *Adiantum capillus-veneris* and *Epipactis gigantea* of the management alternatives. Populations of the two species are expected to remain at "roughly current levels" for the 2-5 year interim period (USDA Forest Service 2000). In addition to the general protective direction for Sensitive plant species reviewed above, the following direction also applies to this species under Alternative 2 As Modified:

- Treatment of Guidelines as Standards would be more protective of these species' habitats (USDA Forest Service 2000).
- Treatment of Guideline 3106 ("Riparian areas or wetlands where ...Sensitive plants are located should be protected during and after ...construction") and Guideline 3107 ("Protection measures to protect Sensitive plants should be considered...") as Standards would be more protective for these two species (USDA Forest Service 2000).
- Treatment of weed control Guidelines 4302, 4304 and 4305 as Standards provide additional protection for *Adiantum capillus-veneris*, *Epipactis gigantea*, and their associated species from the adverse impacts of weed treatments.
- Under existing direction for M.A. 8.2, Standard 8.2-2104 ("Protect unique biological features."), fencelines will be extended and mowed areas reduced to further discourage human activity in known sensitive species locations.
- New Standard 8.2-9106 would prohibit further road or trail development in the Cascade Spring/Cascade Creek area in order to reduce threats to *Adiantum capillus-veneris* and/or *Epipactis gigantea* populations.

Determinations

For the proposed alternative, a determination of "May adversely impact individuals, but not likely to result in a loss of viability on the planning area, nor cause a trend to federal

listing or a loss of species viability range-wide" is made for *Adiantum capillus-veneris* and *Epipactis gigantea.*

The rationale for the above determinations is based upon the following:
1. That they are made for the 2-5 year interim period;
2. The protective direction listed above for these species will be applied as written;
3. The species occurrence within Management Area 8.2 provides additional protective direction for these species that will be applied as written;
4. The following management activities will not be conducted where the species occur: timber management, range management, wildlife management, minerals exploration and extraction, or fire management.

Platanthera orbiculata *(Large Round-leaf Orchid)*

Species Distribution

This orchid is a North American endemic that is distributed from Newfoundland to southern Alaska, south to Tennessee, Minnesota and Oregon (Great Plains Flora Association 1986). *Platanthera orbiculata* occurs in boreal forests in Canada and Minnesota, in temperate and montane forests of the Pacific Northwest, in mixed forests in the Great Lakes region, and in deciduous forests of the Appalachians (Luer 1975 in Fertig 1993; Reddoch and Reddoch 1993). The species is disjunctly distributed in remnant boreal/hardwood forests in the Black Hills of South Dakota. Baseline monitoring of Black Hills' occurrences was conducted in 2000 and 31 sub-populations were found, including 6 new locations. Three previously known sites were not relocated (possibly due to limited or unclear information). Twenty-five occurrences are in the northwestern limestone plateau, three in the Bearlodge Mountains of Wyoming, and three in the Black Elk Wilderness Area. Although sparsely distributed, the species is more abundant than previously believed, with a total of 599 individuals located in 2000, in sub-populations from 1 to 78 individuals in size. Previous estimates were at total of 100-150 plants from 15 locations of 10 or fewer plants each (USDA Forest Service 2000).

Platanthera orbiculata appears to be restricted to birch-hazelnut or similar hardwood communities (USDA Forest Service 2000), often with a significant spruce component. Hardwood and boreal habitats occupy a limited proportion of Black Hills National Forest, wherein spruce comprises less than 2% and paper birch only 0.1% of forest habitats (FEIS III-129, III-143). However, within these areas, there is a lot of available habitat that the species does not currently occupy, which suggests that stochastic events may play an important role in its distribution in the Black Hills (USDA Forest Service 2000). It is also possible that its distribution is tied to that of its mycorrhizal associates, which play a vital role in seed germination and nutrient acquisition. In general, the species' ecological requirements and response to disturbance (natural or human-induced) are not well understood. Climate may also play a significant role in the species' distribution and numbers, wherein larger than normal amounts of rainfall, like that experienced in recent years (NOAA 1998 and 1999), may affect populations more than management activities (USDA Forest Service 2000).

Natural History

Platanthera orbiculata is a terrestrial orchid that apparently only reproduces by seed and, like most orchids, is a mycorrhizal obligate that requires a fungal associate in order for germination to occur. Its specific pollinators have not been identified, however it is suspected to be moth pollinated (Van Der Pijl and Dodson 1966). In the Black Hills, *P. orbiculata* occurs from 4300 to 6000 feet in elevation in isolated, shady, north-facing slopes or draw bottoms in association with paper birch-hazelnut, or mixed hardwood-spruce forests and a species-rich understory on humus soil.

Effects of Management Activities on **Platanthera orbiculata**

The species is closely associated with mid-successional spruce/birch boreal habitats in the northern Hills and Bearlodge Mountains. The timber program is not expected to have a direct impact on the species (USDA Forest Service 2000), as timber management primarily occurs in pine habitats and less frequently in spruce/birch cover types and other potential *P. orbiculata* habitats in the Black Hills. However, where timber harvest occurs in these communities it would be expected to have a direct impact which, in addition to road construction and other timber-related activities, are likely detrimental to the species (USDA Forest Service 2000). Vegetation management activities in or near the species' habitat may alter or destroy the overstory, including important species' associates; damage the litter layer, which may result in loss of moisture, increased temperatures, and loss of mycorrhizal fungi; and cause detrimental exposure to sunlight (USDA NRCS 1999).

Restoration of hardwood communities (in addition to regeneration of aspen clones) might benefit this species (USDA Forest Service 2000). However, the expansion of spruce for American marten habitats should be evaluated in respect to its potential effects on the distribution and structure of mixed spruce/hardwood communities (USDA Forest Service 2000). Because birch is a fire-following species, its co-occurrence with spruce may represent a mid-successional shift towards a spruce-dominated stand, wherein the later successional stages may not provide suitable habitats for *Platanthera orbiculata* or other early- to mid-successional boreal species (Sieg, pers. comm. Dec. 12, 2000). The effects of fire suppression and prescribed fire on paper birch/hazelnut communities in relationship to spruce climax forest succession and ecosystem functioning are not well understood (Sieg, pers. comm., Dec. 12, 2000).

Black Hills' *P. orbiculata* populations occur within grazing allotments, with the exception of those found in the Black Elk Wilderness. Livestock grazing could negatively affect populations of this species and its habitats (USDA Forest Service 2000), as grazing or trampling of its single pair of leaves results in the loss of energy-producing tissues, impairs the function of underground structures and decreases the viability or vigor of individuals (Lesher and Henderson 1998). Most sites are located on slopes that are not easily accessed by cattle; however, on those sites that are accessible to livestock, trailing, trampling and grazing should be considered detrimental to the plant (USDA Forest Service 2000).

Introduction of noxious weeds into the species' habitat via roads, machinery, livestock and/or wildlife is a considerable threat. In 2000, *P. orbiculata* locations utilized by livestock possessed common weedy species not present at other sites. The occurrence of Canada thistle (*Cirsium arvense*) at several *P. orbiculata* sites is of concern, however, the methods with which weed infestations are treated is also an issue. Although little is known about the pollinators of *Platanthera* sp., *P. orbiculata* appears to be pollinator specific (Lesher and Henderson 1998). Impacts to, or loss of, individuals and/or the species' pollinators due to weed control treatments could significantly threaten the species' viability.

Although this species is somewhat protected by its isolated habitats, all orchids are potentially threatened by poaching, although this species is not among the more charismatic species usually targeted by collectors. However, it is particularly vulnerable to site disturbance due to trampling in the Black Elk Wilderness, where the plant occurs in very close proximity to trails. In addition, any mining activities that occur in boreal habitats the northern Black Hills have the potential to impact this species (USDA Forest Service 2000). In general, management practices that maintain a diverse distribution of boreal/hardwood habitat types and structural stages, and minimize impacts to the species' habitats from road construction, ground disturbance, and the introduction of noxious weeds are anticipated to reduce viability risks to this species during the interim period.

The relationship between historic land use and management of boreal habitats and the distribution of this species in the Black Hills is not currently understood. It is likely that historic activities, including fire suppression, have significantly altered the distribution of the species' habitats (Parrish et al. 1996), but the mechanism(s) by which the species' habitats are created and maintained may be dependent upon one or more disturbance/successional regimes or climatic patterns. It is not known if the cumulative effects of fire suppression in spruce/birch habitats have altered the distribution of the species due to decline of available habitats. As a result, the effects of the proposed management on the species and its habitats are not clear at this time. However, monitoring of the species within both protected and more intensively managed areas may provide more insight into the species' ecological requirements during the interim period. Refer the FEIS Appendix H pages 79 to 85 for additional discussion of cumulative effects.

Evaluation of the Selected Alternative for **Platanthera orbiculata**

Hardwood restoration direction is the same for all alternatives (FEIS II-48; LRMP II-25) and is expected to result in an increase in hardwoods, shrubs and meadows over the next ten years. The density of white spruce stands is expected to increase due to natural succession and protection from fire and human disturbance within occupied marten habitat, high potential marten habitat, and connectivity areas – primarily in the limestone plateau in the north central Hills. This includes management for down woody material (DWM), which could have a positive or negative effect on *Platanthera orbiculata.* Where DWM is retained within existing sites and where these activities would provide protected microsites for plant establishment in treated sites, the overall effect would likely be neutral or positive. Alteration of canopy cover within spruce habitats could

impact this Sensitive plant species either positively or negatively, depending upon the effects on birch communities. Activities that would promote hardwood regeneration in place of spruce may be limited to hardwood or meadow enhancement along spruce edges and could reduce available habitat for birch obligate species in the long term because spruce/birch sites would be allowed to fill in with spruce to the exclusion of most hardwoods.

