October 2005

Forest Plan

Phase II Amendment Final EIS Newsletter and Summary

Letter from Forest Supervisor . . . Page 1

Summary of Final Environmental Impact Statement for the Phase II Amendment . . . Page 3

Proposed Action . . . Page 3

Major Conclusions . . . Page 3

Areas of Controversy . . . Page 5

Major Issues Addressed . . . Page 6

Table 1 – Comparison of Key Alternative Direction . . . Page 10

Table 2 – Summary of Consequences . . . Page 14

Craig Bobzien

Thank you for your interest in the Black Hills National Forest. My name is Craig Bobzien, and I am forest supervisor here in Custer, South Dakota. I would like to say first that I believe the decision signed by our regional forester Rick Cables implementing Alternative 6 of the Phase II Amendment is the best opportunity we have to protect communities, property, and forest values to restore health and balance to the forests of our beautiful Black Hills.

Many of you know that pine trees grow very well here and are becoming increasingly dense. Pine seedlings are moving into areas that were historically occupied by hardwoods, grasslands, and shrubs. There are now so many trees and so much fuel that large destructive wildfires and growing insect attacks are threatening the very things we all love most about our forest.

Large destructive wildfires bring dramatic change

Conditions changed on the Black Hills over the last five years from focusing exclusively on species viability (making sure plants and animals have favorable habitat conditions) to a wider perspective including the serious effects of very large fires and a widespread mountain pine beetle epidemic. This decision addresses these combined needs. The strengths of this decision are:

1. Conserves viable plant and animal species and habitats for the long term, supported by the best available science.
2. Emphasizes protecting communities, property, and forest values by reducing severe insect and fire hazards.
3. Designates research natural areas (RNA) to monitor and learn about important plant communities.
4. Provides for the continuing viability of the existing forest products industry and infrastructure essential to cost effectively treat the forest.

(Continued on page 2)

Our new plan provides homes for fish and wildlife and improves forest health and vigor by reducing tree density.

We will work with our partners to create a generally more open forest with lots of different-aged trees, young and old, and a good mix of meadows and oak and aspen. The more open forest provides a good balance for species over time and gives us the best hope to control fires and reduce insect attacks.

Our plan does a good job of reducing the high risk of damaging wildfires and insect attacks by significantly reducing the fire hazard around our communities and in the interior forest. We will use a combination of tools like timber harvest, thinning, and prescribed fire to reduce the number of trees, making the forest and our wild and human communities more fire-worthy over time.

Thinning the forest leaves more water and nutrients for the trees that are left. Fires are not as likely to kill the trees and insects have a much harder time becoming established under the bark.

We will establish four new RNAs totaling 2,300 acres. These are special areas maintained as controls against which we can measure the effects of our management. These are not wilderness areas. They are areas of important scientific study, and we welcome their addition to our forest.

This plan is not only the environmentally preferred alternative, but it also provides the highest net public benefit of any of the alternatives we considered. What I mean is that it contributes the most to the mix of all uses of the Forest through providing favorable habitat conditions for plants and animals; reducing the risks from fire and insects; creating jobs; generating potential income; and providing more stable levels of the products and experiences we count on from the Black Hills National Forest.

The revenues from planned activities will be used to improve forest health conditions. Activities like timber harvest, hunting, recreation, and gathering special plants help people in the Black Hills to maintain our quality of life and our high standard of living. At the same time our efforts will best protect important cultural and social values.

Several comments were concerned about ensuring a supply of timber from the National Forest to maintain local mill capacity. Timber sale levels and the allowable sale quantity (ASQ) did not change from the 1997 plan.

Our people, other agencies, and especially the states of South Dakota and Wyoming, have worked incredibly hard over several years to study these very difficult and complex issues, and I am confident and hopeful about the future of our forest as a result.

This amendment is our strategic plan for ensuring the long-term health of the forest. We will carefully monitor our activities, the condition of the land, the goods and services produced, and the effectiveness of resource protection measures to ensure a healthy forest for future generations.

Craig Bobzien
Forest Supervisor,
Black Hills National Forest

This is a mature open stand of ponderosa pine trees at Mudd Springs

SUMMARY

Final Environmental Impact Statement for the Phase II Amendment (Phase II FEIS) to the Black Hills National Forest (Forest) Land and Resource Management Plan (LRMP)

The U.S. Department of Agriculture (USDA) Forest Service is proposing to amend the 1997 Revised Land and Resource Management Plan (LRMP) for the Black Hills National Forest (the Forest). The LRMP amendment is considered a significant action requiring preparation of an environmental impact statement (EIS) under the National Environmental Policy Act of 1969 (NEPA). The Phase II FEIS was developed from the Phase II DEIS released in September 2004 after considering public comments during the 120-day Phase II DEIS public comment period. This Phase II FEIS summary includes major conclusions, issues and areas of controversy, decisions to be made, and alternatives the Phase II FEIS examines in detail.

The Forest Service released a new planning rule in January 2005. This new rule provides for a transition period, and this amendment complies with those provisions by using modified 1982 rule procedures. The states of Wyoming and South Dakota were signatories to a memorandum of understanding (MOU) as cooperating agencies in analysis of the Phase II amendment. County commissions and conservation districts were included to provide expertise and review.

Phase II FEIS paper copies will be available for review at Black Hills local public libraries, Black Hills National Forest offices, and other local government agencies.

The complete Phase II FEIS and Record of Decision (ROD) is available for public review on the Black Hills National Forest website (http://www.fs.fed.us/r2/blackhills/projects/planning). Compact disks of the complete Phase II FEIS and ROD are available upon request from the Black Hills National Forest as are a limited number of hard copies available on a first-come, first-served basis.

