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EPA Comments on the Black Hills National Forest's Draft Environmental Impact Statement, Revised Land and Resource Management Plan, Phase II Amendment

Project Overview:

The Forest Service (USFS) proposes to amend its management direction in a Draft Environmental Impact Statement (DEIS) for the Phase II Amendment of the Land and Resource Management Plan (LRMP) for the Black Hills National Forest, in southwestern South Dakota and northeastern Wyoming. The DEIS analysis applies to approximately 1.2 million acres of National Forest lands and is meant to provide more specific direction to the Phase I Amendment of the 1997 LRMP. The natural communities at various elevations contain a diverse mix of land, water, plants, and animals. The Forest is noted to be an "island" ecosystem, rich in botanical and wildlife diversity.

The primary Phase II Amendment topics include (1) biological and habitat viability and diversity, (2) reducing fire fuels and fire risks and insect infestation risks, and (3) Research Natural Areas. The DEIS notes that there are environmental, social, and economic considerations associated with each revision topic and which are discussed in the document.

Alternatives

Five alternatives are fully evaluated in the DEIS, with Alternative 5 having been eliminated from further detailed study along with other alternatives that do not meet the LRMP's Purpose and Need. The five alternatives fully evaluated include the following:

(1) Alternative 1, the 1997 Revised Plan Alternative, serves as the No Action alternative and reflects decisions made in the 1996 EIS and 1997 Record of Decision (ROD) with modifications. It does not include revisions made in the Phase I Amendment to temporarily address analysis and management direction sufficient to meet fish and wildlife diversity and viability requirements. (Hence it does not meet the Purpose and Need).

(2) Alternative 2 represents the long-term adoption of the Phase I Amendment and is indicative of current management practices. It was intended to provide for increased species and habitat conservation pending completion of the Phase II Amendment with an emphasis on later-successional species.

(3) Alternative 3, Diversity Across the Landscape, focuses primarily on species viability by incorporating provisions taken under the 1997 Plan and adds the following:

> Structural stage objectives for habitat for 89 species by increasing aspen, bur oak, meadow, grassland, and riparian areas.
> Recommends four candidate Research Natural Areas (RNAs).
> Reduction in fire and insect hazard in the wildland-urban interface (WUI), adjacent to at-risk communities (ARC), and on a case-by-case basis as needed for species conservation throughout the Forest.

(4) Alternative 4, Phase I with Additional Mature Forests, features late successional forests by incorporating provisions under the Phase I Amendment and adds the following:

Increased emphasis on species viability by conserving and beginning the process of creating more late-successional forest acres.
Recommends nine candidate RNAs.
Reduction in fire and insect hazard in the WUI adjacent to ARC.

(5) Alternative 6, Reduce Fire and Insect Hazard, emphasizes fire and insect hazard reduction while maintaining viable populations of native and desired nonnative species by incorporating actions taken under the 1997 Plan and also adds the following:

Establishes structural stage and vegetative composition objectives similar to Alternative 3 but generally provides for more open mature forest. It has aggressive fire and insect management yet provides for species viability. Treatments focus first in the WUI and in ponderosa pine to increase the area of aspen, bur oak, meadow, grassland, and riparian lands, to meet both fuel management and species viability objectives.
Recommends five candidate RNAs.
Reduces fire and insect hazard in the WUI adjacent to ARC as the first priority, and on the rest of the Forest as a second priority.

Overall, EPA notes that while five alternatives are evaluated, it appears that the Preferred Alternative is the only one likely to be selected for implementation because it is the only one that fully resolves Purpose and Need. We reach this conclusion based on the description of the alternatives:

Alternative 1/No Action already has been dismissed on appeal and subsequent litigation.
Alternative 2 is a continuation of the Phase I Amendment (which is described as a precursor to the Phase II Amendment).
Alternatives 3 and 4 do not fully address the Purpose and Need because they do not propose to reduce fire fuels and insect risks in areas other than the WUI.

A range of alternatives should have been developed that fully address the stated needs for viable plant and wildlife populations, fire and insect hazard, RNA assessment, and social and economic impacts.