Alternative 2 As Modified likely presents the lowest level of risk to this species due to additional protection from the impacts of livestock grazing, road construction and noxious weeds. In addition to the general protective direction for Sensitive plant species reviewed above, the following direction also applies to this species under Alternative 2 As Modified:

- Treatment of Botanical Area Guidelines as Standards would be more protective for this species (USDA Forest Service 2000).
- Hardwood restoration Guideline 2205 would not to be treated as Standard due to protective direction for American marten spruce habitats, which may reduce hardwood restoration activities. However, treatment of Guidelines 2201 and 2206 as Standards would likely be protective by preserving or enhancing existing birch habitats across the forest.
- Revised Guideline 2207 would provide additional protection for *P. orbiculata* and its habitats by requiring that livestock/wildlife water structures are located outside of hardwood communities (USDA Forest Service 2000).
- New Standard 3117 would require that woody material be retained (1.3 piles/hectare) in timber harvest areas adjacent to potential marten habitat, which could improve site conditions for re-establishment of *P. orbiculata* by providing protected microsites for seed establishment and potential habitat for its mycorrhizal associates.
- New Standard 3215 and revised Standard 2308 would restrict management activities in spruce habitats in order to protect marten habitats, which could indirectly result in increased protection for *P. orbiculata*. However, the effects of marten habitat management on *P. orbiculata* and its habitats require further evaluation (USDA Forest Service 2000).
- Treatment of Guidelines 1.1A-2103, 1.1A-2502 and 1.1A-4301 as Standards may provide additional protection for populations of *P. orbiculata* in the Black Elk Wilderness through added protection of natural biological processes, limitations on range management activities and integrated control measures for noxious weeds.
- New Standard 3.1-2503 would provide additional protection for *P. orbiculata* populations in designated Botanical Areas from adverse impacts of domestic livestock grazing.
- Treatment of Guideline 4.2A-9102 as a Standard would restrict motorized travel and over-the-snow vehicles to designated routes in Spearfish Canyon, which could provide additional protection for *P. orbiculata* habitats from ground disturbance or noxious weed introduction.

Determination

For the proposed alternative, a determination of "May adversely impact individuals, but not likely to result in a loss of viability on the planning area, nor cause a trend to federal listing or a loss of species viability range-wide" is made for *Platanthera orbiculata.*

The rationale for the above determination is based upon the following:

1. That it is made for the 2-5 year interim period;
2. All protective direction listed above for this species will be applied as written;
3. Where adequate population data do not exist, and where such data would be difficult to obtain, FSM Supplement 2672.1, Sensitive species management direction requires that project analyses will be based on the assumption that the species is present, and the project designed accordingly in order to reduce adverse effects to the species or its habitat;
4. The species occurrence within Management Areas 1.1A, 3.1 and 4.2A provides additional protective direction that will be applied as written.

Viola selkirkii *(Selkirk's Violet)*

Species Distribution

Viola selkirkii is a circumboreal species, distributed south to Pennsylvania, Minnesota and British Columbia with disjunct populations in South Dakota and Colorado (Gleason and Cronquist 1991). Selkirk's violet is rare in the Black Hills, confined to high elevation granite of the Central Core, where the species' occurrence is limited to isolated microsites that meet the ecological requirements of the species (Larson and Johnson 1999; Reyher 2000). Known occurrences in the Black Hills are in the Sylvan Lake area (Custer State Park), the Black Elk Wilderness and the Norbeck Wildlife Preserve, and an unverified report from Deer Mountain, Lawrence County, SD (Larson 1993; Hildebrand 1996; Marriott 2001). Until Marriott's 2000 survey, the two locations in the Norbeck Wildlife Preserve were the only known occurrences on lands administered by Black Hills National Forest. Six additional locations were identified during Marriott's survey, including 2 sites administered by Custer State Park and a subpopulation of the 1996 Hildebrand site in the Norbeck Wildlife Preserve (Hildebrand 1996; Marriott 2001). Additional sites are suspected in the Hills' central core, however, timing of survey is crucial due to the species' short flowering period in late May/early June depending on elevation, as a flower is required to correctly identify the species (Marriott 2001).

Natural History

In the Black Hills, *V. selkirkii* is found on moist, mossy benches or rocky slopes in cool, shady ravines at elevations of 5400 to 7000 feet (Marriott 2001). Known locations occur within the granitic core of the Black Hills, where soils derived from granitic parent material are suspected to be a requirement for the species (Hildebrand 1996; Larson and Johnson 1999). *Viola selkirkii* occurs in mature spruce forests in cold air drainages often associated with cliffs (USDA Forest Service 2000), where it is commonly found in association with rotting logs and stumps (Handel 1976), or on moss mats on rock

outcrops (Marriott 2001). The species reproduces vegetatively by long, narrow rhizomes, and sexually either through cross-pollination of its conspicuous flowers or self-pollination of reduced, apetalous flowers (Russell 1965). The seeds are ant dispersed (Russell 1965; Larson and Johnson 1999).

Effects of Management Activities on Viola selkirkii

Timber management is likely to have little or no effect on this species, as its known occurrences are primarily within protected areas (USDA Forest Service 2000). Livestock grazing would have no effect on known occurrences of this species since grazing will not occur on known BHNF sites in the Black Elk Wilderness (USDA Forest Service 2000); however, there are provisions for grazing in the Norbeck Wildlife Preserve (M.A. 5.4A, see below), which affects 5-10% of one population. The scientific experts recommended that the impacts of recreation on this species be monitored (USDA Forest Service 2000). Dispersed recreation by hikers could impact the species, however, most sites are isolated in rocky terrain, where access to sites and rock climbing are potential threats (Marriott 2001). The effects of wildlife management activities and fire and fuels reduction on the species are not currently known but the species appears to favor a build up a woody debris which may be enhanced through management for American marten habitat and consumed in intense fire (FEIS Appendix H page 76). Because the species' occurrences are generally in fragile habitats on granitic soils where ground disturbance is a significant threat (Marriott 2001), it may be assumed that any ground-disturbing activity is likely detrimental.

Because its known occurrences are restricted to protected areas in the Black Hills, the species is not likely to be negatively impacted by activities on private lands or intense management. However, travel, fire and fuels, recreation and/or wildlife management activities will likely be conducted in Custer State Park, Black Elk Wilderness and Norbeck Wildlife Preserve in the future. Viola selkirkii's habitats have presumably not been significantly affected by historic fire suppression or other past management. Rock-climbing is an on-going threat that will likely continue and increase due to increasing recreational use of the Black Hills' Central Core. The effects of recreation may present the most significant threat and need to be monitored (USDA Forest Service 2000). Refer to the FEIS Appendix H pages 79 to 85 for additional discussion of cumulative effects.

Evaluation of the Selected Alternative for Viola selkirkii

Because of the protective management already in place in the Black Elk Wilderness and Norbeck Wildlife Preserve where the species is located, additional protective direction under Alternative 2 As Modified would apply primarily to potential habitats. The proposed alternative would likely have an overall neutral effect on existing populations of *V. selkirkii* on BHNF administered lands (USDA Forest Service 2000), but likely presents the lowest level of risk to the species. In addition to the general protective direction for Sensitive plant species reviewed above, the following direction also applies to this species under Alternative 2 As Modified:

- In the Black Elk Wilderness, Standard 1.1A-2101 requires provision for natural plant succession could benefit *V. selkirkii* and its potential habitats.

- Treatment of Black Elk Wilderness travel management, livestock grazing, and recreation guidelines as Standards will likely provide reduced levels of risk to this species.
- Treatment of Guidelines 1.1A-2103 and 1.1A-4301 as Standards may increase the level of protection for *V. selkirkii* and its habitats in the Black Elk Wilderness by managing habitats at the landscape level and through stronger direction for control of noxious weeds.
- Standard 4.2B-1201 for the Peter Norbeck Scenic Byway ("At a minimum, the following will be identified as protected stream courses: Pine Creek, Grizzly Bear Creek, Iron Creek, Spokane Creek, Sunday Gulch, Toll Gate Creek, Battle Creek, Lost Cabin Creek, Palmer Creek, the lower portion of Willow Creek") may provide protection for *V. selkirkii* and its potential habitats.
- Norbeck Wildlife Preserve Guideline 5.4A-2505 ("Livestock grazing may be used intermittently as a management tool [even in areas designated unsuitable for livestock grazing] to improve habitat conditions e.g. to control noxious weeds") could have negative impacts on *V. selkirkii* and will not be treated as a Standard under the selected alternative. Although livestock grazing could impact potential habitats, all known occurrences are protected by management direction, fence exclosures, or topographic barriers.
- Treatment of Guidelines 5.4A-3205 ("...the season of operations for vegetation treatment and other activities is limited to August through November.") and 5.4A-3206 ("At least 50% of any vegetation treatment area will be undisturbed at any given time.) as Standards would likely be more protective for *V. selkirkii* populations and potential habitats in the Norbeck Wildlife Preserve by limiting both the extent and season of vegetation treatment operations to time periods outside of both the growing and reproductive seasons for the species.
- Treatment of Guideline 5.4A-3208 ("Fuel wood gathering is prohibited, except under special permit...") as a Standard may benefit *V. selkirkii* by limiting ground disturbance in the Norbeck Wildlife Preserve, particularly during its reproductive period from May through June.

Determination

For the proposed alternative, a determination of "May adversely impact individuals, but not likely to result in a loss of viability on the Planning Area, nor cause a trend to federal listing or a loss of species viability range-wide" is made for *Viola selkirkii*.