Proposed Action

The Phase II Amendment would change existing Forest Plan goals, objectives, standards, guidelines, and monitoring as outlined in Alternative 6 (FEIS Chapter 2 and Appendix D). Alternative 6 incorporates an ecosystem approach to maintain species viability and reduce fire and insect hazard.

Alternative 6 will conserve species and protect communities, property, and forest resources by reducing fire and insect hazards. Alternative 6 will establish 4 additional RNAs that have special and unique characteristics needed for scientific study.

Major Conclusions

The Black Hills National Forest vegetation condition has changed since conditions reported from the 1874 Custer expedition. There are now more acres of ponderosa pine and white spruce, and the forest is denser. There are fewer acres of aspen, other hardwoods, meadow, and grassland because they have been replaced by ponderosa pine and white spruce. Riparian systems are now less dominated by beaver, shrubs, and hardwoods including aspen.

Aspen and other hardwoods are key viability habitat components of many species. Aspen and other hardwoods, meadow, grassland and restored riparian areas have a low fire hazard rating while ponderosa pine and white spruce have a moderate to very high fire hazard.

Aspen regeneration

The Phase II FEIS demonstrates that all alternatives are expected to contribute to conditions that provide for species viability for all native and desired non-native species. Species viability can be maintained through both active and passive management.

This home burned in the 2005 Ricco Fire.

The Black Hills is a mixed severity fire ecosystem in which frequent low intensity fires and infrequent high intensity fires are part of the historic range of natural variability.

The Forest is fragmented by approximately 280,000 acres of private lands, including entire towns, inside the 1,500,000 acre forest boundary (see *Figure 1*). These private in-holdings and private lands on the exterior of the Forest boundary are highly desired for subdivision, second home, and primary home development. There are 56 at-risk communities in the Black Hills area. Wildland urban interface (WUI) issues such as wildfire and insects are important management issues.

Since the year 2000 more than 14% of the Black Hills National Forest has burned, and the mountain pine beetle epidemic that began at the same time continues to spread across the Forest. Public, state, and congressional interest in doing more to reduce the risk to forest resources and private property is high. National events of the 2000 fire season led to the development of the National Fire Plan (NFP), a large-scale interagency policy initiative to address hazardous fuel conditions on forest and rangelands nationwide.

Frequent low intensity fires that are more likely with active management to reduce fire and insect hazard are more consistent with a sustained flow of goods and services from the Forest and a more stable economic and social environment than are stand replacing high intensity fires.

The main tradeoff considered in Phase II alternatives is between fire and insect hazard reduction and the species that use dense habitat. The National Forest Management Act (NFMA) recognizes tradeoffs must be made to meet multiple use objectives, "Each alternative shall establish objectives for the maintenance and improvement of habitat for management indicator species (MIS) selected under paragraph (a) (1) of

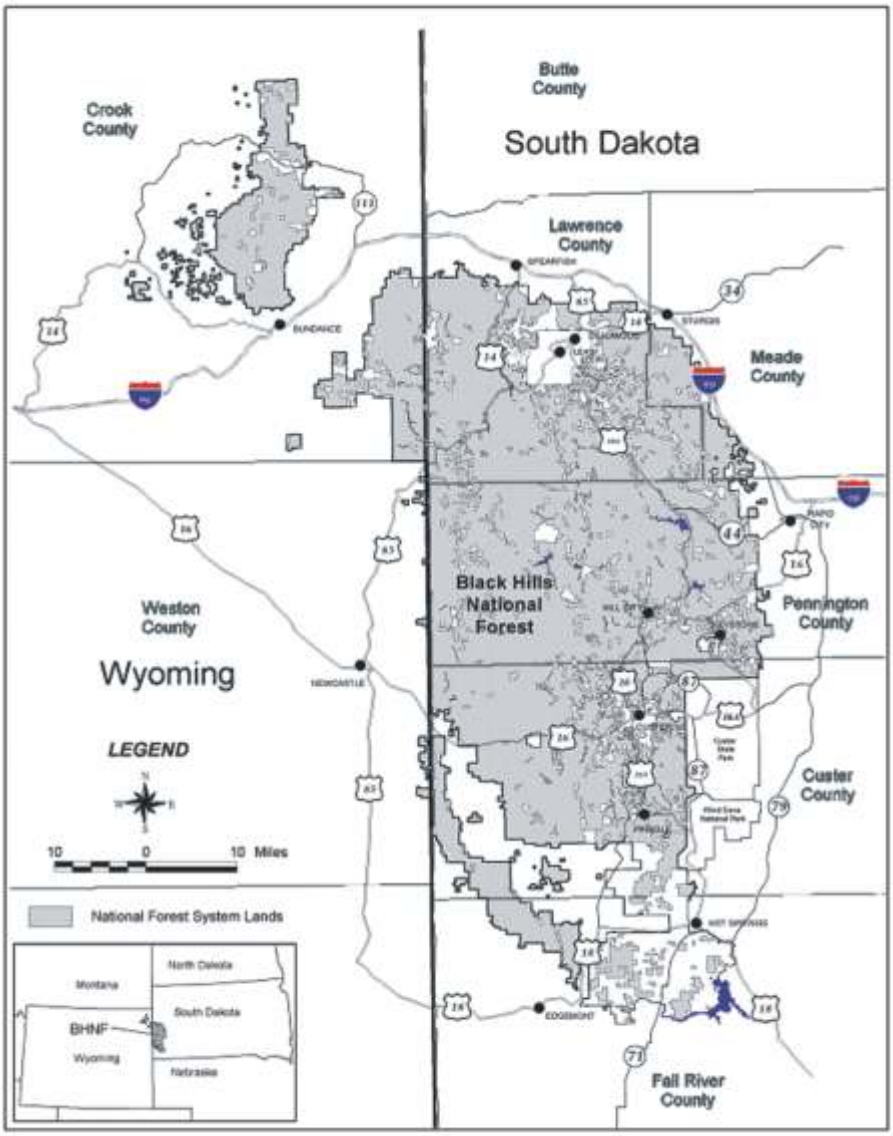


Figure 1. Black Hills National Forest Planning Area

this section, to the degree consistent with overall multiple use objectives of the alternative (36 CFR 219.19)." While all alternatives must maintain viable populations of native and desired non-native species, the tradeoff is between the abundance of species needing certain habitats and the need to reduce fire and insect hazard.

