

Krueger, Elizabeth -FS

From: Deisch, Shelly <Shelly.Deisch@state.sd.us>
Sent: Monday, October 30, 2017 6:56 PM
To: Davy, Anne - FS; Krueger, Elizabeth -FS
Subject: Black Hills Resilient Landscapes Project - Draft EIS
Attachments: SDGFP Comments BHRL DEIS 2017 FINAL.pdf

Please find attached SDGFP comments on the BHRL DEIS submitted today, October 30, 2017

Attempted to send to <http://tinyurl.com/BHRLProject> with difficulty

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SOUTH DAKOTA DEPARTMENT OF GAME, FISH AND PARKS

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October 30, 2017

Ann Davy, Project Manager
Black Hills National Forest
1019 North 5th Street
Custer, SD 57730

Subject: Black Hills Resilient Landscapes Project – Draft EIS
Submit to: <http://tinyurl.com/BHRLProject> and adavy@fs.fed.us
Deadline: October 30, 2017

Dear Anne,

The South Dakota Department of Game, Fish and Parks (SDGFP) submits comments on the Black Hills Resilient Landscapes (BHRL) Draft Environmental Impact Statement (DEIS). We incorporate by reference our scoping comments (9/19/16). Our Department vision is to conserve our state's outdoor heritage to enhance the quality of life for current and future generations. Within that vision, one of our goals is to serve as stewards of South Dakota's outdoor resources to maintain and improve our outdoor resources to ensure sustainability. Objectives to achieve this goal include managing wildlife and fisheries within social, fiscal, and biological constraints. We will utilize partnerships with public land managers, such as Black Hills National Forest (BHNF), to collaboratively manage fish, wildlife, and associated habitats. One of our values includes stewardship because we believe in applying biological and social sciences to conserve and respectfully manage South Dakota's outdoor resources for current and future generations (<http://gfp.sd.gov/agency/information/default.aspx>). It is within these SDGFP directives that we focus our comments on the Black Hills Resilient Landscapes (BHRL) Draft Environmental Impact Statement (DEIS).

Our primary concerns and issue identification with the BHRL DEIS include:

- 1 • BHRL is an enormous project area covering 92% of BHNF, which is too expansive to give detailed project review.
- 2 • BHRL DEIS is conceptual with little prospect for publics to provide meaningful site-specific comments.
- 3 • SDGFP cannot provide site-specific wildlife and fisheries information within a limited 45-day comment period and cannot propose joint habitat projects into the next 16 years. BHRL is a long-term project lasting up to 16 years (from today through end of final timber sales). Future habitat projects will require additional site-specific, joint agency staff time to prepare Categorical Exclusions and Environmental Assessments.
- 4 • BHRL DEIS is incomplete. It lacks comprehensive design criteria (features), mitigation measures, and implementation guidelines. These management directives must be included in the DEIS, are integral to the full suite of effects analysis, and should be offered to the public for comment prior to BHRL's FEIS and ROD.
- 5 • BHRL proposed treatments (timber production, fuel reduction, and structural stage) in targeted Management Areas (MAs) lack correlating specific management area directives.

- 6 • BHRL will allow some late successional conifer habitats to continue to dwindle. Without design criteria and diameter-limit cuts, proposed fuel breaks and some silvicultural treatments can target larger individual trees and cohorts of larger trees within SS3/4A. This is a direct threat to Northern Goshawk *populations* and other interior forest species, contrary to USFS directions.
- 7 • BHRL project knowingly continues to reduce Northern Goshawk habitats and nesting territories, but the biological opinion is that only individual birds could be impacted. This is incorrect as populations are at viability risk. BHNF biological opinion needs reassessing with a full complement of forest wildlife biologists and other goshawk specialists.
- 8 • BHRL has some limited protection proposed for hardwood treatments. Without design criteria and monitoring, hardwood treatments will likely fail to result in healthy, multiple-aged stands within the next 20-30 years due to wild and domestic ungulate browsing, individual aspen genetics that respond differently to disturbances, and climate change, among other factors.
- 9 • BHRL has proposed patch clear cuts (PCC) for up to 10-ac but discusses mostly 2- and 3-ac PCC. BHRL should approve patch clear cuts up to 10-ac with design criteria. Individual project areas and patch sizes could be identified by SDGFP-BHNF wildlife biologists. Removal of large conifers should be avoided if they are considered wildlife trees.
- 10 • BHRL proposes prescribed fire (Rx) should have design criteria for hardwoods to not burn hardwoods <30 years of age and require Rx not to exceed 5% hardwood mortality.
- 11 • Some of BHRL's effects analysis and specialists' reports lack relevant and local wildlife and hardwood research, literature, data, and SDGFP consultations.