The rationale for the above determination is based upon the following:

1. That it is made for the 2-5 year interim period;
2. All protective direction listed above for the species will be applied as written;
3. Where adequate population data do not exist, and where such data would be difficult to obtain, FSM Supplement 2672.1, Sensitive species management direction requires that project analyses will be based on the assumption that the species is present, and the project designed accordingly in order to reduce adverse effects to the species or its habitat;

4. The species occurrence within Management Area 1.1A, 4.2B and 5.4A provides additional protection for the species in question and that existing direction will be applied as written;
5. Timber management will not be performed where the species or its potential habitats are known to occur, and there is no expectation of minerals exploration and extraction during the interim period.

Lycopodium complanatum *(Trailing Clubmoss)*

Species Distribution

Trailing clubmoss is a boreal remnant species that occurs in cool, shady spruce or birch habitats, often on steep, north-facing slopes (USDA Forest Service 2000). The species' disjunct occurrence in the northern Black Hills is considerably south of its normal range (Flora of North America 1993). There are four occurrences within the Hills with one population on land administered by the Black Hills National Forest in Upper Sand Creek Botanical Area in a spruce/grouseberry community (USDA Forest Service 2000) with other rare plant species (i.e. *Vaccinium membranaceum*, *Lycopodium annotinum*). Baseline monitoring of the site was conducted in 2000. It is relatively abundant at the site where it occurs, with an estimate of over 1000 stems present in 2000, although the clonal nature of the plants means the actual number of individual plants present is likely to be much lower. A 30 x 50 meter patch was described in 1989. The population did not seem to be as large in 2000, although it was still estimated at over 100 square meters. However, given the very limited amount of available habitat and that both site measurements are visual estimations, the population should be examined in more detail before trend is inferred.

Natural History

In Scandinavia, *Lycopodium complanatum* grows in sub-arctic or sub-alpine birch forests that have very heterogeneous soils, and low precipitation. The Flora of North America (1993) lists its habitat as "Dry open coniferous or mixed forest alpine slopes". The species' habitat in Upper Sand Creek Botanical Area suggests an upland or facultative upland habitat is preferred by the species. At the BHNF location, *L. complanatum* is associated with *Betula papyrifera*, *Cornus canadensis*, *Corylus cornuta*, *Linnea borealis*, *Lycopodium annotinum*, *Picea glauca*, *Pinus ponderosa*, *Vaccinium scoparium*, and *Vaccinium membranaceum* in a dense cover of mosses. The presence of *Lycopodium annotinum* and *Vaccinium membranaceum* is noteworthy, as both of these plants are uncommon in the Black Hills National Forest, though they are not currently designated as Sensitive species in Region 2.

Effects of Management Activities on **Lycopodium complanatum**

The Sand Creek population occurs within a grazing allotment, wherein livestock grazing and trampling are not believed to be a threat (USDA Forest Service 2000), as it does not appear that cattle can access the site due to steep slopes both above and below it. Timber harvest or other vegetation management activities, including hardwood restoration, are not expected to have an effect on this species (USDA Forest Service 2000). Because the

single BHNF population is within a designated Botanical Area, road and trail construction are not expected to have an effect on this species (USDA Forest Service 2000). Surface mining activities in the northern Black Hills would have a permanent impact on *L. complanatum* (USDA Forest Service 2000). There is the potential for direct, detrimental impacts to the single population on FS administered land from mining activities in or near the site on Upper Sand Creek Botanical Area. The species may require some edge habitat, which may be negatively effected by fire suppression, wherein spruce may become denser, and the understory species diversity and hardwood component reduced (FEIS page 76).

The effects of historic land use activities on this species are not known and limits our ability to determine population trend or the present and/or future effects of vegetation management, fire suppression, etc. It is possible that the species occurrence in the Black Hills is a relict from previous climatic conditions, as is true with spruce habitats in general in the area. However, climatic effects on its habitat and management activities on both private and NFS land are on-going risks to the population. The single, verified occurrence of *L. complanatum* on BHNF administered land is located in Upper Sand Creek Botanical Area within a 20-acre mining claim. If acted upon, this claim could potentially decimate the population if exploration or extraction activities are conducted on the slope where the population occurs. Given that a "plan of operations" has not been submitted to date, and the protective direction in place under the interim period, the claim is probably not an immediate threat to the population. Refer to the FEIS Appendix H pages 79 to 85 for additional discussion of cumulative effects.

Evaluation of the Selected Alternative for Lycopodium complanatum

For Alternative 2 As Modified, the density of white spruce stands is expected to increase due to natural succession and protection from fire and human disturbance within occupied marten habitat, high potential marten habitat, and connectivity areas – primarily in the limestone plateau in the north central Hills. This includes management for down woody material (DWM), which could have either a positive or negative effect on *Lycopodium complanatum*, wherein these activities could provide protected micro-sites for plant establishment or have detrimental effects. Alteration of canopy cover within spruce habitats could impact the species either positively or negatively. Treatment of Botanical Area Guidelines as Standards and additional protective direction under Alternative 2 As Modified would likely provide the lowest level of risk to this species of the management alternatives. In addition to the general protective direction for Sensitive plant species reviewed above, the following also applies to this species under Alternative 2 As Modified:

- In Ode's opinion, treatment of Guideline 1516 ("negative recommendations or consent denials will be based on consideration of … the habitat of individual plant or animal species identified as needing special management…") as a Standard would be more protective for *L. complanatum* from the adverse effects of minerals exploration and extraction (USDA Forest Service 2000).

- Revised Guideline 2207 provides additional protection for *L. complanatum* habitat by requiring that new livestock/wildlife water structures are located outside of hardwood communities (USDA Forest Service 2000).
- New Standard 3117 would require that woody material be retained (1.3 piles/hectare) in timber harvest areas adjacent to potential marten habitat, which could impact potential habitats for *L. complanatum* or provide protected microhabitats.
- Treatment of Botanical Area (M.A. 3.1) Guidelines as Standards would be more protective for *L. complanatum* in Upper Sand Creek and any potential habitats in other Botanical Areas (USDA Forest Service 2000).
- New Standard 3.1-2503 would require that the population in Upper Sand Creek Botanical Area be protected from adverse impacts of domestic livestock grazing.
- Additional Management Objectives, Standards and Guidelines may be applicable, pending further evaluation of the species' habitat preferences and distribution in the Black Hills.

Determination

For the proposed alternative, a determination of "May adversely impact individuals, but not likely to result in a loss of viability on the Planning Area, nor cause a trend to federal listing or a loss of species viability range-wide" is made for *Lycopodium complanatum.*

The rationale for the above determination is based upon the following:

1. That it is made for the 2-5 year interim period;
2. All protective direction listed above for this species will be applied as written;
3. Where adequate population data do not exist, and where such data would be difficult to obtain, FSM Supplement 2672.1, Sensitive species management direction requires that project analyses will be based on the assumption that the species is present, and the project designed accordingly in order to reduce adverse effects to the species or its habitat;
4. The species occurrence within Management Area 3.1 provides additional protection for the species in question and that existing direction will be applied as written;
5. Vegetation management and fire and fuels management activities will not be performed during the interim period where the species occurs, and there is no current activity or plan of action for the existing minerals exploration and extraction claim.

Sanguinaria canadensis *(Bloodroot)*

Species Distribution

Sanguinaria canadensis' distribution in the Black Hills is disjunct from the eastern deciduous forest, with the closest occurrences in eastern SD, NE and KS. In the Black Hills, bloodroot occurs at low- to mid-elevations on moist soils under mixed conifer/hardwood forests and thickets in association with bur oak (*Quercus macrocarpa*), ironwood (*Ostrya virginiana*), hazelnut (*Corylus cornuta*) and birch (*Betula papyrifera*) (Larson and Johnson 1999), often in beaver-created boreal riparian habitats. Eighteen occurrences have been found in the northern/northeastern portions of the Hills. During

recent monitoring efforts, bloodroot was found in greater numbers than previous reports indicated. Several of the 18 known sites contain more than 1000 plants each in densely associated groupings. Baseline monitoring has not been performed for this species to date and will be conducted in 2001.

Natural History

The species is a shallow-rooted, spring ephemeral that inhabits rich deciduous forest soils (USDA Forest Service 2000). It may receive pollen via a pollinator for only a very short period of time after the flower opens, otherwise it self-pollinates. The seeds are ant dispersed. The leaves may be poisonous to livestock (USDA Forest Service 2000). Because bloodroot's habitats in the northern Hills are very unusual compared to the species' eastern associations, its ecological requirements in the Black Hills are not well understood.

Effects of Management Activities on **Sanguinaria canadensis**

As an eastern deciduous forest species, it is doubtful that *S. canadensis* evolved with grazing. Because the plant is poisonous, it does persist under livestock use and is likely not grazed, however, trampling by livestock may still damage the shallow, succulent rhizomes (Black Hills Sensitive Plants Monitoring Task Team 2000). The species is apparently not severely impacted by less than 50% defoliation, but seriously impaired by complete defoliation (Rockwood and Lobstein 1993). There are bloodroot occurrences in six grazing allotments in the northern Hills, four of which are vacant at this time (Black Hills Sensitive Plants Monitoring Task Team 2000). Within occupied allotments, livestock have access to several locations that are not protected from the affects of trampling by fencing or other physical barriers (Black Hills Sensitive Plants Monitoring Task Team 2000).

Existing weed problems in known locations have not been identified, however, the species' hardwood and riparian habitats are vulnerable to weed invasion (USDA Forest Service 2000). Canada thistle (*Cirsium arvense*) could forseeably out-compete bloodroot and chemical treatment of the weed could be detrimental to bloodroot (USDA Forest Service 2000). Timber management activities occur in proximity to several of the sites. The short- and long-term effects of timber management on the species have not been determined, although short-term impacts are presumed (USDA Forest Service 2000). Because timber management generally occurs in pine habitats, it is unlikely that it will directly affect birch communities, however, the direct impacts of road construction and other activities related to logging would be detrimental (USDA Forest Service 2000). Timber harvest and increased beaver activity both may expand hardwood habitats and are likely beneficial to the species in the long term (Reyher, pers. comm. Dec. 21, 2000). Mining activity in the northern Black Hills could negatively affect the species (USDA Forest Service 2000).