Both active vegetation management and high intensity fire and insect events affect people; air quality; species viability; fire and insect hazard; soils; forest vegetation; and water quality. Active vegetation management allows control over the timing and extent of these effects; reduces the severity of these effects; and can better sustain a flow of goods and services from the Forest.

The forest products industry provides year-round work for local people

A viable timber industry is necessary to actively manage vegetation on a landscape scale to reduce fire and insect hazard and restore hardwood, riparian, meadow, and grassland components of the Black Hills ecosystem. The value of commercial products sold to the timber industry can pay for a portion of the non-commercial treatments needed to meet active management objectives.

Many people are dependent on the local timber industry for jobs, income, and their way of life. Black Hills counties and several towns are partially dependent on tax and other revenues generated by the local timber industry.

AREAS OF CONTROVERSY

Approximately 5,400 letters, emails, and other comments were received on the Draft EIS during the public comment period. Many comments were received on a variety of very specific issues; these issues can be summarized in the following general issue topics. See Final EIS *Appendix A* for a summary of all comments.

Density of the Forest

There was considerable interest over how much of the forest should be managed in a dense mature condition and how much should be managed in a more open mature condition. Those asking for more dense mature forest believe it is important to conserve species dependent on those conditions and it is a natural state of the forest. Those asking for a more open mature forest believe it is necessary to reduce fire and insect hazard to protect human life and property and better sustain jobs and income dependent on Forest goods and services. Open spaced forest between smaller dense mature forest can help conserve some mature forest species by protecting their habitat from fire and insects.

Research Natural Areas (RNA)

Many people did not want any RNA designated on the Forest because of the multiple uses that would be lost from RNA designation. Many people wanted more RNAs as they saw the RNA system as a way to protect many unique Forest vegetation communities.

The Forest examined 121 areas totaling approximately 280,000 acres for possible RNA designation and identified approximately 7,800 acres that meet RNA criteria for detailed analysis.

Economic and Social Concerns

Many people and local government agencies contend it is import to sustain the Black Hills timber industry and local relatively high paying jobs and income and the tax and other revenues generated by the timber industry.

MAJOR ISSUES ADDRESSED

Viability of Plant and Wildlife Populations

ISSUE STATEMENT: Modifying Forest Plan goals, objectives, standards, guidelines, and monitoring requirements in the 1997 Revised LRMP or the 2001 Amended LRMP may be needed to provide for long-term viability of native and desired non-native plant and animal species in the dynamic Black Hills disturbance ecosystem compatible with other multiple uses of the Forest. Key ecosystem elements of the viability issue include the extent and condition of late-successional and/or dense mature forests, and the extent and condition of spruce forests, the condition of riparian areas and aquatic ecosystems, the occurrence of snags, the extent and condition of grassland and hardwood ecosystems, the condition of cave ecosystems, and the occurrence and condition of understory shrubs. The agency must maintain viable populations consistent with overall multiple use objectives.

All alternatives address species viability and diversity to varying degrees as displayed in the alternatives comparison chart at the end of *Chapter 2* and in *Chapter 3*. The Forest interdisciplinary team (ID Team) used forest-wide objectives and localized habitat features to address species viability and diversity. The approach is addressed in *Appendix B* Description of Analysis Process and in *Appendix D* Land and Resource Management Plan Direction by Alternative.

Mule deer use open forest as habitat

Fire and Insect Hazards

ISSUE STATEMENT: Legal mandates to conserve species habitat and populations could limit the degree to which the Forest addresses threats to communities, property, and forest resources.

Other landownership lies within the proclaimed boundary of the Forest. Recent large fires and an insect epidemic have altered habitat and affected public and private property. These and similar events nationwide have focused increased national attention on forest and rangeland health.

The alternatives address this issue to varying extents. The degree to which each alternative addresses this issue is displayed in the alternatives comparison charts at the end of *Chapter 2*.

Mountain pine beetles as small as a grain of rice have killed over one million mature trees

Research Natural Area Assessment

ISSUE STATEMENT: RNAs are needed to represent certain plant communities in a national network. Designating additional RNAs could conflict with existing resource uses and restrict projects like thinning or prescribed fire.

RNA management direction limits the level and types of management actions that can be applied. Some believe that additional RNA establishment could restrict Forest actions to address fuel conditions and insect attacks. Others believe that RNAs could provide valuable habitat conditions for species if surrounding lands are aggressively treated to reduce fire or insect hazard.

All alternatives address this issue to some extent as shown in *Summary Table 2* and FEIS *Chapter 2*.

Volume of Timber and Other Commodities Offered

ISSUE STATEMENT: Forest direction adopted to conserve species viability and diversity could limit management actions to meet objectives under Forest Plan Goal 3 of the 1997 Revised Plan affecting jobs, income, and way of life associated with Goal 3.

> Goal 3 provides for commodity production in an environmentally sustainable manner. We examined the economic effects of timber harvest but we did not change the allowable quantity (ASQ). Timber volume outputs are displayed in *Summary Table 2*.