The Forest Service's analysis of resources – fish and wildlife, water quality, wildlife habitats, cultural resources, and so forth – demonstrates that Alternative 4 is more protective than the other alternatives that were evaluated. The budgetary and economic impacts also are demonstrated to justify Alternative 4 as the Preferred Alternative by a wide margin, with $435 million more economic benefits and $435 million less net financial costs than the Preferred Alternative (expressed as net present values, Table 3.13.2, page 3-326). Therefore, EPA requests that the Final EIS describe the decision criteria used to selected Alternative 6 as the Preferred Alternative and why Alternative 4 was not modified and selected.

The relatively positive effects of Alternative 4 dominate those of other alternatives for nearly all resource objectives with the exception of reducing fire fuels and insect infestation. Therefore, EPA strongly recommends that Alternative 4 be modified to meet at least the minimum necessary objectives for those two concerns and that the Forest Service select Alternative 4, as modified, to effectively and efficiently meet the overall Purpose and Need.

Environmental Consequences

Water Quality and Aquatic Resources Impacts. Based on the information in the DEIS, we recommend the direction in Alternative 4 be adopted to protect aquatic resources. Numerous adverse effects to water quality and aquatic resources are related to timber harvesting, livestock grazing, road construction and runoff and sediment from roads, and other activities on Forest and private lands. Those impacts are not quantified nor fully discussed in the DEIS.

The following discussion is based on information in the DEIS. The following information would inform both decision-makers and the public about water quality, the status of existing water resources, and management direction that is needed to meet water quality standards and other objectives for aquatic resources.

The DEIS does not address how to resolve those few water quality impairments that are documented, does not fully assess existing water resources, nor does it develop measures to bring the Forest's water resources into compliance with their designated purposes.

With 4,700 miles of Forest roads and an additional 3,400 miles of illegal, user-created roads on the Forest, the DEIS cites widespread impacts to streams and lakes because of those roads, logging, private lands development, natural causes, livestock grazing, and other land uses.

The DEIS does not evaluate the status of many streams and aquatic-dependent species – for example, we understand that the Forest's distinct American Dipper population is imperiled because of aquatic impacts – but for those that were evaluated only a couple streams are fully meeting their State designated uses.

Water quality in all water bodies must achieve or exceed the water quality standards established by the States of South Dakota and Wyoming. Water quality standards or surface and ground waters include the designated beneficial uses, numeric criteria, narrative criteria, and antidegradation requirements set forth under State law, as required by Section 303 (c) of the Clean Water Act. The DEIS indicates that best management practices are being implemented and the Forest Plan standards and guidelines are being followed. The DEIS documents impairments to aquatic (page 3-334) and riparian resources without providing criteria for improvement or to determine if proposed alternatives can or will achieve water quality standards in the future. While we applaud the Forest's success at meeting its objectives for best management practices (BMP) implementation and subsequently monitoring their effectiveness, it appears that the DEIS does not inform the public or decision-makers about the management direction that is needed to understand water quality needs on the Forest nor the measures necessary to address them.

It appears from the information in the DEIS that BMPs and other practices may not translate into water resources that meet water quality standards and designated purposes. Only six streams and two lakes in the Forest were assessed in the States' Clean Water Act Section 305(b) water quality reports (2004). Information in the DEIS (page 3-334) indicates that only half of those streams and neither of the two lakes fully support their designated uses, due to temperature, pathogens, pH, and eutrophication. Causes of impairment are noted to range from natural causes of pollution to varying causes, but no specific pollution sources are cited. Presumably those natural and other causes are related to runoff and erosion from natural causes and management activities in the following areas: Forest roads, timber sales, vegetation management areas, recent fire burns and salvage harvest areas, livestock grazing lands, developed or managed private lands, and other land uses.

The Final EIS should disclose water quality impacts to aquatic resources more clearly and quantitatively, to fully discuss significant environmental impacts and inform decision-makers and the public about reasonable alternatives that can avoid or minimize adverse impacts [40 CFR 1502.1]. Soil erosion and water quality impacts should be modeled or otherwise estimated (e.g., with the Universal Soil Loss equation and simple assumptions about sediment delivery or basic watershed models). Then water quality needs could be evaluated on the Forest to determine how water quality standards and aquatic life can be supported by Forest management.