Historic land-use and fire suppression activities have likely significantly altered the distribution of mixed spruce/hardwood habitats across the Black Hills, whereby bloodroot habitats are probably less abundant than they were during pre-settlement conditions (FEIS page 81). The species is negatively affected by fire suppression, due to

the resultant reduction in frequency and distribution of disturbance-created habitats (FEIS page 76). However, the agency is re-evaluating the role of fire in the landscape, which may result in improved habitat conditions for the species in the future. Several core occurrences of bloodroot on the Black Hills are within currently vacant allotments, where there is the potential for future impacts from livestock trampling, however, more protective range management direction in riparian areas will likely reduce impacts. The impacts to bloodroot on private land are unknown at this time. Refer to the FEIS Appendix H pages 79 to 85 for additional discussion of cumulative effects.

Evaluation of the Selected Alternative for **Sanguinaria canadensis**

Due to the abundance of this species and its distribution in habitats with currently low levels of disturbance, existing populations are expected to be maintained during the interim period (USDA Forest Service 2000). Hardwood restoration activities are the same for all alternatives (FEIS II-48; LRMP II-25) and are expected to result in an increase in hardwoods, shrubs and meadows over the next ten years, which may benefit the species. The indirect and cumulative effects of spruce management and hardwood restoration on the distribution and viability of *S. canadensis* have not been determined, but will not likely alter the existing distribution of the species during the interim period. Protective direction for marten habitats may limit activities that would promote hardwood regeneration in place of spruce and hardwood or meadow enhancement along spruce edges, which could have negative impacts on birch obligate species in the long term. Because of the species unusual distribution in riparian habitats in the Hills, the additional protective direction for riparian areas, wetlands, and the Water Influence Zone under Alternative 2 As Modified would likely provide the lowest level of risk to this species. In addition to the general protective direction for Sensitive plant species reviewed above, the following direction also applies to this species under Alternative 2 As Modified:

- Treatment of Guideline 1104 as a Standard would require that soil compaction is minimized by reducing ground disturbing activities which may provide additional protection of soils, ground-cover, and *S. canadensis* individuals from adverse impacts, and would provide improved protection for all Sensitive plant species (USDA Forest Service 2000).
- Revised Standards 1301, 1302 and 1304 and Revised Guideline 3104 would increase the level of protection for *S. canadensis* in riparian areas and associated habitats from range management activities by protecting Sensitive plant habitats associated with moist soil conditions, prohibiting development of springs or seeps as water facilities, and through more protective mitigation within the Water Influence Zone.
- Hardwood restoration Guideline 2205 would <u>not</u> to be treated as Standard due to protective direction for spruce habitats, and could affect *S. canadensis* by reducing hardwood restoration activities. However, treatment of Guidelines 2201 and 2206 as Standards would likely be protective by preserving or enhancing birch habitats across the forest, where this does not conflict with marten habitat management.
- Revised Guideline 2207 provides additional protection for *S. canadensis* habitat by requiring that new livestock/wildlife water structures are located outside of hardwood communities (USDA Forest Service 2000).

- Treatment of Guidelines 3106 and Revised Guideline 3107(a) as Standards may be more protective because the riparian and wetland areas where many Black Hills' Sensitive plant species, including *S. canadensis*, occur would not be disturbed by road construction (USDA Forest Service 2000).
- Treatment of Guideline 9107 ("Prohibit land vehicles from entering perennial streams where resource damage would occur...") and Guideline 9108 ("Vehicular traffic, except for snowmobiles, will be restricted to roads and trails in riparian area.") as Standards would be more protective of *S. canadensis'* riparian habitats (USDA Forest Service 2000).
- New Standard 3215 and Revised Standard 2308 would restrict management activities in, and adjacent to, spruce habitats in order to protect marten habitats, which could either indirectly protect or impede *S. canadensis* and its habitats.
- New Standard 3117 would require that woody material be retained in stands adjacent to potential marten habitat. Where the species or its potential habitats occur in treatment areas, these activities could provide protected microsites for plant establishment or negatively effect existing individuals and/or populations.

Determination

For the proposed alternative, a determination of "May adversely impact individuals, but not likely to result in a loss of viability on the Planning Area, nor cause a trend to federal listing or a loss of species viability range-wide" is made for *Sanguinaria canadensis*.

The rationale for the above determination is based upon the following:

1. That it is made for the 2-5 year interim period;
2. All protective direction listed above for this species will be applied as written;
3. Where adequate population data do not exist, and where such data would be difficult to obtain, FSM Supplement 2672.1, Sensitive species management direction requires that project analyses will be based on the assumption that the species is present, and the project designed accordingly in order to reduce adverse effects to the species or its habitat;
4. Because the species is unpalatable to livestock and wildlife, is locally abundant, and often occurs in dense vegetation that limits or excludes livestock, it is presumably not directly threatened by livestock activity.

Equisetum scirpoides *(Dwarf Scouring Rush)*

Species Distribution

As with many other Sensitive plants in the Black Hills, *Equisetum scirpoides* is a disjunct boreal remnant species. Twenty-six locations of *E. scirpoides* were found during the 2000 baseline monitoring effort in Pennington and Lawrence Counties, SD and Crook County, WY, including one new occurrence in Crook County. Eight additional locations need to be revisited in 2001. Many of the populations occur within grazing allotments. The Black Hills is the only forest in Region 2 that is currently known to have this species.

Numerous sites occur within Botanical Areas (i.e. Upper Sand Creek, Bear/Beaver Gulches, Higgins Gulch).

Natural History

Equisetum scirpoides typically occurs in cool, moist, shaded streamside slopes and terraces in spruce/birch/hazelnut forest (USDA Forest Service 2000). It occupies riparian habitats that are often dynamic, but the species is presumed to be adapted to flooding and scouring and persist after the disturbance (USDA Forest Service 2000). The species reproduces either by aerially borne spores or vegetatively through deep-rooted rhizomes and rhizome fragments.

Effects of Management Activities on Equisetum scirpoides

The effects of timber harvest on *E. scirpoides* are unknown, however, existing Standards and Guidelines protecting riparian areas appear to protect known occurrences (USDA Forest Service 2000). Many of the populations occur within grazing allotments. The species appears to be unpalatable to livestock, however, where grazing occurs, trampling and stream bank destabilization, particularly in drainage bottoms, would likely have negative effects and may require further evaluation (USDA Forest Service 2000). Major earth-moving operations or mining activities, and mining impacts at the water's edge would have the biggest effect on this species (USDA Forest Service 2000). Because the species' habitat is usually next to water, aquatic weeds such as purple loosestrife (*Lythrum salicaria*), and weed control methods pose the largest noxious weed threat to *E. scirpoides* (USDA Forest Service 2000).

A large proportion of the riparian areas in the Black Hills are under private ownership and have been subject to a variety of uses that have likely altered the distribution of *E. scirpoides*. Suppression of natural disturbances due to fire and reduction in disturbance-created riparian hardwood communities may negatively affect the species. The species has likely been negatively impacted in the past due to land use activities on both private and public lands. It is likely that continued development of private lands in the central and northern Hills will have negative impacts on this species, however, it is currently widely distributed and locally abundant on BHNF administered lands. Although the species appears to be quite resilient to disturbance (Crook, pers. comm. 2001), livestock grazing and trampling may cause detrimental drying of its habitat (FEIS page 133). It is expected that existing populations will be maintained or enhanced due to pro-active management and monitoring of core populations. Refer to the FEIS Appendix H pages 139 to 141 for additional discussion of cumulative effects.

Evaluation of the Selected Alternative for Equisetum scirpoides

None of the management alternatives are expected to have a large effect on the species, positive or negative, in the next five years (USDA Forest Service 2000). For the selected alternative, the density of white spruce stands is expected to increase due to natural succession and protection from fire and human disturbance within occupied marten habitat, high potential marten habitat, and connectivity areas – primarily in the limestone plateau in the north central Hills. Alteration of canopy cover within spruce habitats could impact the species either positively or negatively. Under Alternative 2 As Modified,

treatment of Botanical Area Guidelines as Standards, and additional protective direction for riparian areas, wetlands and the Water Influence Zone likely present the lowest level of risk to this species. In addition to the general protective direction for Sensitive plant species reviewed above, the following direction also applies to this species under Alternative 2 As Modified:

- Hardwood restoration Guideline 2205 would not to be treated as Standard due to protective direction for spruce habitats, which may reduce hardwood restoration activities.
- Treatment of Guidelines 2201 and 2206 as Standards would likely be protective by preserving or enhancing existing birch habitats across the forest.
- Revised Guideline 2207 may provide additional protection for *E. scirpoides* habitat by requiring that new livestock/wildlife water structures are located outside of hardwood communities (USDA Forest Service 2000).
- Revised Standards 1301, 1302 and 1304 and Revised Guideline 3104, treated as a Standard, would reduce risks to *E. scirpoides* by protecting Sensitive plant habitats associated with moist soil conditions, prohibiting development of springs or seeps as water facilities, and through more protective mitigation within the Water Influence Zone.
- Treatment of Guideline 3106 ("Riparian areas or wetlands, where populations of Sensitive plants are located, should be protected during or after trail, road and highway construction activities.") and Revised Guideline 3107(a) ("Consider the use of one, or a combination of the following protection measures, to protect Sensitive plants or their habitat during and after trail, road and highway construction activities...") as Standards would provide additional protection for *E. scirpoides* and its habitats from road construction and related impacts.
- Treatment of Guidelines 3210, 3211 and 3212 as Standards would reduce risks to high quality riparian communities through direction to protect and improve riparian habitats and stream stability, and to protect aquatic and terrestrial species from animal damage.
- New Standard 3117 would require that woody material be retained in stands adjacent to potential marten habitat. This is not likely to affect *E. scirpoides* riparian habitats, however, where the species occurs in treatment areas, these activities could provide protected microsites for plant establishment or be detrimental to existing individuals and/or populations.
- New Standard 3215 and Revised Standard 2308 would restrict management activities in and adjacent to spruce habitats in order to protect marten habitats, which could have indirect beneficial effects on *E. scirpoides* and its habitats.
- Treatment of Botanical Area Guidelines as Standards would be more protective for this species (USDA Forest Service 2000).
- New Standard 3.1-2503 would require that Sensitive plant populations that occur within designated Botanical Areas are protected from adverse impacts of domestic livestock grazing.

