United States Department of Agriculture

Forest Service

July 2018

Black Hills Resilient Landscapes Project

Final Record of Decision

2009

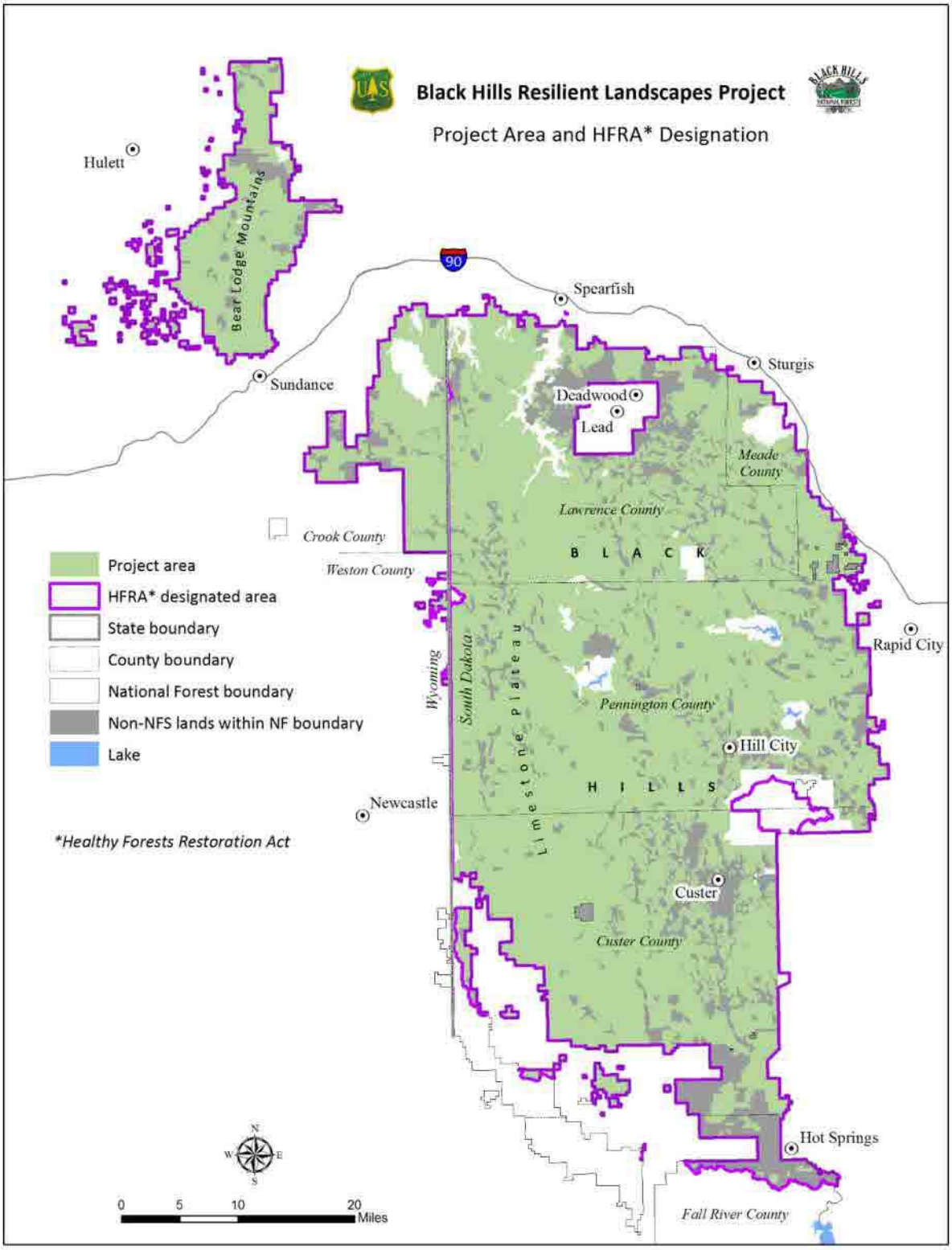
2011

2016

USDA Forest Service

Black Hills National Forest

Figure 1. Project Area Map



Acronyms

ACHP	Advisory Council on Historic Preservation
BHNF	Black Hills National Forest
BHRL	Black Hills Resilient Landscapes (Project)
CFR	Code of Federal Regulations
CTA	Commercial Treatment Area
DEIS	Draft Environmental Impact Statement
EO	Executive Order
FEIS	Final Environmental Impact Statement
HFRA	Healthy Forests Restoration Act
NEPA	National Environmental Policy Act
NFMA	National Forest Management Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
MA	Management Area
NFAB	National Forest Advisory Board
NFS	National Forest System
POL	Products Other than Logs
ROD	Record of Decision
SHPO	State Historic Preservation Officer
USC	United States Code
USDA	United States Department of Agriculture

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Black Hills Resilient Landscapes Project

Black Hills National Forest

Final Record of Decision

Custer, Fall River, Lawrence, Meade, and Pennington Counties, South Dakota

Crook and Weston Counties, Wyoming

Lead Agency:	USDA Forest Service Black Hills National Forest
Cooperating Agency:	Wyoming State Forestry Division
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1 Introduction

1.1 Project Location

The Black Hills Resilient Landscapes (BHRL) project includes approximately 1,098,000 acres of National Forest System (NFS) lands and approximately 226,000 acres of non-NFS lands in the Black Hills National Forest (BHNF), in western South Dakota and northeastern Wyoming. The project area does not include specially designated areas (e.g., Research Natural Areas, Botanical Areas, or Wilderness) or other ownerships.

1.2 Forest Plan

BHNF programmatic management direction is provided by the BHNF Land and Resource Management Plan (Forest Plan, USDA Forest Service 2006a), as amended and as supported by the Phase II Amendment Final Environmental Impact Statement (FEIS; USDA Forest Service 2005) and the 1997 Revised Forest Plan FEIS (USDA Forest Service 1996). The Forest Plan sets forth goals and objectives of management actions and further directs these actions through standards and guidelines.

Chapter 3 of the Forest Plan assigns a management emphasis to each area of the National Forest. Land management practices that are appropriate in one management area may be constrained in another. The BHRL project area includes all or parts of 10 management areas (FEIS, page 5).

1.3 Healthy Forests Restoration Act

This project is proposed under Healthy Forests Restoration Act (HFRA; 16 USC §6591) authority. The entire project area lies within Designated Areas that were requested by the Governors of South Dakota and Wyoming (FEIS, page 7).

HFRA Section 104 requires collaboration with State governments, local governments, and Indian tribes, and participation of interested persons during the preparation of authorized projects. For this project, collaboration with the National Forest Advisory Board and involvement of tribes, agencies, and other interested parties has occurred and is continuing.

Analysis and documentation has been carried out in accordance with Section 602(d) of HFRA. Projects within the Designated Areas must "reduce the risk of, or increase the resilience to, insect or disease infestation" (602(d)(1)).

1.4 Purpose and Need for Action

Mountain pine beetle infestation, response actions, and wildfire have moved forest structure away from desired conditions. Beetle infestation also resulted in hazardous levels of surface fuels and other hazards to public safety. As beetle-killed trees continue to fall and new pine stands grow, the forest's resilience to wildfire and future infestation is expected to decrease.

In response to these needs, described in detail on FEIS pages 8-13, the BHRL project would move landscape-level vegetation conditions in the project area toward objectives of the Forest Plan in order to increase ecosystem resilience to insect infestation and other natural disturbances, to contribute to public safety and the local economy, and to reduce the risk of wildfire to landscapes and communities.

2 Decision and Rationale

2.1 My Decision

Title I, Section 104 of HFRA requires development of the proposed agency action, the no action alternative, and an additional action alternative if one is proposed during scoping or the collaborative process and it meets the purpose and need. Because no alternatives that met the purpose and need were proposed during scoping or collaboration, I have the option of choosing either the No Action alternative or the Proposed Action.