No documentation is provided to show that narrative or antidegradation standards are met.

We did not note whether monitoring of water quality is recommended in the DEIS, despite some information that some streams and lakes are degraded for aquatic life and other uses. Please indicate whether water quality will be monitored in the future and how compliance with numerical and narrative standards for water quality and aquatic life will be evaluated. Please note in the Final EIS whether monitoring and other information indicate compliance with States' standards for fecal coliform and total bacteria and sediment (total dissolved solids, fine sediment in spawning gravels, etc.) in Forest streams.

Streams and lakes may be impaired for aquatic life because of livestock grazing and the resulting impacts from bacteria, sediment, and other livestock-related impacts. We request that you provide existing bacteria levels in the Final EIS, if that information is available, and discuss the potential impacts to aquatic life.

Please indicate in the Final EIS what State standards are in place for aquatic life, so that reviewers understand whether sensitive aquatic life may be affected. Discuss how future management direction will improve any streams that do not meet State water quality standards.

The Final EIS should provide available data and information on water temperature and the consequences of Forest management on water temperatures.

EPA recommends that a summary of the total riparian resources that are adversely impacted by grazing, off-road vehicle recreation, timber management, natural causes such as fire, and other lands and land uses be included in the Final EIS. An overall summary of protection measures that are needed could then be provided. That information would help to understand the magnitude of future needs in the Forest for riparian protection and to compare those needs to what is proposed in the DEIS.

Water resources should be evaluated for populations of macroinvertebrates, vertebrates, and algae. Has that monitoring been completed? If so, please provide it in the Final EIS or discuss why such monitoring is not being conducted.

No data were noted for groundwater quality. Please indicate in the Final EIS if any data are available and whether any impairments to those groundwater resources or affected surface water resources may be affected.

Air Resources. Section 3-14.1.3, on page 3-330, discusses direct and indirect effects on air quality, citing fires and motor vehicle use as potential sources of air pollution. One sentence reads, "Smoke from wildfires and dust from high winds, while they may affect air quality, are not considered to violate NAAQS [National Ambient Air Quality Standards] because they are uncontrollable natural disasters," and cites EPA's 1996 natural events policy. That statement should be changed to indicate that EPA policy recognizes that natural events can violate

NAAQS. The policy establishes procedures to follow in the event that violations occur and includes provisions for EPA to exercise its authority regarding designating the attainment status of areas where violations occur due to natural events. In addition to the 1996 natural events policy, EPA has issued an Interim Air Quality Policy on Wildland and Prescribed Fires: (http://www.epa.gov/ttncaaa1/t1/meta/m27340.html).

In the case of high winds, the 1996 natural-events policy applies to dust originating from natural sources or from anthropogenic sources controlled with best available control measures. While section 3-14.1.3 mentions dust emissions caused by vehicles traveling on unpaved surfaces, it does not mention land uses such as the locatable and leasable minerals exploration and development, discussed in section 3-8.5, as potential sources of fugitive dust. Roads, other disturbed soil surfaces, and mineral operations are all potential sources of fugitive dust emissions. In the event that high winds contribute to a violation of a NAAQS by exacerbating emissions from anthropogenic sources, the sources must be controlled with best available control measures in order to be covered under the 1996 natural events policy. The South Dakota Department of Environment and Natural Resources (DENR) regulates emissions from mineral operations such as mines and quarries. The FEIS should disclose that emissions can occur from these operations.

The final sentence of the first paragraph of section 3-14.1.3 says that smoke from prescribed burning "must be taken into account during planning" to avoid air impacts, and the last sentence of the section reiterates that there are "too many variables in the harvest and use of firewood" for projections of air emissions from prescribed fire. Consequently, any quantitative estimates of air impacts from prescribed burns must take place on the project level. According to the DENR, the USDA Forest Service is among the agencies cooperating to develop smoke management plans for the Black Hills region. We suggest that the FEIS advise that project-level NEPA documents for prescribed fire treatments should discuss the EPA Interim Air Quality Policy on Wildland and Prescribed Fires and discuss the Forest Service's involvement in developing certified smoke management plans. For example,

"Project-level NEPA documents involving treatments with prescribed fire should discuss the EPA Interim Air Quality Policy on Wildland and Prescribed Fires, and disclose how the Forest Service is cooperating in developing smoke management plans for the Black Hills region and describe how prescribed burns will be conducted in accordance any plans that are developed."