DECISIONS TO BE MADE

The Rocky Mountain Regional Forester will decide whether to amend direction in the 1997 Revised LRMP and if so in what manner. He will base his decision on the Final EIS analysis and the accompanying Administrative Record. The Regional Forester will prepare and sign a Record of Decision (ROD) documenting his decision for the Phase II Amendment incorporating any amended management direction into the LRMP. This resource management direction will remain in place until the LRMP is amended or revised according to NFMA regulations. The following decisions, which meet the purpose and need described in Phase II FEIS Section 1-3, are to be made in the ROD for the Phase II Amendment:

- ❑ If and how the goals, objectives, standards, guidelines, and monitoring requirements included in the 1997 Revised LRMP will be modified to address species viability (including northern goshawk) and diversity (including MIS);
- ❑ Whether or not candidate RNAs will be designated on the Forest and if so which ones and the Forest Plan direction necessary to administer them; and
- ❑ Whether or not to modify Forest management direction for fire-and-insect hazard to address both species viability and diversity and effects to property and resources, especially around at-risk communities (ARCs) and in the wildland-urban interface (WUI), and if so, in what manner.

The Forest has determined that the following elements of the 1997 Revised LRMP are still adequate and will not be addressed in the Phase II Amendment:

> Management area (MA) allocations except for the possible addition of RNAs;
> The number of acres of unsuitable timber land and the allowable sale quantity (ASQ) for the remaining acres; and
> Designating new roadless or recommended wilderness areas, providing additional protection for roadless areas, or consideration of other special designations such as Wild and Scenic Rivers or special interest areas.

ALTERNATIVES

The five alternatives (Alternatives 1, 2, 3, 4, and 6) considered for detailed analysis in this Phase II Final EIS are summarized in *FEIS Chapter 2* and are described in detail in *FEIS Appendix D*. Alternative 5 was eliminated from further detailed analysis (refer to Section 2.4). These alternatives consider each of the decision areas identified in Section 1-4: wildlife viability, RNAs, and fire and insect hazard. Each alternative meets the purpose and need described in Section 1-3.

Generally, it is expected that fewer risks are associated with the viability of species within the planning area when suitable ecological conditions are broadly distributed and abundant across the historical range of the species. The combination of broader geographical distribution and abundant ecological conditions generally contribute to the likelihood of species persistence.

The Phase II Alternatives each have different strategies for the conservation of species persistence and viability (see FEIS Section 2-3).

A mature ponderosa pine harbors a young seedling in a continuing cycle of forest renewal.

The species viability and diversity evaluation considered:

- ❑ The amount and distribution of ecological conditions on National Forest System (NFS) lands.
- ❑ Expected population changes associated with long or short-term ecological conditions.
- ❑ Species' natural history and expected response to ecological conditions.
- ❑ Random environmental disturbances and variations that could be expected to influence species persistence.
- ❑ Cumulative effects to species viability.
- ❑ Ecological conditions on NFS lands and on other ownerships.

Structural stages are used throughout the Phase II analysis as an indicator of ponderosa pine forest structure and condition, along with several other indicators such as understory shrubs, tree size and other forest composition (hardwood, spruce, meadow, riparian, and grassland) that represent the ecosystem (see Final EIS Chapter 1 Section 1.6). Structural stage and forest composition objectives are key components used to define the alternatives. The structural stages (SS) used are defined below:

SS1 (Grass/Forb): An early forest successional stage during which grasses and forbs are the dominant vegetation. SS1 is defined as non-stocked, with a forest cover of less than 10 percent.

SS2 (Shrubs/Seedlings): This is a developmental stage that is dominated by tree seedlings less than 1-inch diameter breast height (dbh) and shrub species.

This meadow with aspen and pines contributes to habitat diversity

SS3 (Sapling/Pole): This developmental stage is dominated by trees 1- to 7-inch dbh, 10 to 50 feet in height and usually less than 50-years old. This structural stage is further broken down into three overstory crown closure classes to reflect different stand densities and habitat components

- 3A Crown closure of 10 to 40 percent
- 3B Crown closure of 40 to 70 percent
- 3C Crown closure of 70 to 100 percent

SS4 (Mature): This structural stage consists of a tree component that is larger and older than those that make up SS3. SS4 is further broken down into three crown closure classes to reflect different stand densities and habitat components.

- 4A Crown closure of 10 to 40 percent
- 4B Crown closure of 40 to 70 percent
- 4C Crown closure of 70 to 100 percent

SS5 (Late successional): This structural stage is generally characterized by very large trees (very large trees are defined as a stand with an average diameter of 16 or more inches) and a general stand age of 160 years or more.

We analyzed management indicator species (MIS). Some previous MIS were dropped and others added. Nine MIS were considered in the alternatives.

The Nature Conservancy completed a two-year Black Hills plant community inventory of the Black Hills ecoregion. The information was used in the process to identify candidate research natural areas. Four to nine candidate RNAs are included within Alternatives 3, 4, and 6.

Alternative 1, 1997 Revised Plan. This alternative corresponds to Alternative G in the 1996 EIS as modified in the 1997 Record of Decision. It does not include the revisions made under the Phase I Amendment. It is a No-Action alternative because changes made in the interim Phase I Amendment could be deemed unnecessary for the long term. This alternative compares the decision in the 1997 Forest Plan Revision with Phase I and Alternatives (3, 4 and 6). This alternative could be selected if re-evaluation demonstrates that the original analysis and management direction is sufficient to meet diversity and viability requirements and the fire and insect hazard reduction and RNA assessment elements of the purpose and need.