I am authorizing a modified version of the proposed action; specifically, the activities listed in Table 1 below. Section 2.2 Objection Process contains additional information on these modifications. Each of these activities may occur on up to a specified maximum acreage within a defined area, as described on FEIS page 17. With the modifications, the defined areas total approximately 672,600 acres. Because each activity will occur on a fraction of its defined area acres, and because more than one activity will occur in some areas, the total area where activities will actually occur is estimated at 396,900 acres. This includes approximately 294,900 acres of mechanized activities.

As discussed in section 2.2, one of the modifications is to add collaborative multiparty monitoring to the decision. Monitoring information will help inform project implementation and will focus on monitoring the Forest's movement toward its structural stage objectives and other relevant items as seen in the appendix to this document. I am inviting the objectors, members of our National Forest Advisory Board, and other interested parties to be involved with this effort. This project does not contemplate doing all of the treatments immediately, but over a period of years. Treatments in the later years will be based on monitoring and new information that is collected and analyzed as the initial treatments are conducted.

The selected alternative includes the Proposed Action's design features (FEIS, pages 40-44) and monitoring requirements (FEIS, pages 45-46). Since my decision drops all mechanical site preparation, design features related to that activity are no longer applicable and have been eliminated from this decision. The remaining measures represent all practicable means to avoid or minimize environmental harm.

In addition to the modifications described in Section 2.2, two additional design features have been added related to the northern long-eared bat (see Section 5.3):

- Prohibit the removal of any trees within 0.25 mile of a known northern long-eared bat hibernaculum at any time of year.
- Prohibit any activity that cuts or destroys known occupied maternity roost trees, or any other trees within a 150-foot radius of the maternity roost tree, during the bat's pup season (June 1 through July 31).

I have also decided to approve a programmatic Forest Plan amendment as presented on FEIS pages 39-40. The amendment replaces an out-of-date standard with the updated language found in the Regional Watershed Conservation Practices Handbook (USDA Forest Service 2006b).

I have determined that my decision is consistent with all laws, regulations, and agency policy. I have considered potential cumulative effects. I believe the Proposed Action provides the best balance of management activities to respond to the purpose and need while considering and incorporating issues and input provided by the public and other agencies.

Table 1. Summary of Activities[1]

Fuel and Hazard Tree Treatments	Maximum Acres
Mechanical and manual fuel treatments *(shaded fuel break; thin, pile, and burn fuels; scatter, shred, or chip fuels; cut, lop, and scatter fuels); includes up to 4,000 acres of shaded fuel breaks with commercial removal.*	7,000 acres per year (70,000 acres total)
Prescribed fire *(broadcast)*	10,000 acres per year (100,000 acres total)
Hazard tree removal	As needed

Pine Structural Stage Modification	Maximum Acres
Overstory removal *By management area (MA):* *MA 4.1: Approximately 7,670 acres* *MA 5.1: Approximately 129,890 acres* *MA 5.4: Approximately 41,210 acres* *MA 5.43: Approximately 250 acres* *MA 5.6: Approximately 6,190 acres*	185,210 acres (total)
Precommercial and/or products-other-than-logs (POL) thin	25,000 acres per year (250,000 acres total)
Patch clearcut *By management area:* *MA 4.1: 1,300 acres* *MA 5.6: 600 acres*	1,900 acres (total)
Tree planting *(MAs 5.1, 5.4, and 5.43)*	5,000 acres (total)

Enhancement of Non-pine Vegetation and Within-stand Diversity	Maximum Acres
Removal of pine/spruce from aspen stands	6,000 acres (total)
Regeneration of aspen stands	4,000 acres (total)
Removal of pine/spruce from aspen inclusions in CTA* pine stands	22,500 acres (total)
Removal of pine/spruce from aspen inclusions in non-CTA pine stands	8,400 acres (total)
Removal of encroaching pine from oak stands	5,400 acres (total)
Removal of encroaching pine from grasslands	14,200 acres (total)
Uneven-age individual tree selection or group selection	9,600 acres (total)

Road Work	Maximum Miles
Road construction – Specified	8 miles (total)
Road construction – Temporary	23 miles (total)
Temporary roads on existing templates	182 miles (total)
Road conversion (unauthorized to system)	20 miles (total; part of 182 miles, above)
Road maintenance	2,500 miles (total; estimated)
Road reconstruction	375 miles (total; estimated)

**CTA: Potential commercial treatment area*

[1] Table 1 in this document is slightly different from the same table in the FEIS (pp. 47-48), as this table now reflects the changes resulting from the objection process. Changes include the removal of 4,000 acres of mechanical site preparation and a reduction in miles of road construction, both specified and temporary.

My decision to select the Proposed Action, as modified, is a site-specific one (see defined-area maps and descriptions in FEIS chapter 2 and detailed maps available on the project web site). The selected alternative also includes flexibility to define treatment locations within the defined areas. The analysis of effects is based on site-specific data (see Information Sources sections in chapter 3 of the FEIS) and relevant, often locally conducted research and monitoring.

I have been pleased with our collaboration with area residents and other interested parties. I sincerely appreciate the continued commitment and support of the collaborative participants and the local community. Together we have invested a lot of time and energy to design a resilient landscapes project that addresses the identified purpose and need at a landscape scale, protects environmental resources, and is consistent with the Forest Plan, regulatory laws, other Agency policy.

2.2 Objection Process

The Notice of Availability of the Final Environmental Impact Statement and the Notice of the Opportunity to Object to the project, as well as the Forest Plan Amendment, were published in the Federal Register on March 30, 2018. Four timely objections were received on the project. No objections were received on the Forest Plan Amendment. Objectors included Norbeck Society, Black Hills Group of the Sierra Club, Prairie Hills Audubon Society, and D.J. Duerr. The objections included, but were not limited to, concerns about the project's purpose and need, adequacy of public involvement, the size of the project, the amount of timber harvest and road work, the amount of prescribed burning, the amount of late succession forest, as well as an alleged violation of the National Forest Management Act, the Healthy Forest Restoration Act, and the Multiple Use Sustained Yield Act.

A team of resource specialists from the Forest Service Rocky Mountain Regional Office was assembled to review the four objections, the analysis in the FEIS, and the project record. In addition, the Reviewing Officer, Deputy Regional Forester Jacqueline Buchanan, held an objection resolution meeting with all four objectors on May 25, 2018 to discuss potential resolution of objection issues. No resolutions were reached. The Reviewing Officer's decision on these objections was documented in her May 30, 2018 letters to the objectors. While the objection response letters have detailed responses for all the objection points brought forward, I would like to discuss a few of them here for clarity.

First I'll start with the use of the HFRA authority. As originally enacted in 2003, HFRA authorized vegetation treatment to reduce hazardous fuels and focused those treatments on fire hazards, with authorized treatments to reduce insect infestation under section 102(a)(4). The 2014 amendments to HFRA expanded its coverage by enacting a new section 602(d) authorizing treatments that would reduce insect or disease infestation "or increase the resilience" to insect or disease in areas designated under section 602(c). The BHRL project is being proposed in landscape scale areas that were designated under section 602(c). Section 602(d) of HFRA does not require an "imminent" risk that the insect infestation will spread. The BHRL project addresses both the need for immediate reduction in fire hazard and the need to rebalance the structural composition of the forest, thereby increasing its resilience so that the future forest will be less susceptible to large-scale mountain pine beetle infestation.

Another objection issue that arose was the amount of structural stage 5 (late succession forest) and how the Forest will meet the desired amount of this structural stage in the future. The amount of late succession forest (structural stage 5, SS 5) is currently well below the Forest Plan objective of five percent in all applicable management areas, largely due to natural disturbances, such as the mountain pine beetle and stand-replacing wildfires. This structure is highly dependent on time. Trees in this class by definition are old, averaging 160 years of age. Disturbances reduced the amount of SS 5 and, although the Forest is managing for old growth, time is still the key.