Determination

For the proposed alternative, a determination of "May adversely impact individuals, but not likely to result in a loss of viability on the Planning Area, nor cause a trend to federal listing or a loss of species viability range-wide" is made for *Equisetum scirpoides*.

The rationale for the above determination is based upon the following:

1. That it is made for the 2-5 year interim period;
2. All protective direction listed above for the species will be applied as written;
3. Where adequate population data do not exist, and where such data would be difficult to obtain, FSM Supplement 2672.1, Sensitive species management direction requires that project analyses will be based on the assumption that the species is present, and the project designed accordingly in order to reduce adverse effects to the species or its habitat;
4. The species occurrence within Management Area 3.1 provides additional protective direction for the species in question that will be applied as written;
5. The species is more abundant and widely distributed than previously believed.

Muhlenbergia glomerata *(Marsh or Bristly Muhly)*

Species Distribution

The Wyoming Natural Diversity Database has recommended that *Muhlenbergia glomerata* be removed from the R2 Sensitive species list due to questions concerning its ecological amplitude and abundance, taxonomic confusion with *M. racemosa*, and potential hybridization with a third species, *M. mexicana*. Specimens were collected and their identification confirmed with regional experts as a part of the 2000 monitoring effort. Seventeen confirmed locations of *M. glomerata* were found, including two occurrences in designated Botanical Areas (McIntosh Fen and Bear/Beaver Gulches) and several sites in Spearfish Canyon. New information on the abundance and habitat preferences of the species will be reviewed to determine if the species still merits ranking as R2 Sensitive. *Muhlenbergia glomerata* has typically been considered a wetland/riparian species; however, many of the Black Hills occurrences are found in upland habitats that are less mesic than the species presumed preferred habitats and may change existing perceptions about the species, as well as its listing as R2 Sensitive (USDA Forest Service 2000). This species occurs in a wider range of habitats than previously believed, but is most commonly found in or immediately upland from riparian meadows, wherein livestock grazing and noxious weed invasion are most likely to have a negatively impact.

Natural History

The species is widely described as being a facultative wetland species (FACW, FACW+) (Van Bruggen 1985; Fertig 1993; USDA NRCS 1999). However, nearly all Black Hills occurrences are found in habitats adjacent to or upland from "wetlands", though these habitats were often adjacent to streams or in the bottom of draws that are likely subject to seasonal flooding. Only the McIntosh Fen site was truly mesic. Habitats ranged from the

open, grassy wetland meadow at McIntosh fen to pine and spruce dominated open forest, usually with a hardwood component; ledges and slopes along creeks; and open, grassy hardwood draw bottoms.

Effects of Management Activities on Muhlenbergia glomerata

Livestock grazing is a concern for this species, wherein specific impacts would depend on the amount of grazing, trailing, and other livestock use of its habitats (USDA Forest Service 2000). While livestock use of riparian areas may be detrimental, livestock grazing in intermittent streambeds, draw bottoms and adjacent to stream banks is also a potential threat. Noxious weed invasions should be considered a threat to the overall health and population viability of this Sensitive plant species and its associated plant communities. Because of the species' previously unknown distribution in forested habitats, the effects of forest vegetation management on this species are not currently understood.

A large proportion of the riparian areas in the Black Hills is under private ownership and has been subject to a variety of uses that have likely altered the distribution of *M. glomerata* in the Hills. Historic and ongoing livestock grazing and trampling may cause detrimental drying of its riparian habitats (FEIS page 133), and suppression of natural fire disturbance and reduction in disturbance-created riparian hardwood communities may also negatively affect the species. Surveys conducted in 2000 located populations in unexpected habitats that have not been previously documented for *M. glomerata* elsewhere. The species' wide ecological amplitude in the Black Hills has confounded our understanding of the effects of historic land use on its past or current distributions. It is possible that the species was historically much more widely distributed in the Hills and that its current distribution reflects remnant populations. It is also possible, and more likely, that it is expanding from its wetland habitats and is not restricted to mesic soils in the Black Hills, as is expected elsewhere. Due to taxonomic and ecologically confounding factors, the species distribution and trend in the Hills is not currently understood. The species appears to have been impacted in the past in its riparian habitats and it may be expanding its range, where further evaluation of its habitats is needed. The proposed direction will likely improve riparian habitat conditions on BHNF administered lands, which will benefit the species occurrences there. Refer to the FEIS Appendix H pages 139 to 141 for additional discussion of cumulative effects.

Evaluation of the Selected Alternative for Muhlenbergia glomerata

The species' range of habitats in the Black Hills has yet to be defined, however, additional protective direction for riparian areas, wetlands and the Water Influence Zone, and more restrictive livestock grazing direction for Botanical Areas under Alternative 2 As Modified would likely present the lowest level of risk to *M. glomerata* individuals and populations. In addition to the general protective direction for Sensitive plant species reviewed above, the following also applies to this species under Alternative 2 As Modified:

- Revised Standards 1301, 1302 and 1304 and Revised Guideline 3104, treated as a Standard, would increase the level of protection for *M. glomerata* by protecting Sensitive plant habitats associated with moist soil conditions, prohibiting development of springs or seeps as water facilities, and through more protective mitigation within the Water Influence Zone.
- Hardwood restoration Guideline 2205 would not to be treated as Standard due to protective direction for spruce habitats, which may reduce hardwood restoration activities.
- However, treatment of Guidelines 2201 and 2206 as Standards would likely be protective by preserving or enhancing birch habitats across the forest.
- Revised Guideline 2207, treated as a Standard, would likely be more protective of *M. glomerata* habitat by requiring that new livestock/wildlife water structures are located outside of hardwood communities.
- Treatment of Guidelines 3210, 3211 and 3212 as Standards would reduce risks to high quality riparian communities through direction to protect and improve riparian habitats and stream stability, and to protect aquatic and terrestrial species from animal damage.
- New Standard 3.1-2503 would require that Sensitive plant populations within designated Botanical Areas are protected from adverse impacts of domestic livestock grazing.
- Additional Management Objectives, Standards and Guidelines may be applicable, pending further evaluation of the species' habitat preferences and distribution in the Black Hills.

Determination

For the proposed alternative, a determination of "May adversely impact individuals, but not likely to result in a loss of viability on the Planning Area, nor cause a trend to federal listing or a loss of species viability range-wide" is made for *Muhlenbergia glomerata.*

The rationale for the above determination is based upon the following:

1. That it is made for the 2-5 year interim period;
2. All protective direction listed above for the species will be applied as written;
3. Where adequate population data do not exist, and where such data would be difficult to obtain, FSM Supplement 2672.1, Sensitive species management direction requires that project analyses will be based on the assumption that the species is present, and the project designed accordingly in order to reduce adverse effects to the species or its habitat;
4. The species occurrence within Management Area 3.1 provides additional protective direction for the species that will be applied as written;
5. In the Black Hills, the species is more abundant, and its ecological amplitude is much wider than previously believed.

Carex alopecoidea *(Fox-tail Sedge)*

Species Distribution

Fox-tail sedge occurs from Quebec and Maine to Manitoba, south to New Jersey, Indiana, and Iowa, and west to North Dakota, South Dakota, and Wyoming (Great Plains Flora Assoc. 1986; Gleason and Cronquist 1991; Fertig 1994). In the Black Hills, this species' known distribution is limited to the Upper Sand Creek/Spotted Tail Gulch drainages and Dugout Gulch Botanical Area in the Bearlodge District in Crook County, Wyoming (Ode and Marriott 1990; Zacharkevics, pers. comm Dec. 20, 2000). It is suspected to be a disturbance-dependent species due to its patchy distribution in apparently good habitats, however, its habitat preferences are not well understood at this time (USDA Forest Service 2000). Three locations of foxtail sedge were relocated and the species' identification confirmed during the 2000 baseline monitoring effort, and an addtional large population may occur in the Cement Ridge allotment on the Upper Sand Creek/Spotted Tail Gulch drainages, but the report has not been confirmed (Zacharkevics, pers. comm. Dec. 20, 2000).

Natural History

In the Black Hills, the species is known to occur from 3800 to 6000 feet elevation in saturated meadows and willow-sedge communities along streams (Ode and Marriott 1990; Marriott 1991b; Zacharkevics pers. comm. Dec. 20, 2000). It appears to be associated with old beaver dams where flooding and disturbance have created wet meadow habitats. Historic mining activity is also suspected to play a role in its current distribution in the Hills, wherein soil disturbance from placer mining in the late 1800's and 1900's in Spotted Tail Gulch may have created additional habitats for the species.

Effects of Management Activities on Carex alopecoidea

Livestock grazing is a concern for this species, and specific impacts would depend on the degree of grazing, trampling, trailing, water structure access and other use of its riparian habitats, however, the plant itself is not preferred forage (USDA Forest Service 2000). Despite its apparent colonization of disturbed habitats, the species may be negatively impacted by mining activity in the northern Black Hills (USDA Forest Service 2000). The species' confirmed occurrences are within Dugout Gulch Botanical Area, where potential negative impacts include livestock grazing, minerals extraction, noxious weed invasion and travel management activities. It is not possible to accurately assess the effects of management activities on this species until its ecological requirements, habitats and species associations are better understood. Due to the species' potential association with beaver-created habitats, hardwood conservation and restoration would likely benefit *C. alopecoidea* populations.