Please contact us for further discussions.

Sincerely,



Shelly Deisch
Public Lands Liaison and Wildlife Biologist

CC: SDGFP Secretary Kelly Hepler, Division Directors, Wildlife and Terrestrial Management Staff, and Wildlife Biologists.

ADDENDUM

Definition of Resiliency

For this project, BHNF has designed BHRL according to the National Cohesive Wildland Fire Management Strategy to make meaningful progress towards three identified goals: resilient landscapes, fire-adapted communities, and safe and effective wildfire response. BHRL DEIS also defines resiliency as forested communities which can withstand catastrophic insect and disease outbreaks. We believe that definition should go beyond vegetation and include riparian areas, streams, wet meadows and other unique ecological features.

12 BHRL's focus is mostly on 5 Management Areas (MAs) which have Forest Plan objectives for ponderosa pine structural stages (SS). According to the DEIS (p. 9), SS4A (≥ 9 " dbh and canopy cover 11-40%) is over represented within 5 MAs (1,032,970-ac, Table 1 p. 5), or nearly the entire 1.2M-ac BHNF. While SS4A is outside Forest Plan objectives of 25%, the DEIS did not clearly articulate how an over-abundance of mature pine of relatively sparse canopy cover is a wildfire, insect, or disease threat. During Phase II Amendment, BHNF and Cooperators discussed the "wall of wood" and how SS4B/C needed to be reduced, which wild fires, continuous road building, mountain pine beetle (MPB), and timber treatments have accomplished. Today SS4B/C are so reduced that these SSs are below Forest Plan objectives. SS5 has likely also been reduced but also due to subjectivity of classifying SS5, and insufficient inventories. The known acreage of SS5 and location on the landscape have not changed since the Forest Plan Phase II Amendment. Overstory removal of SS4A in regenerated stands will convert some stands to SS3A/B, which are currently below Forest Plan objectives (DEIS Figure 4 p. 11). The DEIS could better explain how SS3A/B are more resilient to wildfire, insects, and disease, thus the need to create these SSs.

BHRL is Conceptual, Broad, and Expansive

13 BHRL inadequately addresses *reasonably foreseeable, connected and cumulative effects actions*. BHRL is an enormous project area across BHNF, and potentially includes 92% of BHNF (1,098,416-ac, DEIS Table 1 p. 5) with a focus to *treat 56% of BHNF* (673,000-ac of identified treatment types (USDA 2017) across 1,098,416 ac.). Similar to Mountain Pine Beetle Response Project (PBR) (USDA 2012), the analysis for BHRL is essentially conceptual in nature because exact areas to be treated will be identified within the next 10 years post Decision (October 2018), which means treatments (sales completed in 3-5 years) could continue up through 2033, *16 years from today*.

14 BHRL project could be problematic for interagency (BHNF and SDGFP), natural resource long-term planning. For the purposes of meeting the DEIS deadline, BHRL's large-scale (spatial and temporal), conceptual approach to land management makes it extremely difficult for SDGFP to provide useful comments and accurate wildlife and fisheries information (addressed to a limited degree herein).
 15 Natural resource conditions (including wildlife and fisheries populations and habitats) will certainly change within 16 years and we request that BHRL FEIS and ROD give BHNF the flexibility (adaptive management) to adjust or amend BHRL throughout the project lifetime. We do not wish to send comments which are irrelevant and conversely, we do not wish to miss commenting on critical wildlife and fisheries concerns. By default, our letter will also be somewhat conceptual in nature.