As described in the FEIS, there is a need to maintain existing late succession forest and allow additional late succession to develop. The selected alternative would retain old growth characteristics in all known late succession stands, work toward identification of unrecorded stands, and conduct activities to maintain or enhance stands that possess or are developing late succession characteristics.

No activities changing structural stage would occur in SS 5 stands. As described in design feature 3a, allowed activities in SS 5 include broadcast prescribed fire, piling and burning fuels, and precommercial thin. These activities would not occur in late succession forest (SS 5) unless they would maintain or enhance late succession characteristics.

Structural stage 4C (SS 4C) stands are good candidates for SS 5 due to their self-thinning nature that leaves quantities of dead and coarse down woody material as well as being at an advanced age. Modelling indicates that within 20 years, the percentage of structural stage 5 would increase as there would be some movement of stands into SS 5 from structural stage 4C as stands develop old growth characteristics. Modelling also indicates that, within 40 years, the amount of structural stage 5 would be above Forest Plan objectives.

The Forest Plan includes objectives for the distribution of pine structural stages in certain management areas and these equate to 25 percent in structural stage 4B (SS 4B) and five percent in SS 4C. This will provide for the desired five percent in SS 5 in the future. Planned activities that will change the stand structure class are also limited in SS 4B and SS 4C. As described in design feature 3b, in management areas where mature, moderately dense to dense pine stands (structural stages 4B and 4C) are below Forest Plan objectives, these stands would not be treated in a way that changes overall stand structural stage, except in shaded fuel breaks, which are limited to areas around critical roads or private property where landowners request work. Other activities are allowed in these stands, such as manual and mechanical fuel treatments, prescribed fire, hazard tree removal, and precommercial thin.

In addition, as described in design feature 3d, silviculturists and wildlife biologists would assess open, mature pine stands (SS 4A) that possess field-verified late succession characteristics, including those of the open savannah type, and provide the District Ranger with a recommendation of whether treatment is needed and appropriate to move these stands toward late succession (SS 5). Design feature 3e provides a limit on the amount of harvest in open, mature pine stands (structural stage 4A) when the average tree size is "very large".

Objection points regarding harvest levels and sustainability were also brought forward. These are discussed further in section 2.4.4 below.

The following instructions were included in the Reviewing Officer's letter and are the basis for the modifications to the proposed action:

- Eliminate 4,000 acres of mechanical site preparation activities.
- Reduce the amount of new permanent and new temporary roads in cases where they do not provide substantial access to commercial timber harvest areas. This equates to a reduction of about 25 miles of new permanent and new temporary roads.
- Reduce the acreage of shaded fuel breaks. Shaded fuel breaks will be limited to areas around critical roads or private property where landowners request work.
- Look for opportunities to expand aspen stands during field evaluation and project layout.
- Add an element of collaborative multiparty monitoring to the decision.

The reduction of new permanent and temporary road construction will be achieved by limiting construction to only those roads that provide access to over 100 acres of timber harvest per mile of road constructed.

I have incorporated all the above instructions from the Reviewing Officer into this decision on the Black Hills Resilient Landscapes Project.

2.3 Permits, Licenses, Grants, and Authorizations

Section 404 of the Clean Water Act authorizes the Secretary of the Army to issue permits for the discharge of dredged or fill material into wetlands. Silvicultural activities are exempt from the 404 permit process, as are associated road construction and maintenance that adhere to Best Management Practices (BMPs; 33 CFR §323.4). Treatment of noxious weeds using herbicide was authorized under a previous decision (USDA Forest Service 2003). Any required permits that are unforeseen at this time will be obtained prior to implementation.

2.4 Rationale for My Decision

In making my decision, I considered the purpose and need, public issues, the project's relation to other relevant environmental documents, the objectors' concerns raised during the pre-decisional objection process, and the project's compliance with applicable law, regulation, and policy. Each aspect of my decision is discussed below.

In response to public comments on the DEIS, three changes were made and analyzed in the FEIS. I considered these changes in making my decision (FEIS, page 18):

1. **Increased acreage of removal of conifers from aspen stands:** Several commenting parties requested an increase in this activity, citing a belief that 2,400 acres was too low and pointing out that the original proposal was 6,000 acres. Based on reexamination of vegetation data, I believe 6,000 acres is a more appropriate figure. There are no changes to the effects as a result of this change. The change is reflected in Table 1 (page 3).
2. **Removed activities proposed in Bureau of Reclamation administrative areas at Deerfield and Pactola dams:** The Bureau expressed concern about possible effects of proposed activities near dam-related facilities at these locations. I agree with the Bureau's concerns and have omitted approximately 23 administrative acres from the defined areas where the activities may occur. This change does not alter the acreage of proposed activities or the project's effects.
3. **Omission of activities proposed in montane grasslands:** The DEIS analyzed effects of activities proposed on approximately 440 acres of montane grassland recommended for conservation. These activities were proposed based on erroneous stand delineation data and have been omitted. This change does not alter the acreage of proposed activities or the project's effects.

The effects of these changes are consistent with the Forest Plan (FEIS, page 73).

2.4.1 How the Selected Alternative Responds to the Purpose and Need

The purpose and need for the BHRL project is to move landscape-level vegetation conditions in the project area toward objectives of the Forest Plan in order to increase ecosystem resilience to insect infestation and other natural disturbances, contribute to public safety and the local economy, and reduce risk of wildfire to landscapes and communities. Management of the forest for variety in pine stand structure, size, and shape, distributed across the landscape, is essential to providing for species viability and reduced fire and insect hazard.

The selected alternative responds well to the specific elements of the purpose and need.

- **Increase ecosystem resilience to insect infestation and other natural disturbances:** The recent mountain pine beetle epidemic and response actions (FEIS page 1) substantially reduced the amount of pine forest at high risk of further infestation. Natural regeneration of pine is, however, resulting in the potential for development of future landscape-scale expanses of mature, even-aged pine forest, similar to the conditions that existed before the epidemic. These conditions decrease the forest's resilience to insect infestation, wildfire, and other disturbances.

  The selected alternative will thin up to 250,000 acres of young pine. Thinning these stands will mitigate the immediate hazard of infestation by pine engraver beetles and reduce the potential for development of future hazard of mountain pine beetle infestation. Planned fuel treatments, including prescribed fire, will also reduce stocking of small pine trees. While beetle infestation will continue to occur over time, taking action now will begin the process of developing a forest that is resistant to landscape-scale epidemics. Because regeneration of pine has occurred almost simultaneously across such an extensive area, I believe it is critical to begin addressing the potential future hazard immediately.

  The selected alternative will increase resilience of treated landscapes to future wildfires as demonstrated by effects on fire regime/condition class (FEIS, page 83). This increased resilience may persist for up to 20 years without further treatment.

- **Contribute to public safety and the local economy:** The selected alternative will reduce hazards to public safety by removing damaged or unstable standing trees in areas of high public use, treating fuel accumulations near communities and along egress routes, and decreasing the potential for large, intense wildfires (FEIS, pages 83-85).

  The selected alternative will also yield various wood products to local and regional forest products industries (FEIS, pages 214-215). It will contribute to the maintenance of a forest industry infrastructure, which provides markets for forest products, employment, and benefits for local communities. I recognize the need for a strong forest products industry to help accomplish forest restoration and other vegetation treatments now and in the future. I believe it is important for the Forest Service to support local communities and I look forward to continuing our work and coordination with partners and local governments.

- **Reduce risk of wildfire to landscapes and communities:** In my review of the analysis in the Fire and Fuels section of the FEIS (pages 82-85), I found the planned activities will meet the purpose and need by reducing surface fuel loading, fuel contiguity, and other factors associated with the potential for severe fire effects. Overall, the selected alternative will moderate fire behavior compared to the No Action alternative. While wildfires will continue to occur, most fires in treated areas will remain on the surface with only pockets of crown fire. These effects will provide additional opportunities for control, potentially limiting fire size. Fire hazard will generally decrease in treated areas, resulting in increased resistance to development of high-intensity wildfire.