A large proportion of the riparian areas in the northern Black Hills are under private ownership and have been subject to a variety of uses, particularly mining, that have likely altered the distribution of *C. alopecoidea* in the Hills. Historically, the species may have been much more widely distributed in the Hills and that its current distribution reflects

either remnant populations or response to mining disturbance-created habitats. Historic and ongoing livestock grazing and trampling may cause detrimental drying of its habitat (FEIS page 133), and reduction in beaver and disturbance-created riparian habitats has likely negatively affected this species. It is therefore likely that the species has been impacted and reduced by historic use of its riparian habitats. Current condition is expected to improve due to protective direction under the proposed alternative and with monitoring of populations on NFS land. Refer to the FEIS Appendix H pages 139 to 141 for additional discussion of cumulative effects.

Evaluation of the Selected Alternative for Carex alopecoidea

Treatment of Botanical Area Guidelines as Standards and additional protective direction under Alternative 2 As Modified would likely provide the lowest level of risk to this species. In addition to the general protective direction for Sensitive plant species reviewed above, the following also applies to this species under Alternative 2 As Modified:

- Treatment of Guidelines as Standards would be more protective for this species (USDA Forest Service 2000).
- Modified Guideline 2207, treated as a Standard, would provide additional protection for *C. alopecoidea* habitat by requiring that new livestock/wildlife water structures are located outside of hardwood communities (USDA Forest Service 2000).
- Revised Standards 1301, 1302 and 1304 and Revised Guideline 3104, treated as a Standard, would reduce risks to *C. alopecoidea* by increasing the level of protection for Sensitive plant habitats associated with moist soil conditions by prohibiting development of springs or seeps as water facilities and more protective mitigation within the Water Influence Zone.
- Treatment of Guideline 3106 ("Riparian areas or wetlands, where populations of Sensitive plants are located, should be protected during or after trail, road and highway construction activities.") and Revised Guideline 3107(a) ("Consider the use of one, or a combination of the following protection measures, to protect Sensitive plants or their habitat during and after trail, road and highway construction activities...") as Standards would provide additional protection for *C. alopecoidea* and its habitats from road construction and related impacts.
- Treatment of Guidelines 3210, 3211 and 3212 as Standards would reduce risks to high quality riparian communities through direction to protect and improve riparian habitats and stream stability, and to protect aquatic and terrestrial species from animal damage.
- New Standard 3.1-2503 would require that Sensitive plant populations that occur within designated Botanical Areas are protected from adverse impacts of domestic livestock grazing.
- Additional Management Objectives, Standards and Guidelines may be applicable, pending further evaluation of the species' habitat preferences and distribution in the Black Hills.

Determination

For the proposed alternative, a determination of "May adversely impact individuals, but not likely to result in a loss of viability on the Planning Area, nor cause a trend to federal listing or a loss of species viability range-wide" is made for *Carex alopecoidea.*

The rationale for the above determination is based upon the following:

1. That it is made for the 2-5 year interim period;
2. All protective direction listed above for the species will be applied as written;
3. Where adequate population data do not exist, and where such data would be difficult to obtain, FSM Supplement 2672.1, Sensitive species management direction requires that project analyses will be based on the assumption that the species is present, and the project designed accordingly in order to reduce adverse effects to the species or its habitat;
4. The species occurrence within Management Area 3.1 provides additional protective direction for the species that will be applied as written.

Scirpus cyperinus *(Woolgrass)*

Species Distribution

Baseline monitoring of *Scirpus cyperinus* populations was conducted in the Bearlodge District during the 2000 field season. Populations elsewhere in the Black Hills are no longer tracked by the state due to its abundance on the South Dakota portion of BHNF and the majority of sites within the Norbeck Wildlife Preserve and Black Elk Wilderness. The Wyoming Natural Diversity Database is also re-examining whether the species merits Sensitive status due to taxonomic confusion of *S. cyperinus* and *S. atrocinctus*, a closely related species. Many of the 45 occurrences of *S. cyperinus* located in the Bearlodge are within grazing allotments.

Natural History

Woolgrass is a wetland species found on creek margins and is emergent at the upstream end of beaver dams, usually associated with willow and an open canopy (USDA Forest Service 2000). Most of the 45 sites visited during the 2000 monitoring effort were associated with beaver dams, active and abandoned, where the plant usually occurred at pond margins and often on top of dams. Historically, the species may have been more widespread in the Hills than it is now (USDA Forest Service 2000) due to greater numbers of beaver in the past, and is now limited by alteration of riparian habitats by human activities.

Effects of Management Activities on Scirpus cyperinus

Livestock grazing is a concern for this species, but the degree of impacts is dependent on the amount of grazing, trailing and other site usage in riparian/hardwood habitats where grazing use is often intensive (USDA Forest Service 2000). Ode (USDA Forest Service 2000) stated that viability is not currently an issue for this species and the State of South

Dakota has stopped compiling records since the species colonizes roadside ditches and other ephemeral habitats.

A large proportion of the riparian areas in the Black Hills are under private ownership and have been subject to a variety of uses that have likely altered the distribution of *S. cyperinus* in the Hills. Historically, the species was probably more abundant due to its association with beaver dams and pond margins. Dramatic reductions in beaver and the wetland habitats they create have most likely had a negative affect on *S. cyperinus*, and historic and ongoing livestock damage to stream banks and pond margins have also likely impacted the species and its habitats (FEIS page 133). Although the species is more abundant than previously believed in the Bearlodge district, it is likely that the species has been negatively affected and its numbers reduced by historic use of riparian habitats in the Hills. Current condition is expected to improve due to protective direction under the proposed alternative and with monitoring of populations on NFS land. Refer to the FEIS Appendix H pages 139 to 141 for additional discussion of cumulative effects.

Evaluation of the Selected Alternative for Scirpus cyperinus

Treatment of Standards as Guidelines, and additional protective direction for riparian areas, wetlands and the Water Influence Zone from the effects of livestock grazing under Alternative 2 As Modified would likely provide the lowest level of risk to this species. In addition to the general protective direction for Sensitive plant species reviewed above, the following direction also applies to this species under Alternative 2 As Modified:

- Treatment of Guidelines 2201, 2202, 2204 and 2206 as Standards may enhance *S. cyperinus* habitats through the conservation of hardwood communities, and by restricting new developed recreation sites in aspen/birch stands which may protect or enhance habitats for beaver.
- Modified Guideline 2207, treated as a Standard, may provide additional protection for *S. cyperinus* habitat by requiring that new livestock/wildlife water structures are located outside of hardwood communities (USDA Forest Service 2000). This direction may protect extant and potential beaver habitats and may thereby lead to long-term habitat improvements for woolgrass.
- Revised Standards 1301, 1302 and 1304 and Revised Guideline 3104, treated as a Standard, would increase the level of protection for *S. cyperinus* by protecting Sensitive plant habitats associated with moist soil conditions, prohibiting development of springs or seeps as water facilities, and through more protective mitigation within the Water Influence Zone.
- Treatment of Guideline 3106 ("Riparian areas or wetlands, where populations of Sensitive plants are located, should be protected during or after trail, road and highway construction activities.") and Revised Guideline 3107(a) ("Consider the use of one, or a combination of the following protection measures, to protect Sensitive plants or their habitat during and after trail, road and highway construction activities...") as Standards would provide additional protection for *S. cyperinus* and its habitats from road construction and related impacts.

- Treatment of Guidelines 3210, 3211 and 3212 as Standards would reduce risks to high quality riparian communities through direction to protect and improve riparian habitats and stream stability, and to protect aquatic and terrestrial species from animal damage.

Determination

For the proposed alternative, a determination of "May adversely impact individuals, but not likely to result in a loss of viability on the Planning Area, nor cause a trend to federal listing or a loss of species viability range-wide" is made for *Scirpus cyperinus*.

The rationale for the above determination is based upon the following:

1. That it is made for the 2-5 year interim period;
2. All protective direction listed above for the species will be applied as written;
3. Where adequate population data do not exist, and where such data would be difficult to obtain, FSM Supplement 2672.1, Sensitive species management direction requires that project analyses will be based on the assumption that the species is present, and the project designed accordingly in order to reduce adverse effects to the species or its habitat;
4. The species is abundantly distributed in protected areas in the central Black Hills;
5. South Dakota is no longer monitoring the species due to its reclassification as an S4 species that is abundant and widely distributed across the state;
6. Both *S. cyperinus* and *S. atrocinctus* are abundant in Wyoming as well and *S. cyperinus* has been recommended for removal from the state's Sensitive species list.

Salix serissima *(Autumn Willow)*

Species Distribution

Salix serissima is a disjunct relic in the Black Hills that occurs primarily in northern boreal bogs (e.g. Manitoba) (USDA Forest Service 2000). Its potential habitat is very limited in this area with the only known location on Black Hills National Forest administered lands at McIntosh Fen Botanical Area. There is also one site on private land near Nahant. Baseline monitoring was conducted in 2000 at McIntosh Fen and one additional concentration of plants was located within the Botanical Area.

Natural History

The amount of willow and aspen that historically occurred at the fen has declined since the 1930s due to the site's use as an agricultural water source while under private ownership (USDA Forest Service 2000). The Forest Service acquired McIntosh Fen ca. 1980, and has made efforts to restore a measure of the original hydrologic function of the fen by filling in ditches with straw bales to re-establish a saturated organic layer. Autumn willow cuttings were planted using on-site materials. A total of 348 *S. serissima* plants (including recently established cuttings) were located at the fen in 2000 at the previously known and one new location (317 and 31 plants, respectively).