Alternative 2 - Long-Term Adoption of Interim Phase I Amendment. This alternative is the No-Action Alternative for the Phase II Amendment required by NEPA regulations (40 CFR 1502.14). It permanently adopts the short-term changes made in the Phase I Amendment. It was originally intended to provide for short-term species and habitat conservation pending completion of the Phase II Amendment, with an emphasis on late-successional species.

Alternative 3 - Diversity across the Landscape. This alternative focuses primarily on diversity by incorporating actions taken under the 1997 Plan and adds:

- ❑ Species conservation measures for MIS, threatened, endangered, sensitive species, and species of local concern. These species categories are termed broadly as emphasis species. This alternative establishes varied habitat structural-stage objectives for ponderosa pine and the restoration objectives for aspen, bur oak, meadow, grassland, and riparian areas for emphasis species at increased levels over Alternatives 1, 2, and 4.
- ❑ Four candidate RNAs.
- ❑ Fire and insect hazard reduction objectives around at-risk communities, and as needed for species conservation and between RNAs and ARCs.

Alternative 4 - Phase I with Additional Mature Forests. This alternative features late-successional forests by using provisions of the Phase I Amendment and adds:

Beaver are making a comeback in the Black Hills.

Monitoring water and stream conditions

- ❑ Many species conservation measures found in Alternative 3. Establishes late-successional and increased dense mature ponderosa pine objectives. Incorporates restoration objectives for aspen, bur oak, meadow, grassland, and riparian areas at twice the levels found in Alternatives 1 and 2 yet at lower levels than found in Alternatives 3 and 6. Includes increased emphasis on late-successional species by conserving and beginning the process of creating more late-successional forest.
- ❑ Nine candidate RNAs.
- ❑ Fire and insect hazard reduction objectives in the WUI around at-risk communities.

Alternative 6 - Reduce Fire and Insect Hazard. This emphasizes fire and insect hazard reduction while maintaining viable emphasis species populations. It includes actions taken under the 1997 Plan and adds:

- ❑ Structural-stage and vegetative composition objectives similar to Alternative 3 but provides for a more open forest with less dense mature ponderosa pine and reduced spruce acres for increased resistance to fire and insects. Alternative 6 contains many of the species conservation measures and calls for the same level of aspen, bur oak, meadow, and grassland restoration found in Alternative 3. Riparian restoration is one-half that found in Alternative 3.
- ❑ Four candidate RNAs that differ from Alternative 3.
- ❑ Fire and insect management objectives within the WUI area near ARCs and lands adjacent to private lands, greater WUI fire hazard reduction objectives than in Alternatives 3 or 4, and general fire hazard objectives for the interior of the forest that are absent in Alternative 4 and limited to emphasis species and RNA management in Alternative 3.

Alternative Comparison

Alternatives are compared by the direction they propose (Summary Table 1) and by the environmental effects of the proposed direction (Summary Table 2). Only key components of the alternatives are compared below, (see FEIS chapter 2 and 3 and *Appendix C*). *Appendix D* lists the goals, objectives, standards, guidelines, and monitoring items for all alternatives.

Summary Table 1. Comparison of Key Alternative Direction

Resource	Alternative 1 No-Action, 1997 LRMP (Alternative G)	Alternative 2 No-Action, Phase I Amendment Direction	Alternative 3 Diversity Across the Landscape	Alternative 4 Phase I with Additional Mature Forest	Alternative 6 Reduce Fire and Insect Hazard
SPECIES VIABILITY AND DIVERSITY					
Ten-year restoration objectives	Restore 4,600 acres of aspen, 400 acres of bur oak, 100 acres of meadow, 10,400 acres of grassland, 3 stream reaches, and 500 acres of riparian	Same as Alternative 1	Restore 46,000 acres of aspen, 4,000 acres of bur oak, 2,400 acres of meadow, 12,000 acres of grassland, 5 stream reaches, and 1,000 acres of riparian	Restore 9,200 acres of aspen, 800 acres of bur oak, 100 acres of meadow, 10,400 acres of grassland, 3 stream reaches, and 500 acres of riparian	Restore 46,000 acres of aspen, 4,000 acres of bur oak, 2,400 acres of meadow, 12,000 acres of grassland, 5 stream reaches, and 500 acres of riparian (Comparable values are used here for ease of comparison between alternatives, see FEIS Table 2-2)
Forest tree diversity	Conserve spruce, lodgepole and limber pine, Douglas fir	Conserve spruce, lodgepole and limber pine, Douglas fir	Conserve birch/hazelnut, lodge pole and limber pine, Douglas fir; maintain or restore mature and late-successional spruce acres, except near (300 feet) buildings, where spruce has encroached into hardwoods, or for emphasis species management; favor spruce where it is encroaching into pine stands for marten habitat.	Conserve spruce, lodgepole and limber pine, Douglas fir	Conserve birch/hazelnut, lodgepole and limber pine, Douglas fir; manage for 20,000 acres of spruce; treat spruce near (200 feet) buildings, where spruce has encroached into hardwoods, and for emphasis species management; favor spruce where it is encroaching into pine stands for marten habitat.