  The programmatic Forest Plan amendment (FEIS, pages 39-40) will allow harvest systems that minimize buildup of logging slash to be used in additional areas. I believe this programmatic plan amendment is a valuable addition to meeting the purpose and need for this project and future projects on the BHNF. Currently, Forest Plan standard 1102 contains outdated language. The updated language (FEIS, page 39), which is part of the Regional Watershed Conservation Practices Handbook (USDA Forest Service 2006b), will better align the Forest Plan with regional

guidance and eliminate confusion. There are no substantial adverse effects directly related to any of the substantive requirements at 36 CFR §§219.9 through 219.11. The updated language speaks to the soil resource (§219.10(a)(1)) only and continues to balance soil quality requirements and fuel loading concerns.

My decision also will move landscape-level vegetation conditions toward achievement of the following Forest Plan goals and objectives.

- **Forest Plan objective 10-07** prioritizes reduction of mountain pine beetle infestation risk. As described above, my decision includes activities such as precommercial thinning that will begin the process of developing stands that are at reduced risk of infestation. The selected alternative will contribute toward achievement of this objective.
- **Forest Plan goal 10 and associated objectives 10-01 and 10-04** focus on establishing and maintaining a mosaic of forest conditions to reduce occurrence of stand-replacing fire and to facilitate firefighting capability. The recent mountain pine beetle infestation resulted in an increase of hazardous fuels in the form of dead, fallen trees. Although the potential for crown fire has decreased because there are fewer closed-canopy stands, increased loading of dead fuels means that more of the project area is susceptible to, and may potentially be affected by, large, intense wildland fires. In addition, the scale and density of developing young pine stands, combined with heavy accumulations of woody debris, further increase fire hazard and complicate fire suppression. As a result, the planning team identified a need to manage fuel accumulations and young pine stands.

  The selected alternative will result in potential wildfire behavior that is more manageable as compared to the No Action alternative. Following project implementation, modeling demonstrates that most wildfires in treated areas will remain on the ground. The dominant fire severity in these areas is expected to be low to moderate. Though it will not be possible to treat fuels in all stands that were affected by beetles, planned activities will break up the contiguity of these areas.

  Public comments indicated concerns about high fire hazard in the vicinity of communities. The selected alternative will decrease fire hazard, especially in areas near developed non-NFS lands and egress routes. Planned activities will contribute toward achievement of Forest Plan objective 10-01 by increasing the total area with moderate or low fire hazard to approximately 67 percent of the project area.

  Because these conditions will increase the probability of success during initial fire suppression efforts, the selected alternative is likely to improve firefighter and public safety, reduce the potential for damage to communities and natural resources, and reduce suppression costs. For these reasons, I believe the selected alternative will contribute substantially toward achievement of Forest Plan goal 10.
- **Forest Plan objectives 4.1-203, 5.1-204, 5.4-206, 5.43-204, and 5.6-204** address desired distribution of ponderosa pine structural stages by management area. Structural stage classifies forest structure based on tree diameter and stand density. By comparing existing and desired structural stage distributions across each MA, the planning team identified a need to:
  - increase early succession (grass-forb) stage in MAs 4.1 and 5.6,
  - increase young pine forest in MAs 4.1, 5.1, 5.4, and 5.6,
  - decrease open, mature pine forest in MAs 4.1, 5.1, 5.4, and 5.6,
  - increase moderately dense, mature stands in MAs 4.1, 5.1, 5.4, and 5.43,

- increase late succession forest in MAs 4.1, 5.1, 5.4, 5.43, and 5.6, and
- generally maintain dense, mature forest in MAs 4.1, 5.1, 5.43, and 5.6

See FEIS, Figure 3, page 6 for a map of management areas.

The selected alternative includes a number of activities that will change structural stage in pine forest, including overstory removal, patch clearcut, precommercial thin, POL thin, tree planting, and shaded fuel break construction in mature forest.

Overstory removal harvest is a substantial component of my decision. This treatment method will release young stands from competition with older, overstory pine and reduce stocking levels in overstocked stands. Based on the analysis in the FEIS (pages 58, 60-63, 65), I believe this activity contributes significantly to meeting the purpose and need for this project. Overstory removal treatments will increase the acreage of early succession, younger pine across the project area and will not be occurring in any areas classified as late succession forest (structural stage 5).

As a result of the activities listed above, the selected alternative will generally move individual structural stages toward objectives in each MA. Additionally, the selected alternative will generally move conditions closer to the objectives than would the No Action alternative. Mature and late succession stages that are currently below objective levels will not increase immediately, though modeling indicates they are likely to achieve objectives over the next 20 to 40 years.

Averaged across each MA, the selected alternative will move overall distribution of structural stages closer to objective levels both in the near future and over the next 20 years as compared to the No Action alternative (Table 2).

Table 2. Average percent deviation from structural stage objectives by alternative and management area

Management Area	Existing	Selected Alternative	Selected Alternative + 20 Years	No Action + 20 Years
4.1	65	43	24	58
5.1	57	52	29	49
5.4	63	54	34	48
5.43*	106	104	75	76
5.6	51	34	21	53

**Management area 5.43 is an outlier due to the effects of recent wildfires.*

Management of the forest for variety in pine stand structure, size, and shape, distributed across the landscape, is essential to providing for wildlife species viability and reduced fire and insect hazard (USDA Forest Service 2005). I find that the analysis demonstrates that the selected alternative will move structural stage conditions toward these objectives (FEIS, pages 55-72). While unforeseeable events may affect future distribution of structural stages, I believe the selected alternative puts the forest on the best track to achieve these objectives both in the near term and over time.

In order to accomplish these Forest Plan objectives, my decision includes construction of up to eight miles of new, permanent National Forest System (NFS) roads and conversion of up to 20 miles of existing, unauthorized roads to NFS roads. I am also approving construction of up to 23 miles of new, temporary roads and use of up to 182 miles of existing, unauthorized roads for temporary access. Proposed activities will require approximately 375 miles of road reconstruction and 2,500 miles of road maintenance.

Although there will be impacts to roads and trails during project implementation due to increased truck traffic, construction equipment operations, and additional vehicles using the roads, this level of road work would be seen by the public as normal because State, county, and Forest Service road projects and related heavy equipment traffic have been occurring simultaneously for decades (FEIS, page 185).

Other effects may include closures and traffic delays. Safety considerations will be included in road design for new and reconstructed roads and during active road work. New roads would not increase open road density because they would be closed to all motorized use after the project.

- **Forest Plan objectives 201 and 205** emphasize the importance of quaking aspen, bur oak, and grasslands. These plant communities diversify habitat and scenery while increasing ecosystem resilience to disturbance. Encroachment of pine is causing some aspen and oak stands and grasslands to lose vigor and shrink. The planning team identified a need to maintain and perpetuate these ecosystem components.

  The selected alternative includes regeneration of aspen and removal of conifers encroaching on aspen, oak, and grasslands. These activities will occur on a total of approximately 60,500 acres and will help to maintain species diversity, which has decreased over time due to fire suppression and other factors. Broadcast prescribed fire, which will occur on up to 100,000 acres, will also reduce conifer encroachment.

  Many of the public comments on the DEIS expressed interest in aspen. Based on this input, I chose to increase removal of conifers from aspen stands from 2,400 to 6,000 acres. I believe this figure more accurately represents the need for treatment. Effects of this change are disclosed in the FEIS (page 73). In addition, some parties requested widespread conversion of pine stands to aspen. Because forest species composition is currently in a state of transition following the recent mountain pine beetle epidemic, I do not consider large-scale cover type change to be prudent at this time.