Effects of Management Activities on Salix serissima

According to recent direction, grazing is restricted within the fen. Noxious weeds, specifically Canada thistle (*Cirsium arvense*), are likely a threat to the species. If the water table continues to rise, due to restoration of the fen's hydrology, it would likely result in a decline in Canada thistle and an increased threat from wetland noxious weed species such as purple loosestrife (*Lythrum salicaria*). Noxious weed treatments are, and would be, beneficial to the species provided that they are applied correctly (USDA Forest Service 2000).

A large proportion of the riparian areas in the Black Hills are under private ownership and have been subject to a variety of uses that may have reduced the distribution of *S. serissima* in the Hills. Historically, the species may have been more abundant due to its association with beaver-created wetlands, which can have a fen-like quality. Dramatic reductions in beaver and the wetland habitats they create have most likely had a negative affect on *S. serissima*. Historic livestock damage and ditching at McIntosh Fen negatively impacted *S. serissima* and its fen habitat (FEIS page 133). Continued exclusion of cattle and protection and/or enhancement of the fen's hydrology are expected to benefit the species. However, the absence or limitation of beaver activity will likely prevent *S. serissima* from occupying additional sites in the Hills on either NFS or private lands. Refer to the FEIS Appendix H pages 139 to 141 for additional discussion of cumulative effects.

Evaluation of the Selected Alternative for Salix serissima

Due to existing management of McIntosh Fen, the overall effect of the selected alternative on the viability of *Salix serissima* is expected to be neutral (USDA Forest Service 2000). Treatment of Guidelines as Standards in designated Botanical Areas, additional protective direction for riparian areas, wetlands and the Water Influence Zone, and more restrictive livestock grazing and travel direction in Botanical Areas under Alternative 2 As Modified would likely provide the lowest level of risk to this species of the management alternatives. In addition to the general protective direction for Sensitive plant species reviewed above, the following direction also applies to this species under Alternative 2 As Modified:

- Revised Standards 1301, 1302 and 1304 and Revised Guideline 3104, treated as a Standard, would increase the level of protection for *S. serissima* by protecting Sensitive plant habitats associated with moist soil conditions, prohibiting development of springs or seeps as water facilities, and through more protective mitigation within the Water Influence Zone.
- Treatment of Guideline 3106 ("Riparian areas or wetlands, where populations of Sensitive plants are located, should be protected during or after trail, road and highway construction activities.") and Revised Guideline 3107(a) ("Consider the use of one, or a combination of the following protection measures, to protect Sensitive plants or their habitat during and after trail, road and highway construction activities...") as Standards would provide additional protection for *S. serissima* habitat from road construction and related impacts.

- Treatment of Guidelines 3210, 3211 and 3212 as Standards would reduce risks to high quality riparian communities through direction to protect and improve riparian habitats and stream stability, and to protect aquatic and terrestrial species from animal damage.
- Treatment of Botanical Area Guidelines as Standards would be more protective for this species (USDA Forest Service 2000).
- New Standard 3.1-2503 would require that Sensitive plant populations that occur within designated Botanical Areas are protected from adverse impacts of domestic livestock grazing.
- Treatment of Botanical Area Guidelines 3.1-9102 and 3.1-9103 as Standards would be more protective for *Salix serissima* at McIntosh Fen (USDA Forest Service 2000).

Determination

For the proposed alternative, a determination of "May adversely impact individuals, but not likely to result in a loss of viability on the Planning Area, nor cause a trend to federal listing or a loss of species viability range-wide" is made for *Salix serissima.*

The rationale for the above determination is based upon the following:

1. That it is made for the 2-5 year interim period;
2. All protective direction listed above for this species will be applied as written;
3. Where adequate population data do not exist, and where such data would be difficult to obtain, FSM Supplement 2672.1, Sensitive species management direction requires that project analyses will be based on the assumption that the species is present, and the project designed accordingly in order to reduce adverse effects to the species or its habitat;
4. The species occurrence within Management Area 3.1 provides additional protective direction that will be applied as written;
5. The following management activities will not be performed where the species occurs: vegetation management, range management, travel management, wildlife management, minerals exploration and extraction, and fire management.

Corallorhiza odontorhiza *(Autumn Coralroot)*

Species Distribution

Corallorhiza odontorhiza occurs from Maine to southern Minnesota and south to Florida and Mexico (Gleason and Cronquist 1991). The species is a rare, eastern deciduous forest orchid with a disjunct distribution in the Black Hills, wherein its specific habitat needs are unknown (USDA Forest Service 2000). In the Black Hills, autumn coralroot is known from a single, confirmed occurrence in 1971 in Lawrence County, SD from pine forest habitat southeast of Deadwood (Lawrence 1973 in Ode, pers. comm. Dec. 7, 2000). However, an exact location has not been determined from the existing record and has not been successfully relocated to date (Ode, pers. comm., Sept. 20, 2000). Because of its distribution in forest habitats elsewhere, because it has been reported in pine forest in the Black Hills, and because none of the coralroots occur in grasslands or meadows, it may

be assumed that it is a forest species (USDA Forest Service 2000). Due to difficulties in consistently relocating the species (see Natural History below), its range of optimal and suitable habitat in the Black Hills cannot be defined at the present time. Survey and monitoring for occurrence and quantifiable population information will continue on the Forest and individuals will be counted and protected.

Natural History

Coralroots are perennial, terrestrial, mycorrhizal obligate erect herbs that are rootless, leafless, largely without chlorophyll, with much branched rhizomes, and often occur in groups or large colonies (Great Plains Flora Association 1991). Plants appear sporadically in woodland litter, where they may disappear for years then reappear during suitable climate conditions. It is assumed that the species requires decaying woody plant material above or below ground, wherein a mycorrhizal relationship is probably an important factor, as it is for other coralroot species (USDA Forest Service 2000). However, the species is notoriously difficult to detect, due to its inconspicuous habit and tendency to go dormant for years at a time (USDA Forest Service 2000). For this reason, it is difficult to monitor this species. *Corallorhiza odontorhiza* has been listed as a species that is scarce and very localized in undisturbed habitats but that can occur prolificly following a disturbance (Dressler 1990). Currently, there is not sufficient ecological information on the species to define its habitat in the Black Hills. *Corallorhiza odontorhiza* reportedly occurs at elevations of 5100 to 5700 feet (Ode and Marriott 1990; Ode, pers. comm., Sept. 20, 2000).

Effects of Management Activities on **Corallorhiza odontorhiza**

The effects of timber management on this species are unknown, however the species probably would be impacted by timber activities where the plant occurs, which is presumably in pine forest (USDA Forest Service 2000). The effects of road construction on this species are likely detrimental, although it may re-colonize following road reclamation. However, substantial ground disturbance from mining could have negative effects on this species (USDA Forest Service 2000). Because so little is known about the species habitats and distribution, the effects of livestock grazing are not known at this time (USDA Forest Service 2000), however, it is likely that the effects of trampling are detrimental to the plant. Noxious weed invasions are a threat to the overall health and population viability of all Sensitive plant species and their associated plant communities.

This species is presumed to be dependent upon disturbance, whereby historic fire suppression has likely altered the distribution of this species in the Black Hills (FEIS page 76). Because so little is known about the species' past or present distribution in South Dakota, it is not possible to predict the effects of future land use and management activities on *C. odontorhiza* at this time. Re-introduction of fire to natural systems may enhance the species' extant or potential habitats in the future. ON-going livestock use of potential habitats may be detrimental. Monitoring and protection will likely benefit the species where it occurs, provided it occurs, in the long term. Refer to the FEIS Appendix H pages 79 to 85 for additional discussion of cumulative effects.

Evaluation of the Selected Alternative for Corallorhiza odontorhiza

The overall effect to this species is unknown for all alternatives because there is so little information about the species' distribution in the Black Hills and elsewhere (USDA Forest Service 2000). Because its habitat is poorly understood, it is not known whether the proposed activities will negatively impact the species, provide additional habitats and/or create beneficial disturbance in its potential habitats. Further survey and monitoring is needed before the degree of protection or harm related to Management Objectives, Standards and Guidelines can be determined. The effects of goshawk direction on *C. odontorhiza* and/or its potential habitats cannot be determined based upon existing information. The degree of impact or protection from the implementation of Management Objectives, Standards and Guidelines under Alternative 2 As Modified cannot be determined at this time for *C. odontorhiza*. In addition to the general protective direction for Sensitive plant species reviewed above, the following may also apply to this species under Alternative 2 As Modified:

- Treatment of Guidelines 2501, 2504 and 2505 as Standards would provide additional protection to extant populations or potential habitats from any adverse impacts from range management activities.
- New Standard 3114 would create structurally diverse stands within northern goshawk post-fledging family areas (approximately 420 acres around 180-acre nest stands) and potential habitats, and maintain vegetation diversity in ponderosa pine forest, with a trend towards mature structural stages and retention of green trees in addition to snag retention. These activities could provide indirect protection for *C. odontorhiza* individuals or populations, provided they occur in goshawk habitats.
- Additional Management Objectives, Standards and Guidelines may be applicable, pending further evaluation of the species' habitat preferences and distribution in the Black Hills.

Determination

Because the species has not been found in the Black Hills for 30 years it is not possible to acknowledge its occurrence on NFS land or to evaluate the potential effects of management activities upon the species' habitat(s), individuals or populations. For this reason, an informed determination cannot be made at this time for *Corallorhiza odontorhiza*. Marriott has recommended that intensive surveys be conducted for this species' during the interim period (USDA Forest Service 2000). If the species' is located, and its habitat in the Black Hills better described, FSM Supplement 2672.1, Sensitive species management direction would require that, where adequate population data do not exist and where such data would be difficult to obtain, project analyses will be based on the assumption that the species is present, and the project designed accordingly in order to reduce adverse effects to the species or its habitat.