Resource	Alternative 1 No-Action, 1997 LRMP (Alternative G)	Alternative 2 No-Action, Phase I Amendment Direction	Alternative 3 Diversity Across the Landscape	Alternative 4 Phase I with Additional Mature Forest	Alternative 6 Reduce Fire and Insect Hazard
SPECIES VIABILITY AND DIVERSITY					
Structural stage objectives	5 percent of forested land as SS 5	Same as Alternative 1	In management areas 4.1, 5.1, 5.4, 5.43, and 5.6: SS1 5 percent SS2 5 percent SS3A 10 percent SS3B 10 percent SS3C 5 percent SS4A 20 percent SS4B 30 percent SS4C 10 percent SS5 5 percent Wilderness, botanical areas, RNAs, developed recreation complexes, and late-successional management areas have additional 4C and 5	5 percent of forested land as SS 5, plus maintain all SS 4C	In management areas 4.1, 5.1, 5.4, 5.43, and 5.6: SS1 5 percent SS2 5 percent SS 3A 10 percent SS 3B 15 percent SS 3C 5 percent SS 4A 25 percent SS 4B 25 percent SS 4C 5 percent SS 5 5 percent Wilderness, botanical areas, RNAs, developed recreation complexes, and late-successional management areas have additional 4C and 5
Management Indicator Species (MIS)	20 MIS - Striate disc, Cooper's mountain snail, regal fritillary, bald eagle, black-backed woodpecker, brown creeper, northern goshawk, three-toed woodpecker, osprey, pygmy nuthatch, black bear, elk, fringed myotis, American marten, Merriam's turkey, mountain goat, mountain lion, mule deer, Townsend's big-eared bat, white-tailed deer	24 MIS - Striate disc, Cooper's mountain snail, regal fritillary, brook trout, brown trout, finescale dace, lake chub, mountain sucker, bald eagle, black-backed woodpecker, brown creeper, northern goshawk, northern three-toed woodpecker, osprey, pygmy nuthatch, Rocky Mountain elk, fringed myotis, American marten, Merriam's turkey, mountain goat, mountain lion, mule deer, Townsend's big-eared bat, white-tailed deer	9 MIS - mountain sucker, black backed woodpecker, brown creeper, white-tailed deer, golden crowned kinglet, ruffed grouse, song sparrow, grasshopper sparrow and beaver	Same as Alternative 3	Same as Alternative 3

Resource	Alternative 1 No-Action, 1997 LRMP (Alternative G)	Alternative 2 No-Action, Phase I Amendment Direction	Alternative 3 Diversity Across the Landscape	Alternative 4 Phase I with Additional Mature Forest	Alternative 6 Reduce Fire and Insect Hazard
SPECIES VIABILITY AND DIVERSITY					
Snags	Maintain 1.08 hard snags/acre; if not meeting snag objective, all vegetation management activities to move towards objective; provide 1 green tree/acre	On north/east facing slopes, maintain 4 snags/acre and on south/west slopes, 2 snags/acre ; if not meeting snag objective, all vegetation management activities to move towards objective; provide 1 green tree/acre	In conifers, provide 3 snags/acre; salvage of wildfire-killed trees is limited to 50% until 10,000 acres of 0-5 year old wildfire killed snags	On north/east facing slopes, maintain 4 snags/acre and on south/west slopes, 2 snags/acre; if not meeting snag objective, all vegetation management activities to move towards objective; provide 1 green tree/acre; wildfire killed trees will not be salvaged	In conifers, provide 3 snags/acre; salvage of wildfire-killed trees is limited to 50% until 10,000 acres of 0-5 year old wildfire and certain insect killed snags
Goshawk	Limit activities in 3 30-acre nest stands in historically active territory; limit activities in 3 replacement nest stands	Conduct nest survey; exclude acreage including nest; exclude some acreage of nearby nest; protected area includes 180 acres of best suited nesting habitat within 1/2 mile of nest; acreage must be in >30-acre units	Retain 180 acre areas within ½ mile of historically active nests best suited for nesting habitat; acreage must be in >30-acre units; limit activities around nests to those maintaining or enhancing value for goshawks	Conduct nest survey; exclude acreage including nest; exclude some acreage of nearby nest; protected area includes 180 acres of best suited nesting habitat within 1/2 mile of nest; acreage must be in >30-acre units	Same as Alternative 3
Raptors	Protect active raptor nests	Protect current and historic raptor nests	Protect known raptor nests; prohibit certain activities within time periods and within specified distances	Protect active raptor nests; prohibit some activities within time periods and within specified distances	Same as Alternative 3.
Snails	Conserve habitat of colonies of snail species of special concern	Ensure that all colonies are protected from adverse effects of livestock use and other management activities	Maintain mesic site conditions and surface organic material or enhance habitat	Same as Alternative 2	Same as Alternative 3
Deer and elk	Management through habitat capability analysis	Management through habitat capability analysis	Encourage and protect establishment of shrubs in moderate-to-high-intensity burn for five years following a wildfire	Same as Alternative 3	Same as Alternative 3 structural stage objectives promote understory shrubs

Resource	Alternative 1 No-Action, 1997 LRMP (Alternative G)	Alternative 2 No-Action, Phase I Amendment Direction	Alternative 3 Diversity Across the Landscape	Alternative 4 Phase I with Additional Mature Forest	Alternative 6 Reduce Fire and Insect Hazard
FIRE, INSECTS, AND DISEASE					
Fire hazard	Reduce wildfire threat to public and private developments and reduce fuel loading to acceptable standards	Reduce wildfire threat to public and private developments and reduce fuel loading to acceptable standards	Manage for 50 percent moderate-to-low fire hazard rating in the WUI; manage for moderate-to-low fire hazard rating between RNAs and the WUI and other resources at risk	Manage for 50 percent moderate-to-low fire hazard rating in the WUI	Manage for 50-75 percent moderate-to-low fire hazard rating in the WUI and 50 percent moderate-to-low fire hazard rating on the rest of the Forest
Catastrophic event recovery	Revegetate burned areas that will not naturally revegetate quickly	Revegetate burned areas that will not naturally revegetate quickly	Enhance or maintain natural recovery and achieve fuel-loading mosaic and non-emergency watershed conditions within five years; revegetate burned areas that will not naturally revegetate quickly except in RNAs	Enhance or maintain natural recovery and achieve fuel-loading mosaic and non-emergency watershed conditions within five years; revegetate burned areas that will not naturally revegetate quickly	Same as Alternative 3
CANDIDATE RESEARCH NATURAL AREAS					
Research Natural Areas	The existing Upper Pine Creek Research Natural Area, designated in 1932	The existing Upper Pine Creek Research Natural Area, designated in 1932	The existing Upper Pine Creek RNA and four candidate RNAs totaling 2,485 acres: Canyon City Fanny/Boles Geis Spring Sheep Nose Mountain	The existing Upper Pine Creek RNA and nine candidate RNAs totaling 7,777 acres: Canyon City Cranberry Springs Fanny/Boles Geis Spring Iron Mountain North Lemming Draw North Fork Castle Creek Sheep Nose Mountain Upper Sand Creek	The existing Upper Pine Creek RNA and four candidate RNAs totaling 2,276 acres: North Fork Castle Creek Fanny/Boles Geis Spring Canyon City