The FEIS should also make it clear that NEPA actions for specific forest management projects will include estimates of air quality impacts whenever they include significant use of prescribed fire. Where practicable, the Forest should use available air quality and dispersion models to estimate emissions and dispersion of smoke from proposed prescribed fire.

Section 3-14.1.3 mentions the NAAQS for PM10 but not for PM2.5, which EPA established in 1997. The smoke produced by wildland fire and prescribed fire contains fine particles more accurately represented as PM2.5 than as PM10. We suggest expanding the discussion of air quality standards in the FEIS to acknowledge the PM2.5 standard.

Soil Resources. EPA recommends that the direction in Alternative 4 be adopted to protect soils and related resources. Forest management activities can damage soils, and activities such as timber harvesting and road construction, and the greater levels of those activities under some alternatives will have concomitant impacts on soil and related resources.

Old Growth. A small percentage of the Forest can be classified as old growth. Despite the Forest's objectives for old growth and historic failure to meet those objectives, the Phase II Amendment does not provide Standards for those old growth targets. The DEIS concludes that wildlife species viability will be protected based on old growth objectives that are discretionary and not enforceable under Forest Standards. Given that context, please consider additional direction in the form of Standards for the Forest to move toward its growth objectives. Those objectives also are important to imperiled wildlife in the Forest that depend on mature forest, such as northern goshawk and American marten.

Research Natural Areas. We support the establishment of RNAs that meet the research and management needs for all the appropriate forest ecosystem types, species, and other natural resources that are being managed and evaluated in the Forest. Alternative 4 recommends nine RNAs to address those needs and we recommend its selection for implementing RNAs, while Alternative 6 recommends five. RNAs should provide an experimental baseline for management activities and also can provide for multiple objectives such as wildlife habitat and limited recreation. Monitoring of both the RNAs and lands that are managed for timber, grazing, and other uses is needed, of course, to determine the environmental and other impacts to managed lands for comparison.

Wildlife Impacts. EPA would appreciate greater protections and mitigation for wildlife impacts that are disclosed in the DEIS, with the greatest protections under Alternative 4. Wildlife impacts for sensitive species, as noted in the Biological Evaluation (Appendix C) for the Preferred Alternative, are noted to be, "may affect individuals or habitat, but are not likely to cause a trend toward federal listing." This evaluation is stated to occur for management activities under several alternatives. Under Alternative 4, in general, most sensitive wildlife species would benefit from its management direction, particularly relative to the Preferred Alternative and current management.

The DEIS Amendments largely were driven by conclusions that the current LRMP and management practices are not meeting the Purpose and Need. The DEIS appears to conclude that current management does not cause unacceptable adverse impacts to the environment. The DEIS then documents an existing Affected Environment that: (a) does not meet designated uses for aquatic life in some assessed streams and lakes (though few water resources are assessed), and (b) has reduced and declining populations of many sensitive fish and wildlife species in mature and riparian forests.

Should a greater level of activities occur (more roads, more harvest, more motorized recreation), as compared to the level of activities conducted in the past, the risk of affecting species viability will presumably increase. Alternative 6, the Preferred Alternative, cites increases in the above activities. The amount of total timber sales, roads and areas open for motorized recreation, and other activities appear to have the potential for adverse wildlife population and habitat impacts. Alternatives, or options and practices within each alternative, that minimize road construction and recreation disturbances of wildlife should be considered.

Fuels reduction Standards could conflict with wildlife habitat and management goals and can take priority over habitat goals. Given that recent catastrophic fires in the Black Hills have burned through highly-managed timber production areas that previously had been logged and thinned, the Forest Service should provide science and evaluate extensive monitoring data to support claims that more fire protection through logging and thinning will prevent or reduce the intensity of future fires. It seems likely that, based on historical experiences, fire reduction

measures are likely to succeed only in the WUI areas and that the amount of likely back-country timber management can do little to prevent future fires and perhaps their intensity.