  Non-pine vegetation communities are critical to the resilience of Black Hills ecosystems to fire, beetle infestation, and other disturbances. The No Action alternative would allow continued decline of aspen, oak, and grasslands. In some cases, conifers could displace these communities. For this reason, I am choosing to take action at this time.

In making a decision between taking action and not taking action, I believe it is not only appropriate to select the action alternative, but it is the clear choice to meet the purpose and need. The selected alternative will allow us to begin addressing the changed conditions that have occurred across most of the landscape of the BHNF in recent years due to the mountain pine beetle epidemic, large fires, and our management actions in response to these events. We can now move toward meeting Forest Plan objectives across the entire forest landscape, which is not only more efficient and cost-effective than focusing on smaller areas but also appropriate for the scale of the forest-wide conditions we are working to resolve.

2.4.2 How the Selected Alternative Considers and Addresses Public Issues

The following public issues relevant to the analysis were identified and are described on FEIS page 16.

Potential negative effects on scenery from fuel reduction and timber harvest activities: The scenic integrity analysis in the FEIS (pages 195-203) documents that although fuel reduction will have short-term visual impacts (e.g., processed woody material on the ground, small patches of scorched ground

after burning piles), these effects will diminish as revegetation occurs, blending into the surroundings in one to three years.

The analysis shows that commercial timber harvest and associated activities such as road construction may have a negative effect on scenery. Large slash piles, skid trails, and exposed soil will be visible for a time following timber harvest. Project-specific design features (FEIS page 41) will be applied to minimize these effects, especially in highly visible areas. The analysis discloses that, despite these measures, there will be periods when viewers may find these effects distracting and out of character with the landscape. I understand these concerns. I am confident, however, that the long-term benefits of conducting these activities justify the temporary negative effects.

Among planned activities, overstory removal and patch clearcut will result in the greatest change from existing visual conditions. Because harvest units will be designed in accordance with Forest Plan guidelines, they will appear different from the existing condition but similar to natural forest openings or young stands. The resulting appearance will not be out of character for the area.

Potential increase in noxious weed infestation from ground-disturbing activities: The FEIS discloses that infestation of noxious weeds is likely to increase over time under either alternative. Forest Plan guideline 231 states that management should "prevent new infestations and manage to reduce established noxious weed infestations." Because the selected alternative will reduce forest canopy and expose soil, it could result in a greater increase in noxious weed infestation than taking no action at this time. The analysis concludes, however, that taking no action would over time increase the potential for severe wildfire, which provides suitable conditions for weed infestation.

Continuing treatment of noxious weeds and adherence to project-specific and other design features (FEIS, page 40) will reduce the likelihood of new weed species introduction and substantial spread of existing infestations.

Noxious weeds are a source of increasing concern in the Black Hills area. I recognize this and support ongoing and new collaborative efforts to address the diverse causes of weed introduction and spread. While my decision may result in somewhat more weed infestation compared to taking no action, I believe the analysis demonstrates that this should not prevent taking action to respond to public concerns and work toward achievement of other Forest Plan goals and objectives.

Potential reduction in landscape-level structural diversity from timber harvest: The analysis shows that the selected alternative will move structural stage distribution toward Forest Plan objectives, both in the near future and in 20 years (FEIS pages 59-64). Figures 13-17 on FEIS pages 60-62 clearly indicate that the selected alternative will generally move structural stage distribution in each management area closer to the objectives as compared to the No Action alternative. The exception is in MA 5.43, where the effects of both alternatives would be similar. The selected alternative will diversify landscape-level structural diversity.

2.4.3 Environmental Documents Considered in Making the Decision

A number of documents were specifically incorporated by reference into the analysis in the FEIS for this project. Among these documents are the Forest Plan as supported by the Phase II Amendment FEIS (USDA Forest Service 2005) and the 1997 Revised Forest Plan FEIS (USDA Forest Service 1996); Forest Plan monitoring and evaluation reports; and resource reports and other supporting information and analysis.

2.4.4 Applicable Laws, Regulations, and Policies

For a complete discussion of how my decision complies with laws, regulations and policy, see section 5 starting on page 15 of this document.

Concerns were expressed by some objectors that this proposal is not sustainable and is in violation of the National Forest Management Act (NFMA; 16 USC §1604) and the Multiple-Use Sustained-Yield Act of 1960 (MUSYA; 16 USC §§528–531). The NFMA and MUSYA direct the Forest Service to manage National Forests for a variety of uses on a sustained basis to ensure a continued supply of goods and services. For timber, the Forest Service historically planned for a continued supply through forest plans by setting long-term sustained yield (LTSY) and allowable sale quantity (ASQ) for each administrative unit. For the Black Hills National Forest the average annual long-term sustained yield (maximum timber benchmark) is calculated to be 112 million board feet (mmbf) or about 24.2 million cubic feet of timber (242,000 ccf) (Forest Plan FEIS, Appendix G). This figure represents the maximum, biologically sustainable harvest level possible through perpetuity while considering the basic requirements in NFMA regulations. The average annual ASQ is set at 18.1 million cubic feet of sawtimber (181,000 ccf) and 2.1 million cubic feet (21,000 ccf) of timber products other than logs (Forest Plan, p. I-14). The ASQ figures are considered the "ceiling" of timber quantity that can be harvested from suitable lands.

Both the long-term sustained yield and ASQ are expressed as average annual figures but are assessed on a decadal basis due to the long-term nature of timber management. For purposes of determining consistency with the average annual long-term sustained yield and ASQ, the Forest is in the beginning of the third decade (2017-2026), and in 2017 the Forest sold about 18.6 million cubic feet (186,000 ccf) of sawtimber. This project would not violate NFMA or MUSYA sustainability requirements as long as the average annual volume sold remains at or below the long-term sustained yield for the decade. Sawtimber for this project is estimated to be about 67.8 million cubic feet (678,000 ccf). This is substantially below the decadal ASQ and LTSY and thus consistent with NFMA and MUSYA sustainability requirements.

Many people are concerned that the recent beetle epidemic combined with timber harvest levels at ASQ for the past decade have changed conditions on the Forest and make the Forest Plan long-term sustained yield and ASQ irrelevant. The long-term sustained yield is based on the biological growth potential of a regulated forest. Therefore, the standing forest inventory is not relevant to the long-term sustained yield, especially in context of forest rotation ages. The long-term sustained yield should not change substantially over time, assuming no major changes in factors that affect biologic productivity, such as climate, soil conditions, etc. The standing forest inventory is relevant to the flow of timber products, which is reflected in ASQ. Flow of timber products under the 1982 planning regulations (36 CFR §219) was defined through ASQ and set during forest plan development. A comprehensive effort is currently underway using Forest Inventory and Analysis (FIA) monitoring and data collection to examine existing standing forest inventory in both South Dakota and Wyoming. Once this effort is completed in both states there will be a better understanding of the existing standing inventory.

In June 2018 the USDA released a report (Forests of South Dakota 2017) indicating timber harvest in the State of South Dakota exceeded growth and that in ponderosa pine, volume lost to mortality or damage exceeded growth. Although this is a new report, the fact that timber harvest combined with volume loss due to mortality is exceeding growth is not new information. The agency was well aware that the spatial and temporal extent of the bark beetle epidemic combined with vegetation management activities would outpace growth. While the actual difference between volume loss and growth is new information, it does not change the effects disclosed in the FEIS nor the purpose and need for the project. When the complete FIA information is available, a collaborative process will be initiated with a broad range of interests

(including our National Forest Advisory Board) to determine if there is a need for a change in annual harvest levels to insure a sustainable flow of timber products.