Summary Table 2. Summary of Consequences

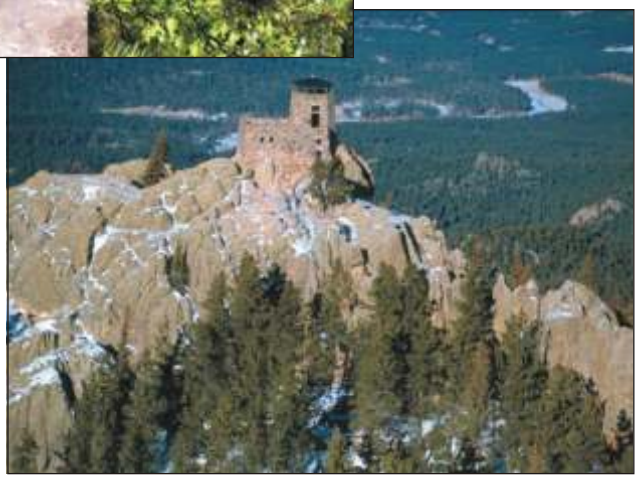
Issue Component	Alternative 1 No-Action, 1997 Revised Forest Plan	Alternative 2 No-Action, Phase I Amendment	Alternative 3 Diversity Across the Landscape	Alternative 4 Phase I with Additional Mature Forest	Alternative 6 Reduce Fire and Insect Hazard
SPECIES VIABILITY AND DIVERSITY					
Late-succession pine forest (structural stages 4C and 5)- brown creeper MIS	Retains 5% of ponderosa pine as structural stage 5; has structural stage 4C conservation measures where management occurs.	Retains 5% of ponderosa pine as structural stage 5; has structural stage 4C conservation measures where management occurs.	Maintains 15% of ponderosa pine as habitat.	Maintains 18% of ponderosa pine as habitat.	Retains 11% of ponderosa pine as habitat.
Early-successional forest and understory shrubs - white -tailed deer MIS	Second greatest amount of open and early-successional forest	Third greatest amount of open and early-successional forest	Fourth greatest amount of open and early-successional forest	Least amount of open and early-successional forest	Greatest amount of open and early-successional forest
Aspen habitat - ruffed grouse MIS	Least amount of aspen habitat	Same as Alternative 1	Greatest amount of aspen habitat	Second greatest amount of aspen habitat	Greatest amount of aspen habitat
Hardwood & riparian habitat - beaver MIS	Least amount of hardwood and riparian habitat	Same as Alternative 1	Greatest amount of hardwood and riparian habitat	Third greatest amount of hardwood and riparian habitat	Second greatest amount of hardwood and riparian habitat
White spruce habitat - Golden-crowned kinglet MIS	Remains at current levels at 25,000 acres	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1	Habitat declines to 1995 level (20,000 acres), approximately a 20% decrease
Shrubby riparian habitat - song sparrow MIS	Half the riparian restoration as Alternative 3	Same as Alternative 1	Most riparian restoration (double that of the other alternatives)	Same as Alternative 1	Same as Alternative 1
Grassland habitat - grasshopper sparrow MIS	Second most grassland restoration	Same as Alternative 1	Most grassland restoration	Same as Alternative 1	Same as Alternative 3

Issue Component	Alternative 1 No-Action, 1997 Revised Forest Plan	Alternative 2 No-Action, Phase I Amendment	Alternative 3 Diversity Across the Landscape	Alternative 4 Phase I with Additional Mature Forest	Alternative 6 Reduce Fire and Insect Hazard
SPECIES VIABILITY AND DIVERSITY					
Snag and recently burned habitat - black backed woodpecker MIS	Least amount of the snag habitat component; 1.08 snags per acre requirement and no post fire snag objectives	Second lowest amount of snag habitat component; average of three snags per acre requirement but no post fire snag objectives	Second highest amount of snag habitat component; three snags per acre requirement and second greatest post fire snag objective	Greatest amount of snag habitat component; average of three snags per acre requirement and greatest post fire snag objective	Third highest amount of snag habitat component; three snags per acre requirement and lowest post fire snag objective
Aquatic habitat - mountain sucker MIS	500 acres of riparian restoration; habitat connectivity maintained (Standard 1203)	Same as Alternative 1	1,000 acres of riparian restoration Habitat connectivity maintained (Standard 1203)	Same as Alternative 1	Same as Alternative 1
White spruce connectivity - American marten	No mature spruce, marten movement corridor, or interior fire hazard direction	Maintains 25,000 acres of spruce and corridors for marten movement; no direction to reduce interior fire hazard	Maintains 25,000 acres of spruce and corridors for marten movement. Reduce interior fire hazard for emphasis species	Same as Alternative 2	Maintains 20,000 acres of spruce and corridors for marten movement; maintains 50% low to moderate fire hazard on the interior of the forest
Moderately dense mature ponderosa pine habitat (structural stage 4B and 4C) - goshawk	Provides the least habitat; habitat capability allowed to decline by 10% per project and no direction to retain structural stage 4C	Provides the third most habitat; no direction in the ecosystem approach to retain structural stage 4C	Provides the most habitat; a proactive approach with a structural stage strategy, retention of late successional areas (such as MA 3.7 and Wilderness) and reduced fire hazard	Provides the second most habitat; provides additional structural stage 4C habitat and reserves, but the lack of direction for interior fire hazard reduction places additional risk to goshawk nests	Provides second least habitat; greatest reduction in structural stage 4C but targets the most fire hazard reduction, placing the least fire risk to goshawk nests