16 One great concern we have with this broad, single-project NEPA approach to forest-wide management, is that site-specific habitat projects are not proposed and included in the DEIS at this time. In the past, both of our agencies struggle to coordinate funding opportunities given differing fiscal year deadlines, spending/budget authorities, and NEPA completion. We have had to forfeit or significantly alter joint

17 funding projects and research because of joint planning feasibilities despite Phase II Forest Plan
 Objective 219: *Maintain or improve instream fisheries habitat. Cooperate with state agencies in aquatic*
 18 *ecosystem improvement to meet mutually agreed-upon objectives.* If BHRL is truly a resiliency project,
 resiliency expands beyond vegetation and includes ability of all systems to function and provide
 ecological services. This likely will require BHNF to continue to conduct smaller-scale NEPA projects with
 its partners. BHNF will need to allow some of these additional NEPA projects if BHNF wishes to capitalize
 on joint habitat opportunities for public lands.

19 We are keenly aware that individual Categorical Exclusions or Environmental Assessments cannot be
 quickly or conveniently conducted by BHNF staff when SDGFP has funds to immediately apply to BHNF
 habitats. PBR has definitely altered the ability for both agencies to quickly respond to joint habitat
 projects. With PBR and BHRL consuming BHNF staff time, we fear that joint projects will become more
 difficult to fund and carry out within the next 16 years. And, as far as timelines, BHNF will be revising its
 Land and Resource Management Plan within the next 10 years, another significant commitment of both
 agency staffs. We request that BHRL FEIS and ROD assure its funding partners that coordination of these
 intense and human resource consuming projects will be balanced with on-the-ground habitat
 improvements that both agencies are required to provide to American publics. In the interim, we will
 continue to provide BHNF with natural resource information when available throughout the lifetime of
 BHRL (SDGFP-USDA MOU 1985).

Connected Actions, Cumulative Effects, and Unknown Impacts to SDGFP Properties and Natural Resource Management

20 Additionally, it is unknown at this time which recreational opportunities and developed sites SDGFP
 manages could be impacted by BHRL. For example, proximity of BHRL treatments adjacent to Custer
 State Park, Game Production Areas, Mickelson and snowmobile Trails are of concern. Habitat changes,
 societal values, and PBR and BHRL vegetation treatment impacts (beneficial and detrimental) will affect
 bird watching, wildlife viewing, hunting, fishing, and general outdoor opportunities. Again, our agencies
 will need to closely coordinate as BHRL treatment areas are identified *prior to* contracted timber sales,
 prescribed fires, road construction/reconstruction and other management efforts.

Early and Late Successional Habitats and Obligate Wildlife Species

21 Wildlife species which occur on both SDGFP's and BHNF's inventories of species of concern tend to
 reside within the two ends of the ecological spectrum: early and late successional habitats. Therefore,
 unless otherwise stated, our comments concentrate on early successional grass and shrub (SS 1/2),
 aspen and hardwood, and late successional forested habitats of ponderosa pine (pine SS 3C/4B/4C/5)
 and Black Hills spruce. We also focus comments on the two most diverse ecosystems in western
 landscapes: riparian areas/live water and aspen/hardwoods. Late successional habitats likely will not be
 significantly older within BHRL's 16-year existence, but early successional habitats will change, or be
 created (natural events, timber treatments), over the next 16 years. Our term for *interior forest species*
 which depend upon late successional habitats includes but is not limited to: Northern Goshawk, Pygmy
 Nuthatch, Brown Creeper, northern flying squirrel, tree roosting bats, wild turkey roost trees, and cavity
 dependent species. For these species, BHNF needs to identify and inventory the subjective SS5 prior to
 additional PBR and BHRL sale areas.

22 Plant community changes due to various impacts will require BHRL to readily adapt and change its focus.
 We request that BHRL's ROD acknowledge that natural systems are not static and to reserve
 management flexibility which could include that BHRL's objectives have been met or no longer fit
 existing conditions. Early and late successional habitats are unique and under-represented ecosystems

- 23 across BBNF. These vegetation types, and their associated and obligate wildlife, would benefit from “resiliency” if the definition of resiliency is expanded to include climate change, biodiversity, and ability of these uncommon habitat types to recover from or withstand landscape level disturbances (natural and human-caused).