The extent of difference between volume loss and growth outlined in the Forests of South Dakota 2017 report highlights the extent of the beetle epidemic. However, it also suggests that the trend toward negative net growth will likely reverse as mountain pine beetle activity decreases, resulting in decreased mortality, and reinforces the purpose and need for the project to increase ecosystem resilience to insect infestation and other natural disturbances; reduce risk of wildfire to landscape and communities; emphasize aspen, bur oak and grassland plant communities; and move the landscape more towards the desired structural stage distribution.

3 Public Involvement

3.1 Project Scoping

The Forest Service solicited comments on the proposed action, potential concerns, and opportunities for managing the BHRL project area from members of the public, other public agencies, tribal governments, adjacent property owners, interest groups, and agency specialists. Various methods were used to request comments, as described below.

- A scoping letter was mailed on August 15, 2016 to approximately 103 interested parties, including adjacent property owners, American Indian tribal representatives, state and federal agencies, and other organizations. This letter included a description of the project area, an overview of the planning process, a general explanation of the proposed actions, and an invitation to comment.
- The Forest Service submitted a news release to local news media on August 22, 2016. This release introduced the project to the public by providing a description of the project area and an explanation of the proposal. The release also solicited public comment on the project.
- The *Federal Register* published a notice of intent to prepare the EIS on August 25, 2016 (81 Fed. Reg. 58470). The notice asked for public comment on the proposal by September 26, 2016. Twenty-nine comment letters were received.
- Project information was published in the BHNF Schedule of Proposed Actions and on the BHNF website.
- The NFAB discussed the project at its meetings during project development and scoping (March, April, May, June, and September 2016). These meetings were open to the public.

3.2 Draft EIS

The Forest Service solicited comments on the DEIS from interested parties, including members of the public, other public agencies, tribal governments, adjacent property owners, interest groups, and agency specialists. The following notification methods were used.

- The *Federal Register* published a notice of availability of the DEIS on September 15, 2017 (82 Fed. Reg. 43359). The notice announced the availability of the DEIS and initiated the 45-day comment period, which ended on October 30, 2017.

- The Rapid City Journal published a legal notice announcing the availability of the DEIS and proposed Forest Plan amendment on September 20, 2017. This notice solicited comments from interested parties.
- The Forest Service submitted a news release to local news media on September 14, 2017. The release announced availability of the DEIS and solicited comments.
- Public open houses were held at the Mystic Ranger District office in Rapid City, South Dakota on October 5, 2017 and at the Crook County Courthouse in Sundance, Wyoming on October 12, 2017. Each meeting was attended by less than 10 interested parties who met with Forest Service officials to review maps of the project area and discuss proposed activities.
- The NFAB discussed the DEIS at its meeting in September 2017, which was open to the public.

The Forest Service received 44 comment letters from 40 parties within the comment period. Four additional letters were submitted after the close of the comment period. Timely comments and Forest Service responses are presented in FEIS Appendix A. Comments prompted changes to the proposal, additional analysis of effects, and several clarifications in the FEIS.

3.3 Collaboration and Other Public Involvement

Collaboration with communities and the public is required by HFRA and has been an important aspect of this project. The National Forest Advisory Board (NFAB) is our formal collaborator on this project. Board members represent diverse sectors, including developed outdoor recreation, dispersed recreation, economic development, the forest products industry, national and regional environmental organizations, historical interests, sportsmen's groups, livestock grazing, State natural resource agencies, and elected or appointed officials from Tribal government and State, local, or county government. Updates have been presented at all NFAB meetings since March 2016. Forest Service representatives have met with the NFAB committee responsible for reviewing project documents and drafting input.

The Wyoming State Forestry Division is a cooperating agency for this project. The Division was provided an opportunity to review the preliminary DEIS in June 2017 prior to its public release.

I believe the Forest has worked diligently to ensure collaboration and public involvement through mailings, news releases, public comment periods, open houses, and through NFAB meetings, which are open to the public. See also FEIS Appendix A, Public Comments on the Black Hills Resilient Landscapes Project Draft Environmental Impact Statement and Forest Service Responses.

4 Alternatives Considered

4.1 Alternatives Analyzed in Detail

HFRA Title I, Section 104, requires development of the proposed agency action, the no action alternative, and an additional action alternative if one is proposed during scoping or the collaborative process and meets the purpose and need. No alternatives that met the purpose and need were proposed during scoping or collaboration; therefore, only the Proposed Action and No Action alternatives were fully developed and analyzed.

The No Action alternative (FEIS, page 48) assumes none of the elements of the Proposed Action would take place in the BHRL project area in the next 10 to 15 years. Ongoing and reasonably foreseeable actions would continue, including timber harvest, precommercial thinning, prescribed fire, fuel reduction,

noxious weed treatment, recreation, development of private land, prospecting and mining, livestock grazing, and use of surface and ground water. Public comments indicated both support for and objection to the No Action alternative. Because of the clear, existing needs in the project area, I am unwilling to forego action.

The Proposed Action (FEIS, pages 17-48) was designed to respond to the purpose and need for action and to move conditions in the project area toward the desired conditions described in the Forest Plan. This is the alternative, as modified, that I have selected. This alternative protects key resources while addressing the needs in the project area. My rationale for this decision is described in Section 2.3 of this document.

4.2 Alternatives Not Analyzed in Detail

The interdisciplinary team considered eight additional alternatives that were not carried forward for detailed analysis. Descriptions of these alternatives and reasons for their elimination from detailed analysis are located on FEIS pages 49-51.

4.3 Environmentally Preferable Alternative(s)

Disclosure of one or more environmentally preferable alternatives is required (NEPA Section 101; 40 CFR 1505.2(b)). The environmentally preferable alternative is not necessarily the alternative that will be implemented and it does not have to meet the underlying need for the project. It must, however, cause the least damage to the biological and physical environment and best protect, preserve, and enhance historical, cultural, and natural resources.

In the immediate future, the No Action alternative is the environmentally preferable alternative. It would not directly cause ground disturbance or add new roads. Noxious weed infestation would be somewhat less than the probable results of the selected alternative. It would have no short-term negative effects on scenery. Over the course of coming decades, however, I find the selected alternative to be environmentally preferable because it will provide more diverse habitat, moderate potential size and severity of wildfires, and generally increase resilience to potential disturbance and environmental change.

The Environmental Protection Agency (Region 8) provided comments on the DEIS but did not identify an environmentally preferable alternative.

5 Findings Required by Laws and Regulations

The EIS was prepared in accordance with the following laws and regulations.

5.1 Clean Air Act

The Clean Air Act of 1970, as amended (42 USC §7401 *et seq.*), protect and enhance the nation's air resources. Federal and state ambient air quality standards are not expected to be exceeded as a result of implementing the selected alternative (FEIS, pages 178-179). This action is consistent with the Clean Air Act.

5.2 Clean Water Act

Sections 401 and 404 of the Clean Water Act, as amended (33 USC §1251 *et seq.*), regulate discharge of pollutants. Any permits required for watershed improvement activities will be acquired prior to implementation. This project is consistent with the Clean Water Act (FEIS, pages 159-174).

5.3 Endangered Species Act

The Endangered Species Act, as amended (ESA; 16 USC §1531 *et seq.*), requires federal agencies to conserve threatened and endangered species. I considered impacts to federally listed or proposed species, as determined by the U.S. Fish and Wildlife Service. These species include the black-footed ferret (endangered), the northern long-eared bat (threatened), and Leedy's roseroot (a threatened plant). Effects on these species were analyzed in the Wildlife and Botany Biological Assessments prepared in accordance with the legal requirements set forth under Section 7 of the ESA. These effects are disclosed in Chapter 3 of the FEIS and summarized here. The Proposed Action will have no effect on the black-footed ferret or Leedy's roseroot.