Snag densities and large-diameter snags are provided for in the LRMP direction but appear to be inadequate at the levels that presumably are needed to enhance wildlife. While Alternative 4 has the potential to encourage snag diameters and densities that are needed for cavity-nesting birds and other wildlife, the direction in the Preferred Alternative appears to continue to discourage recruitment and retention of snags with sufficient diameters and densities. Large-diameter snags are necessary particularly for several species of wildlife that are rare and imperiled in the Forest.

Management Indicator Species (MIS) direction in Alternatives 3, 4, and 6 (pages 2-15 to 2-16) was well crafted and should be incorporated in the ROD, along with a monitoring budget and other resources to implement protections for the MIS.

Northern goshawk was not included in the MIS. Being rare and declining, and being an indicator of both old growth and forest biodiversity, previous management practices have depleted the species. Many other Forests use the goshawk as a MIS to evaluate the habitat needs of that sensitive species but also to evaluate biodiversity, stand structure, old growth, and so forth. While we recognize the difficulty to monitor and recruit this rare species in appropriate habitat, at a minimum we recommend careful evaluation of its future management needs, particularly in light of the proposed, aggressive fuels reduction and related projects that are envisioned and the already relatively high density of system and other roads that exist on the Forest.

Roads and Road Standards. We suggest that new roads and road construction be minimized and that existing roads be closed and obliterated when timber harvest and other activities are completed. Based on information found on "Recreation and Travel Opportunities (Tables 3-62 and 3-63, page 3-271), the combined 4,700 miles of Forest system roads and 3,400 miles of user-created roads results in a combined density of more than 4 miles of road per square mile of land area. Such density has significant potential to degrade water quality and aquatic habitats from soil erosion and channelized sediment losses into streams. In addition there are 737 miles of county, state, federal, local and private roads (Table 3-62, page 3-271).

Additional work is warranted in the Final EIS about the uncertainty of the road impacts on natural resources and the available science for fish and wildlife impacts and water quality. Road construction, maintenance, illegal user-created roads, and road use can cause erosion and sedimentation, fragment wildlife habitats and impair connectivity of habitats, spread noxious weeds, may result in more wildlife mortality from collisions, and have numerous other adverse environmental impacts.

The DEIS notes that the Forest is heavily roaded (page 3-271) in most areas. Survey results reported in the recent Bighorn National Forest LRMP DEIS indicate that Forest users are not concerned about roads as a constraining influence. "Provide more roads" was ranked 10th out of 14 future desired conditions on that Forest, which has a much lower density and narrower distribution of roads than in the Black Hills. "Consider plants and animals as a high priority in resource decisions," was ranked first by those who took that survey. Hence, we propose that the Forest respond to the public values to protect plants and animals, watersheds, and other resources as the highest priority. Among the alternatives, Alternative 4 best responds to that priority.

New road standards in the LRMP to protect fish and wildlife can include:

- Minimize new USFS roads.
- Seek opportunities to close and obliterate roads when no longer needed / on project completion.
- Maintain a maximum road width and right of way.
- Maintain vegetation within specified distance of the roadway.
- Maintain sight distances.
- Avoid roadside barriers to the extent possible (e.g., retaining walls).

We presume that the Forest's inordinately high road density requires a large number of stream crossings and road miles in riparian areas, but that information was not noted in the DEIS. The water-quality, riparian, morphological, and aquatic life impacts from this road density is presumed to be significant. Please consider how to address and minimize these impacts in future road and transportation decisions.

While no definitive road-density standard may have been identified, some Standard could be proposed. One mile of road per square mile of land is sometimes cited as a threshold for habitat impacts to some sensitive species, for example. Monitoring areas with differing road densities could be conducted to determine adequate and "ideal" maximum road densities and characteristics. Fewer roads in and into wildlife habitats are likely to reduce the adverse effects that roads have on wildlife. Please address the science regarding road density in the Final EIS and discuss how the LRMP conforms to desired wildlife habitat conditions.