Botrychium campestre *(Prairie Moonwort)*

Species Distribution

Botrychium campestre is a North American endemic that ranges from the Canadian provinces of Alberta, Ontario, and Saskatchewan to Colorado, Iowa, Michigan, Minnesota, Montana, Nebraska, New York, North Dakota, South Dakota, Wisconsin and Wyoming (Flora of North America 1993). Prairie moonwort is a grassland species originally described from the loess prairies of Iowa and dune habitats around the Great Lakes (Lellinger 1985). In the Black Hills, it is known from a single occurrence in ponderosa pine forest at 5000 feet elevation in the Bear Lodge Mountains in Crook County, Wyoming (Fertig 1993; USDA Forest Service 2000). The Black Hills occurrence, along with 2 small populations in Yuma and Clear Creek Counties in Colorado and an additional site along the Niobrara River in Nebraska (Don Farrar pers. comm. Feb. 8, 1996) are the only reported occurrences of this species in the U.S. Forest Service Rocky Mountain Region. The species is notoriously difficult to detect during seasonal surveys and is considered rare, but it is not known how rare (USDA Forest Service 2000). Monitoring for occurrence and quantifiable population information will continue on the Forest and individuals will be counted and protected.

Natural History

Moonworts are primitive ferns that are generally small and inconspicuous, normally consisting of a single leaf produced each year from an underground stem. Damage to the leaves reportedly has little effect on the plant, as long as the underground shoots and roots are left intact (Flora of North America 1993). It reproduces by wind- or animal-dispersed spores, which may take ten years or more to produce a leaf from the sporophyte. The spore-producing period occurs in the early spring with the above ground stems dying back in late spring and early summer (Fertig 1993). They are long-lived, early-successional plants that appear to require disturbed soil to become established, which is typical of the *Botrychiums* (Don Farrar pers. comm., February 8, 1996). Recent genetic assessment of the genus *Botrychium* has confirmed that *B. campestre* is a distinct species (Farrar 2000).

The species is inconspicuous in sandy grassland habitats in prairies, dunes, railroad sidings and fields over limestone (Flora of North America 1993). It is one of the most wide-ranging species of the *Botrychiums* (Don Farrar, pers. comm., February 8, 1996). The distribution of this species in the Black Hills' is not well understood.

Effects of Management Activities on Botrychium campestre

The species may be highly affected by management activities, particularly timber harvest, due to its suspected occurrence in pine forest. In general, the effects of proposed activities on *B. campestre* cannot be addressed because so little is known about the species distribution and habitat preferences in the Black Hills (USDA Forest Service 2000).

Because several other species of *Botrychium* are dependent upon disturbance to become established, this species is presumed to be dependent upon disturbance as well. The type and degree needed is not well understood, but it may require disturbance of the mineral soil in order to become established, whereby historic suppression of natural fire has likely reduced its distribution in the Black Hills and intense ground disturbance due to livestock trampling and recreation is presumed to also have had a negative impact (FEIS pages 162, 164). Because it is normally a species of plains and dune habitats, its occurrence in the Black Hills is very unusual and confounds our understanding of its habitat and distribution here. Until more information becomes available on the species occurrence in the Hills, if it occurs, it is not possible to predict the effects of future land use and management activities on *B. campestre*. Refer to the FEIS Appendix H page 167 for additional discussion of cumulative effects.

Evaluation of the Selected Alternative for Botrychium campestre

The effects of the management alternatives on this species are unknown because there is so little information about the species' distribution in the Black Hills and elsewhere (USDA Forest Service 2000). Because its habitat is poorly understood, it is not known whether the proposed activities will negatively impact the species, provide additional habitats, or create beneficial disturbance in its current habitats. Further survey and monitoring is needed before the degree of protection or harm related to Management Objectives, Standards and Guidelines can be determined. The effects of goshawk direction on *B. campestre* and/or its potential habitats cannot be determined based upon existing information The degree of impact or protection from the implementation of Management Objectives, Standards and Guidelines under Alternative 2 As Modified cannot be determined at this time for *B. campestre*. In addition to the general protective direction for Sensitive plant species reviewed above, the following may also apply to this species under Alternative 2 As Modified:

- Treatment of Guidelines 2501, 2504 and 2505 as Standards would provide additional protection to extant populations or potential habitats from adverse impacts of range management activities.
- New Standard 3114 would create structurally diverse stands within the northern goshawk post-fledging family areas (approximately 420 acres around 180-acre nest stands) and maintain vegetation diversity in ponderosa pine forest, with a trend towards mature structural stages and retention of green trees in addition to snag retention. These activities could provide indirect protection for *B. campestre* individuals or populations, but the effects are not known at this time.
- Additional Management Objectives, Standards and Guidelines may be applicable, pending further evaluation of the species' habitat preferences and distribution in the Black Hills.

Determination

Despite survey efforts for the species at its reported location, the species has not been relocated to date. For this reason, we cannot define the species' habitats or evaluate the potential effects of management activities upon individuals and populations, and an informed determination cannot be made at this time for *B. campestre*. Marriott (USDA

Forest Service 2000) has recommended that intensive surveys be conducted for this species' during the interim period. If the species' is located, and its habitat in the Black Hills better described, FSM Supplement 2672.1, Sensitive species management direction would require that, where adequate population data do not exist and where such data would be difficult to obtain, project analyses will be based on the assumption that the species is present, and the project designed accordingly in order to reduce adverse effects to the species or its habitat.

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Appendix H

Forest Supplement to Forest Service Manual

FOREST SERVICE MANUAL

BLACK HILLS NATIONAL FOREST

FSM # –TITLE 2600 - WILDLIFE, FISH, AND SENSITIVE PLANT HABITAT MANAGEMENT

CHAPTER # 2670 – THREATENED, ENDANGERED AND SENSITIVE PLANTS AND ANIMALS

Supplement No.: Black Hills Supplement # 2600-2001-1

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Approved: /s/ Sylvia J. Arbelbide (for) **Date Approved:** April 30, 2001
John Twiss, Forest Supervisor

Posting Instructions: Supplements are numbered consecutively by Title and calendar year. Post by document name. Retain this transmittal as the first page of this document.

New Document(s):	2672.101-103	3 Pages
Superseded Document(s):		

Digest:

2672.101-103	Clarifies language included in the Washington Office's 1999 Black Hills National Forest Revised Plan Appeal Decision regarding assessing sensitive species presence in a planning area, and managing for nesting and post-fledging habitat for the northern goshawk.

FSM 2670 - WILDLIFE, FISH AND SENSITIVE PLANT HABITAT MANAGEMENT

2672.1 - Sensitive Species Management.
2672.101 - Authority. Forest Service Manual 2672.4 provides standards and outlines procedures for conducting project level biological evaluations that analyze the direct, indirect and cumulative effects of a proposed action on sensitive species. Habitat needs and ecological requirements of the species are to be described. Unless a no-impact determination can be made during pre-field review, or there is insufficient information to make a determination that the proposed project would not contribute to a loss of viability or a trend toward federal listing, field reconnaissance (survey) is conducted to gain an understanding of which habitats and species exist in the project area, and to gather information that will help evaluate the significance of the habitat in the project area to the species. This information is used to analyze the effects of the project and make a determination of the effect the project or action will have on the species. Recommendations to remove, avoid, or otherwise mitigate for any adverse effects can be described if they have not been incorporated during alternative development.

The October, 1999 appeal decision for the Black Hills National Forest Revised Land and Resource Management Plan included general interim management direction that aimed at clarifying FSM 2672.43 regarding when to conduct field reconnaissance for project level biological evaluations:
Conduct surveys for sensitive species under the following conditions, unless such species are known not to be present: 1) the project area is within the known or suspected range of the species and suitable habitat exists within the proposed project area, and, 2) the type of activity being proposed is known or suspected to be potentially detrimental to the species. Surveys should address spatial and temporal scale considerations. Existing habitat and population data may be used. This information should be used in project planning and analysis. In situations where adequate population data do not exist, and where such data would be difficult to obtain, the project analysis may be based on the assumption that the species is present, and the project designed accordingly to provide sufficient protection such that there is a low likelihood of adverse effects to the species or its habitat within the project area.

2672.102 – Objective. In many cases due to timelines involved in project level planning, the irregularity of occurrence of some sensitive plant and animal species, and limitations in budget and personnel, precise population and/or occurrence data can be difficult to obtain. In those cases, individual projects would be required to 'assume presence' if there is evidence of or potential for sensitive species and/or their habitats to occur within the proposed project area. All actions and mitigations would be based on this assumption.

2672.103 – Policy. If goshawk nesting territories are not currently known within the landscape area (5,000-10,000 acres) project alternatives would locate post-fledging family areas (PFA's) around suitable nesting habitat appropriate for the landscape area. These PFA’s would consider known goshawk nest distribution and would be designed to fill holes or gaps where needed between the known goshawk territories. By assuming presence and providing for goshawk nesting habitat, opportunities to improve species distribution and viability Forest-wide,

are enhanced. Project area field surveys shall be conducted during the nesting-fledging season to attempt to locate active nests and better define areas of suitable goshawk nesting habitat.

There are R2 Sensitive Species known to occur on the Forest that do not have well defined or thoroughly understood habitat use preferences. Some species, such as plants are detected only in years when the weather conditions are conducive. In situations where adequate population data do not exist, and where such data would be difficult to obtain, the project analysis may be based on the assumption that the species is present, and the project designed to provide sufficient protection to reduce the likelihood of adverse effects on the species or its habitat. Data from the State Natural Heritage Database, Forest observations, and appropriate scientific research will be considered and used in project level planning.

This policy will remain in affect until the Black Hills National Forest Plan Land and Resource Management Plan – Revised (1997) is amended (Phase II).