The Proposed Action may affect the northern long-eared bat but implementation involves no purposeful take. Based on new information from the U.S. Fish and Wildlife Service, the BHRL action area is now located within the White-Nose Syndrome Zone. My decision includes the design features listed in Chapter 2 of the FEIS and described in this ROD that will avoid or minimize the potential adverse effects of management actions on the northern long-eared bat. BHRL project implementation offers enough on-the-ground flexibility that I can further commit to: 1) prohibiting the removal of any trees within 0.25 mile of a known northern long-eared bat hibernaculum at any time of year and 2) prohibiting any activity that cuts or destroys known occupied maternity roost trees, or any other trees within a 150-foot radius of the maternity roost tree, during the bat's pup season (June 1 through July 31), recognizing that the need may arise for tree removal within these zones around known northern long-eared bat hibernacula or maternity roost trees, which would require additional ESA Section 7 consultation.

Lastly, I reinitiated ESA consultation on June 1, 2018, consistent with the 4(d) rule streamlined consultation framework. There will be no adverse modification of critical habitat because none is designated on the BHNF.

On June 11, 2018, we received a letter of concurrence from the U.S. Fish and Wildlife Service, stating, in part, "We concur with your determination and any taking that may occur incidental to this project is not prohibited under the final 4(d) rule (50 CFR 17.40(o))."

5.4 National Environmental Policy Act

The National Environmental Policy Act (NEPA; 42 USC §4321 *et seq.*) requires federal agencies to complete detailed analyses of proposed actions that may significantly affect the quality of the human environment. The Act's requirement to prepare an environmental impact statement is designed to provide decision makers with a detailed accounting of the likely environmental effects of a proposed action prior to adoption and to inform the public of (and encourage their comments on) such effects. The FEIS analyzes the alternatives and displays the environmental effects in conformance with NEPA standards. I find that the environmental analysis and public involvement process comply with each of the major elements of the requirements set forth by the Council for Environmental Quality for implementing NEPA (40 CFR §§1500-1508).

5.5 National Forest Management Act

The National Forest Management Act (NFMA; 16 USC §1604) and the Multiple-Use Sustained-Yield Act of 1960 (16 USC §§528–531) give direction to National Forests to develop Forest Plans that 1) ensure consideration of the economic and environmental aspects of various systems of renewable resource management, including the related systems of silviculture and protection of forest resources, to provide for outdoor recreation (including wilderness), range, timber, watershed, wildlife, and fish; and 2) provide

for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives, and for steps to be taken to preserve the diversity of tree species. As set forth by these Acts, the BHNF Forest Plan, as amended, sets specific standards and guidelines to follow during project-level planning and implementation. By the inclusion of design features as part of my decision to minimize or eliminate environmental effects from this project, as well as the inclusion of standards and guidelines from the Forest Plan, as amended, I have determined this project and the Forest Plan amendment, complies with NFMA.

5.6 National Historic Preservation Act

The National Historic Preservation Act (NHPA) provides comprehensive direction to federal agencies to identify, evaluate, treat, protect, and manage historic properties. It expands the National Register of Historic Places (NRHP) and establishes the Advisory Council on Historic Preservation (ACHP) and State Historic Preservation Offices (SHPOs). NHPA Section 106 directs all federal agencies to take into account effects of their undertakings (actions, financial support, and authorizations) on properties included in or eligible for the NRHP. Section 106 is implemented by ACHP regulations (36 CFR §800).

As reported in FEIS chapters 1 and 2, I anticipate implementing BHRL activities on NFS lands in both Wyoming and South Dakota. Since 2009, the BHNF has been a signatory to a programmatic agreement (renewed in 2014) that governs undertakings on NFS lands located in the state of Wyoming (USDA Forest Service 2014). Appendix F of that document addresses vegetation management projects. Subsection B of Appendix F specifically addresses landscape-scale projects such as the BHRL project, for which specific effects cannot be identified prior to the Agency signing a project decision. That stipulation, in addition to others, is cited as the legal authority for this project on NFS lands in the state of Wyoming.

The BHNF and the South Dakota State Historic Preservation Officer executed a vegetation management programmatic agreement in order to fulfill the Agency's NHPA Section 106 obligations for this and other potential undertakings (USDA Forest Service 2018). Stipulations in that document govern how the Forest Service implements projects under authority of the BHRL Record of Decision.

Tribal governments were consulted and invited to participate in the development of the programmatic agreements that will govern how the Forest meets NHPA Section 106 mandates for BHRL project activities. Tribal authorities will continue to be consulted when exact project locations associated with BHRL activities are identified during the implementation phase. This will permit Tribal representatives to submit location-specific comments where desirable.

5.7 Other Laws and Executive Orders

Executive Order 11988

This order requires that federal activities generally avoid occupancy and modification of floodplains. The selected alternative will not change floodplain function or value and complies with EO 11988 (FEIS, page 171).

Executive Order 11990

Executive Order 11990, Protection of Wetlands, requires that federal activities generally avoid modification or destruction of wetlands. The selected alternative complies with EO 11990 and will not negatively affect wetlands (FEIS, pages 171-172).

Executive Order 12898

A specific consideration of equity and fairness in resource decision-making is encompassed in the issue of environmental justice. EO 12898 provides that "each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." No adverse effects from the selected alternative have been identified on minority or low-income populations (FEIS, page 211).

Executive Order 13112

This order requires federal agencies to avoid actions that will spread invasive species unless the benefits of the actions clearly outweigh the potential harm and all feasible and prudent measures to minimize risk of harm will be taken. The analysis shows that the selected alternative will comply with this order (FEIS, pages 101-102).

6 Implementation

In accordance with 36 CFR §218.11(b), this ROD may be signed when all concerns and instructions identified by the Reviewing Officer in the objection response letters have been addressed. Implementation may begin immediately following the date of this final decision. The plan amendment will become effective when the decision is signed.

7 Contact Person

This document and the FEIS may be viewed and downloaded at https://tinyurl.com/BHRLProject. For additional information, contact Kelly Honors, Forest Environmental Coordinator, at the Forest Supervisor's Office, 1019 North 5th Street, Custer, SD 57730, email khonors@fs.fed.us, or by phone at (605) 673-9200.

8 Signature of Responsible Official

Mark E. Van Every 7/20/18

Mark Van Every Date
Forest Supervisor
Black Hills National Forest

9 References

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Appendix – Monitoring Plan

Monitoring plays an important role in providing feedback during project implementation. Both implementation and effectiveness monitoring will occur during implementation of this project. Members of the public, National Forest Advisory Board (NFAB), and objectors will be invited to participate in field monitoring activities, when possible, as part of multiparty collaborative monitoring as instructed by the Objection Reviewing Officer in her letters dated May 30, 2018.

Implementation monitoring will assess the status of project implementation, progress toward meeting project objectives, and application of design features. Forest Service project leaders and contract administrators will perform much of the implementation monitoring. Other Forest Service resource specialists will monitor application of design features related to their resource area.

Effectiveness monitoring will assess whether planned activities achieve desired outcomes and examine the success of design features in protecting resources. Monitoring will involve data reviews and field visits.

The BHNF will prepare an annual project monitoring report, which will include findings on the status of implementation, progress toward objectives, and effectiveness of design features. This report will be made available to the public on the BHNF web site.

Field monitoring activities will generally occur between April and October. Public field trip dates will be announced in advance.

Details of planned monitoring and evaluation activities are described below. Some of these items are project-specific, while others are part of Forest Plan monitoring and evaluation. The Black Hills National Forest Monitoring and Evaluation Strategy was recently (September 2017) updated in response to requirements in the 2012 planning rule. Reporting of Forest Plan-level monitoring will occur biennially per 36 CFR 219.12(d). Past Forest Plan monitoring reports are available at tinyurl.com/BHNFMonitoring.

Planned Activities – Implementation Monitoring

Implementation of Forest Service management activities is tracked through annual accomplishment reporting. At the end of each fiscal year, all activities accomplished in the previous 12 months are recorded in the Forest Service Activity Tracking System (FACTS) database and other corporate tracking systems. Quantity and location of activities accomplished as part of this project will also be included in the project monitoring report.