The DEIS indicated that objectives for road construction, reconstruction, and obliteration are in Objective 309, though we were unable to locate it in Appendix D. In any case, with reduced Forest road budgets envisioned and the maintenance backlog for existing Forest road systems, we request further information in the Final EIS about how the Preferred Alternative compares to other alternatives to access timber for harvest and for other activities. The backlog in maintenance for roads and buildings, reductions in visitor services, lack of resources for monitoring, and other financial challenges makes it seem imprudent to construct new roads for subsidized timber harvest that coincidentally will reduce the public values for clean water, fish and wildlife, solitude, and so forth. Please further consider LRMP direction to minimize new road construction and to close and obliterate existing roads.

Socioeconomic Impacts. The Forest Service chose as the Preferred Alternative that which has the greatest financial inefficiency and least economic efficiency (Table 3.13.2, page 3-326). Alternative 4 offers greater protections for nearly all natural resources, wildlife, recreation, and other resources. The economic net present value of Alternative 4 is $924 million, and all other alternatives have at least $350 million more economic benefit than the Preferred Alternative. Likewise, the financial efficiency of Alternative 4 minimizes the costs to the federal government and the public by a large margin, -$534 million compared to -$969 million for the Preferred Alternative. Many nonmonetized benefits in Alternative 4 may in fact make it even more economically and financially efficient than the Preferred Alternative because the nonuse values associated with Alternative 4 are likely to be substantially greater than the Preferred Alternative.

Recreation Impacts. We believe that Alternative 4 provides greater recreation values and more highly valued visitor experiences, compared to the Preferred Alternative. That is borne out indirectly by the information in Table 3.13.2 (page 3-326). Given the inordinately high density of roads and level of road access into the Black Hills, additional road construction is antithetical to the future quality of visitor experiences and to environmental protection. Vehicular travel

primarily is a way to access the other recreation activities cited in Table 3-61 (page 3-270). Nearly all of those activities are enhanced by more natural settings.

We recommend that the Final EIS address ways to reduce recreation conflicts with other uses and users. Timber harvest, minerals exploration and production, and livestock grazing uses often conflict with recreation uses and the values of recreation experiences and reduce the potential benefits of ecologically sound recreation management. Recreation, hunting and fishing account for a large percentage of the jobs related to the Black Hills National Forest.

Noxious Weeds. Mitigating activities that introduce noxious weeds should be fully considered and implemented. Noxious weeds pose a risk to habitat composition largely because of livestock grazing, timber harvest, and recreation/travel management. Management activities should be evaluated to further reduce the transport mechanisms and risks of establishment. The most promising methods to reduce the risks from noxious weeds are to minimize land disturbances from road construction and maintenance and to limit openings of additional areas to motorized recreation, livestock management activities, and timber harvest. Alternative 4 and the activities under that alternative appear to best accomplish those goals.

Rangeland Vegetation and Livestock Grazing. EPA has concerns that livestock grazing practices are not affected by the proposed LRMP Amendment. Livestock grazing levels would remain unchanged. Livestock grazing and other uses cause significant impacts to wetland, stream, and riparian areas, including the habitats of rare, sensitive, and native aquatic species. Fine sediments, fecal coliform bacteria, nutrients, and other nonpoint-source pollutants are known to be increased in Forest streams because of grazing and other land uses and are consistent with the water resource impairments listed in the DEIS (page 3-334).

Because of resource concerns and conditions on the Forest, we would like the Forest Service to consider programmatically and in future allotment decisions the following mitigation measures to better move rangeland and riparian conditions toward their desired condition:

Enhance riparian exclosures and other fencing, livestock watering facilities, and other practices to reduce or eliminate grazing near important aquatic resources and riparian habitats;

Reduce the intensity and duration of livestock grazing further, particularly in areas where livestock trampling of riparian areas has been noted to limit the diversity and vigor of native riparian vegetation, and where animal wastes are known to substantially contribute fecal coliform and other bacteria and nutrients to aquatic resources; and

Consider additional work with stakeholders and community groups for greater resource conservation through education, enforcement, and monitoring by the Forest Service and Forest users.

Use prescribed fire to improve upland plant communities.

Close some Forest Service roads and implement other transportation system improvements.

Cultural and Heritage Resources. Heritage resources appear to be protected best by Alternative 4, based on the resources discussion in Section 3-10 and the Tribal issues summarized in Section 3-10.5.1. Those resource impacts are consistent with greater resource protections overall in Alternative 4.