Management Area Purposes and Desired Future Conditions Lacking in DEIS

BHRL identified 10 Management Areas (MA) across approximately 673,000 acres as suitable for this project (DEIS Table 1, p. 5). The MAs proposed for management over BHRL’s lifetime include:

- Six MA’s for suitable timber production (4.1, 5.1, 5.4, 5.43, and 5.6)
- Ten MA’s for fuel reduction (3.31, 3.32, 3.7, 4.1, 5.1, 5.1A, 5.2A, 5.4, 5.43, and 5.6)
- Five MA’s for SS objectives (4.1, 5.1, 5.4, 5.43, and 5.6)

- 24 BHRL DEIS mentioned the names of Management Areas and general tiering to Forest Plan Phase II (USDA 2006), but did not integrate BHRL’s purpose into the desired future condition and directives for MAs across the forest. Therefore, the DEIS essentially addressed varied habitats, resources, and social values as being similar across the project area. The DEIS lacked discussion of how BHRL will enhance or improve MA themes, standards, and guidelines *beyond* SS objectives. Some SS4 discussion for very large pine was mentioned by MA (DEIS p. 53). While the dominant feature on BBNF is ponderosa pine, resiliency inherently equates to diversity of other features beyond pine. For example, MA 5.1 landscapes should have vegetation, road densities, and recreational opportunities different from MA 5.4 landscapes. Design criteria (features) and mitigation measures should discuss each MA and how BHRL will enhance MA directives.

Project Summary

1. Purpose, Need, and Effects Analysis

The purpose of BHRL is to respond to the recent MPB infestation, associated response treatments (including PBR), and other NEPA approved projects which have altered vegetation across most of BBNF. BHRL has been proposed through the Healthy Forests Restoration Act (HFRA).

- 25 Prior to BHRL, BBNF signed the forest-wide (248,000-ac via HFRA) PBR ROD (USDA 2012) to reduce threats to ecosystem components from *existing* insect and disease epidemic (ROD p. 5) and to help protect wildland urban interface (WUI) and resources from wildfire. PBR is a *connected and cumulative effects* action directly related to BHRL because the MPB epidemic (which is over) and PBR are mentioned throughout BHRL DEIS. Therefore, *our comments herein regarding PBR forest management are within the scope of BHRL and effects analysis and should not be disregarded.*

PBR commercial timber removal focused on reducing stand diameter, density, and fuels of high risk SS 3B/3C/4B/4C stands (USDA 2012). 122,000-ac were selected with 114,744-ac yet to be field reviewed as of 2015 (USDA 2015a). Timber sale acreage sold through FY15 was 9,975-ac with 609-ac completed harvest, a much slower harvest schedule than anticipated. A BBNF News Release (2015) stated that PBR was predicted to encompass approximately 55,000-ac of commercial treatment *over the next 4 years with an additional 3-5 years to completed contracted sales*. Four years would be 2019, beyond the end of MPB epidemic (early 2017). PBR was also designed with adaptive management to “*work closely with nature*” and have flexibility to prioritize to be “*in the right places at the right time*”. The decision for BHRL is predicted to be August 2018 with implementation October 2018, again beyond the end of MPB epidemic. Unless new sales of PBR end soon due to a significant change in forest conditions (end of the MPB epidemic), adaptive management to work closely with nature may not come to fruition because PBR will overlap with BHRL.

26 BHRL DEIS stated that PBR acres were included and accounted for in the analysis but the reasons for continuing PBR treatments and targeting SS4B/C for commercial harvest were not discussed and therefore, appear to be unwarranted (*reasonably foreseeable future effects analysis*). There is no longer the MPB insect epidemic emergency. MPB is an endemic insect. PBR created earlier and less dense SSs, including 4A which together with MPB, resulted in an over-abundance of younger mature conifer forests. These younger, less crown cover stands (SS4A) are now outside the BHNF Forest Plan SS objectives within at least 5 MA's.

27 The need for this project, in addition to the cumulative, reasonably foreseeable future, and connected actions effects analysis are underdeveloped in relationship to PBR. The DEIS and Specialists Reports, especially for wildlife and wildlife habitat (discussed in greater detail herein) are not comprehensive and lack required NEPA analyses. BHRL EIS needs to more clearly justify and explain why PBR is allowed to continue with new sales of *commercial saw timber* (in areas with SS 4B/4C/5) when the MPB epidemic is over. BHRL EIS also needs to explain how PBR (if allowed to proceed) is adding to or creating the overabundance of SS4A and paucity of SS4B/C/5 addressed in BHRL. SDGFP suggests that the DEIS discuss if BHRL sale areas will co-mingle with PBR sale areas, ultimately creating years of continued disturbance with vegetation, fuel treatments, skid trails, and road construction.