BHNF will provide updates on project implementation to the NFAB at its scheduled meetings or as requested.

Planned Activities – Effectiveness Monitoring

Fuel Reduction Activities

District fuels specialists and silviculturists will monitor the success of fuel treatments (FEIS p. 18) in accordance with Forest Plan objective 10-01, "Manage for 50 to 75 percent moderate-to-low fire hazard in the wildland-urban interface and reduce fire hazard within proximity of structures…" After completion of fuel treatments, these specialists will conduct ocular estimates of fuel loading based on the Black Hills-specific fuel model photo series in a representative sample of treated areas to determine compliance with Forest Plan guideline 4110, which sets forth desired fireline intensity parameters according to an area's fire risk, hazard, and value ratings. Quantitative transect-based measurement of fuel loading may also occur. These reviews will also determine whether further action is needed to reduce fireline intensity to

objective levels. Results will be recorded in the FACTS and fuel treatment effectiveness databases and summarized in the project monitoring report.

Structural Stages

The Forest silviculturist will monitor progress toward achievement of Forest Plan ponderosa pine structural stage and tree size objectives (4.1-203, 5.1-204, 5.4-206, 5.43-204, 5.6-204). Changes in stand structural stage are recorded and tracked in the FSVeg database. District GIS/database specialists update the structural stage of a given stand when management activities or site-level inventories occur in that stand. Updates will occur at least once a year or more frequently as needed... The silviculturist will summarize distribution of structural stages and tree sizes by management area annually and assess status and trend as compared to objectives. Results will be displayed in the Forest Plan Monitoring Report and the project monitoring report.

Ponderosa Pine Restocking

District silviculturists will monitor stocking of ponderosa pine regeneration following overstory removal, patch clearcut, and tree planting activities (FEIS pp. 26, 28-29) in accordance with Forest Plan goal 303 regarding commodity production and objective 2416, "The following restocking requirements apply on lands identified as suitable and available for timber production…" For overstory removal and patch clearcut, assessment will consist of quantitative reforestation surveys conducted in the third and fifth years after implementation of the activity in each harvest unit. For tree planting, fixed-plot or transect surveys will be conducted in the first, third, and fifth years. Stands stocked with at least 150 trees per acre will be certified as regenerated. Results will be recorded in the FACTS database and reported in the Forest Plan Monitoring Report.

Aspen Regeneration Activities

District silviculturists will monitor success of aspen regeneration activities in accordance with Forest Plan objective 201, "Manage for a minimum of 92,000 acres of aspen…" and guideline 2203, "An aspen stand shall be considered regenerated when it has yielded per acre 2,000 stems at least six feet tall with unbrowsed terminal leaders." Monitoring will consist of fixed-plot surveys conducted after aspen regeneration activities and removal of pine and spruce from aspen stands and inclusions (FEIS p. 32). These surveys, conducted in the first, third, and fifth years after activity implementation, will assess production and growth status of aspen regeneration. They will also indicate any need for protection of regenerating aspen from browsing or grazing animals. Results will be stored in the FACTS database and reported in the project monitoring report.

Design Features

The selected alternative includes project-specific design features (FEIS pp. 40-44, as modified by the ROD, p. 5) as well as standard design features contained in the Forest Plan, best management practices direction, and other guidance sources. Implementation and, where relevant, effectiveness of project-specific design features will be monitored. As described above, members of the public and others will be invited to participate in field monitoring activities, when possible.

The following table describes monitoring activities related to project-specific design features. Except as noted below, results of monitoring will be summarized in the project monitoring report.

Design Feature Topic	Planned Monitoring
1. Noxious weeds	District managers of noxious weed control programs will continue to conduct field reconnaissance following implementation of timber harvest and other activities to detect noxious weed infestations in treated areas and determine the need for control activities, focusing on areas of soil disturbance. Where activities are modified during implementation in conjunction with the activity administrator to avoid specific occurrences of priority weed species (as defined on FEIS p. 40), the weed program manager will, if possible, visit the site after completion of activities to assess infestation status in the protected area and any adjacent disturbed areas
2. Scenery	The BHNF landscape architect or District recreation managers will visit a sample of main travelways and recreation sites following completion of activities in each timber sale or other activity area to assess implementation and effectiveness of these measures in protecting scenic resources. Monitoring of scenic integrity also occurs as part of Forest Plan monitoring in accordance with objective 402, with results disclosed in the biennial reports.
3. Forest structural diversity	Assessment of pine structural stage and tree size distribution in relevant management areas occurs biennially in conjunction with Forest Plan monitoring. During implementation of this project, assessment will occur and be reported annually. Effects of any activities conducted in structural stage 5 stands will be assessed by the District silviculturist and/or wildlife biologist.
4. Wildlife	District wildlife biologists will continue to assess status of northern long-eared bat hibernacula and known maternity roost trees consistent with USFWS protocol. Biologists also will continue to examine use and condition of known goshawk nesting areas annually, if possible, and survey other suitable habitat for use by goshawks and other raptors. Ongoing monitoring of threatened and endangered, sensitive, local concern, and other emphasis species will continue in accordance with Forest Plan objectives 220, 221, and 238. Results are disclosed in Forest Plan monitoring reports.
5. Hydrology	The following monitoring will occur after completion of relevant activities (timber harvest, road construction and closure, skid trail rehabilitation, etc.). District hydrologists will have primary responsibility for this monitoring except as noted below. • Assess the effects of any new roads constructed in the watersheds listed in measure 5a and those constructed in AMZs associated with perennial or intermittent streams... • In conjunction with timber sale administrators, assess effects of log skidding and other uses of mechanical equipment in AMZs on stream health and riparian condition. • In conjunction with a botanist, assess effects of any activities that occur in fens or AMZs associated with fens. • Monitor any new crossings of Spring Creek to ensure they do not contribute to further impairment of the stream due to total suspended solids. • Monitor any activities along Victoria Creek to ensure retention of stream shading and no further contribution to the stream's impairment due to temperature. • In conjunction with engineering representatives, verify proper installation of structures at road/stream crossings. In association with Forest Plan objectives 103 and 104, standard practices also include monitoring implementation and effectiveness of BMPs using national BMP evaluation protocols. The hydrologist will review a representative sample of timber sale units, newly constructed roads, and reconstructed roads during and after ground-disturbing activities. Results will be disclosed in Forest Plan monitoring reports.
6. Soil disturbance	District soil/hydrology specialists will review a representative sample of timber sale units following completion of activities using the national Forest Soil Disturbance Assessment Protocol. Qualitative reviews may also occur during site visits conducted during and after project implementation. These efforts will complement ongoing monitoring of soil productivity in association with Forest Plan objective 104. Results of this ongoing monitoring are available in Forest Plan monitoring reports.
7. Fisheries	If heavy equipment operates in the streams listed in this measure during the relevant periods, the project manager (e.g., timber sale administrator, engineering representative) will inform the District wildlife biologist and/or BHNF fisheries biologist. These specialists will assess effects on associated habitat. In addition, ongoing monitoring of sensitive and other emphasis fish species will continue in association with Forest Plan objectives 221 and 238. Result are disclosed in Forest Plan monitoring reports.

Design Feature Topic	Planned Monitoring
8. Aspen	See "Aspen Regeneration Activities," above.
9. Timber yarding	See "Fuel Reduction Activities," above.
10. Rare plants	Monitoring of threatened and endangered, sensitive, and local concern plant species will be reported every two years in association with Forest Plan objectives 220, 221, and 238. Results are disclosed in Forest Plan monitoring reports.
11. Cultural resources	Archaeologists will monitor and report effects on cultural resources per stipulations in Section 106 of the NHPA or stipulations in programmatic agreements developed in collaboration with the Wyoming and South Dakota State Historic Preservation Officers and interested American Indian Tribes.