Issue Component	Alternative 1 No-Action, 1997 Revised Forest Plan	Alternative 2 No-Action, Phase I Amendment	Alternative 3 Diversity Across the Landscape	Alternative 4 Phase I with Additional Mature Forest	Alternative 6 Reduce Fire and Insect Hazard
SPECIES VIABILITY AND DIVERSITY					
Sensitive plants	Least conservation measures targeted at plants	Very similar to Alternative 1 but many of the conservation measures are standards	Most active approach to conserving R2 sensitive and SOLC plants	Third best conservation approach; passive vegetation management approach places many plant species at risk from wildfire; 20% of the hardwood and meadow restoration of Alternatives 3 & 6	Is similar to Alternative 3 with half the riparian/restoration, and more minimum noxious weed treatment and places more emphasis on WUI versus plant habitat fire hazard reduction
FIRE AND INSECT HAZARD					
Potential reduction in acres severely burned	Similar to Alternative 4	Similar to Alternative 4	Second most potential	Third most potential	Most potential
CANDIDATE RESEARCH NATURAL AREAS					
Targeted RNA plant series	Ponderosa pine	Same as Alternative 1	Bur oak, hop-hornbeam (ironwood) ponderosa pine, montane willow, riparian grassland, riparian shrubland, mountain mahogany/ skunkbrush, white spruce	Bur oak, hop-hornbeam (ironwood) montane grassland, ponderosa pine, montane willow, riparian grassland, riparian shrubland, mountain mahogany / skunkbrush, white spruce	Bur oak, hop-hornbeam (ironwood), ponderosa pine, montane willow, riparian grassland, riparian shrubland, mountain mahogany / skunkbrush, white spruce
Conflicts with other multiple uses from proposed RNAs	None	None	Second leased	Most	Least

Issue Component	Alternative 1 No-Action, 1997 Revised Forest Plan	Alternative 2 No-Action, Phase I Amendment	Alternative 3 Diversity Across the Landscape	Alternative 4 Phase I with Additional Mature Forest	Alternative 6 Reduce Fire and Insect Hazard
SOCIAL AND ECONOMIC					
Estimated average annual sale volume (for alternative comparison only)	181,000 CCF sawtimber 2,100 CCF products other than logs	109,000 CCF sawtimber 1,300 CCF products other than logs	181,000 CCF sawtimber 2,100 CCF products other than logs	143,000 CCF sawtimber 1,700 CCF products other than logs	181,000 CCF sawtimber 2,100 CCF products other than logs
Minerals-species and RNA impacts on the opportunity to discover and develop minerals	Least impacts to mineral discovery and development	Second least impacts to mineral discovery and development	Second most impacts to mineral discovery and development.	Most impacts to mineral discovery and development	Third most impacts to mineral discovery and development
Employment in wood products industries	Most likely to sustain current wood products industries and jobs	Least likely to sustain current wood products industries and jobs	Same as Alternative 1	Second least likely to sustain current wood products industries and jobs	Same as Alternative 1
Economic and financial efficiency	Third highest present net value	Second highest present net value	Second lowest present net value	Highest present net value	Lowest present net value
Effects on school enrollment decline	Contributes the most to maintaining school enrollment	Contributes the most to school enrollment decline	Same as Alternative 1	Contributes the second most to school enrollment decline	Same as Alternative 1
Contributes to minority employment with higher benefits and wages	Contributes the most to minority employment	Contributes the least to minority employment	Same as Alternative 1	Contributes the second least to minority employment	Same as Alternative 1

Issue Component	Alternative 1 No-Action, 1997 Revised Forest Plan	Alternative 2 No-Action, Phase I Amendment	Alternative 3 Diversity Across the Landscape	Alternative 4 Phase I with Additional Mature Forest	Alternative 6 Reduce Fire and Insect Hazard
SOCIAL AND ECONOMIC					
Wildfire concern on tourism, public safety, private property, community stability	Least able to satisfy public concern on stand replacing fire	Least able to satisfy public concern on stand replacing fire	Second best able to satisfy public concern on stand replacing fire	Least able to satisfy public concern on stand replacing fire.	Best able to satisfy public concern on stand replacing fire
MONITORING STRATEGY					
Monitoring precision and reliability	Same at 1997 Revised Plan – See FEIS Appendix D	Increased precision and reliability for sensitive species	Increased precision and reliability for sensitive species, species of local concern and MIS; forest-wide application for MIS	Same as Alternative 3	Same as Alternative 3



The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotapes, etc.) should contact the USDA's TARGET Center at 202/720-2600 (voice or TDD). To file a complaint of discrimination, write USDA Office of Civil Rights, Room 326-W, Whitten Building, 14th & Independence Ave. SW, Washington, DC 20250-9410 or call 202/720-5964 (voice or TDD). USDA is an equal opportunity provider.

Black Hills National Forest Visitor Center, Pactola Reservoir

Black Hills National Forest
25041 N. Hwy 16
Custer, SD 57730