Primary Proposed Actions

1. *Fuels and Hazard Tree Treatment: 20% of Identified Acres*

28 Shaded fuel breaks are proposed (DEIS p. 18) across 70,000-ac (DEIS Figure 6 p. 20). We could not find a definition for shaded fuels breaks, only a photograph. Design criteria and mitigation need to include that conifers $\geq 16''$ dbh and conifer cohorts (or inclusions) of $>9''$ dbh with interlocking crowns, and hard snags of variable sizes and characteristics, be marked as residual wildlife trees unless a wildlife biologist confirms otherwise. If an area planned for shaded fuel break is composed primarily of SS4B/C/5, the entire reason and justification for a shaded fuel break should not over-ride the need to retain these SSs which are lacking across BHNF. Egress roads are targeted for shaded fuel breaks but miles of roads targeted for shaded fuel breaks was absent from the DEIS. Another reason to retain mentioned conifer SSs and characteristics, is that SSs retain some visual obstructions along roads for wildlife screening cover and physically reduce opportunities for off-road motorized travel. The efficacy of these fuel breaks should balance the benefits (wildlife, visual, ecological) of residual grouped trees within thinned fuel breaks.

29 Soft vs. hard snags were discussed in the DEIS. For wildlife purposes, emphasis should be placed on retaining all hard snags, even if abundance exceeds forest plan direction within that acreage because of inequity of forest-wide distribution. Therefore, hazard trees and snags should not be cut unless a wildlife biologist determines that the snag is not occupied by or is recurring habitat for cavity dependent wildlife species. Recent MPB hits are important foraging habitat for woodpeckers and other insect-gleaning birds and invertebrates.

2. *Broadcast Prescribed Fire: 44% of Identified Acres*

30 Prescribed fire (Rx) is proposed for up to 100,000-ac of identified 225,000-ac (DEIS Figure 7 p. 21). We generally support Rx fire and attempts to reintroduce recurring fire to a landscape that developed with this vegetation disturbance. However, fires through aspen and shrubs less than 30 years old (Jasper, Rogers Shack, Battle Creek, Grizzly fires, etc.) should not be burned again within BHRL's 10-year lifespan (See discussion of hardwoods herein).

- 31 Aspen enclosures (animal exclosures) in joint BHNF-SDGFP study areas (Jasper Fire, Battle Creek Fire, Palmer Gulch Norbeck) must be protected structures (shape files available upon request).

3. Pine Structural Stage Modifications and Within-Stand Diversity

Commercial Timber Harvest Prescriptions: Some Form of Overstory Removal: 62% of Identified Acres

- 32 Commercial Timber Harvest or Commercial Treatment Areas (CTAs) are proposed on up to 185,000-ac of identified 300,000-ac in MAs 4.1, 5.1, 5.4, 5.43, and 5.6 (DEIS Figure 8 p. 26). CTAs identified as Overstory Removal (OR) will remove mostly SS4A from stands with a sufficient regenerating pine understory. The removal goal is to bring SS4A abundance down to Forest Plan objective of 25%. Design criteria and mitigation measures should leave the residual overstory (seed trees) in groups of various sizes and densities. We also recommend variable density thinning of both SS4A and understory by leaving more overstory seed trees on east- and north-facing slopes for year-round wildlife habitat, shade and thermal cover. Reduced tree densities on west- and south-facing slopes reduces vegetation competition and increases sunshine for SS1/2 understory deciduous shrubs, forbs, and native grasses.

- 33 We support group selection and group retention within design criteria and mitigation measures to create within-stand diversity with one caveat – that a diameter-limit cut be imposed to *retain* the largest dbh trees within groups throughout the treated stand, despite forest plan direction for X% per acre (DEIS p. 60 for MAs 4.1, 5.1, and 5.6). This would retain SS4B/C and trees with older physical characteristics (large horizontal branches for roosts and bark cracks and crevices for animal and invertebrate habitat) for which are below SS objective. Larger diameter trees are also critical habitat for interior forest species and red squirrels (prey for northern goshawk). Post-MPB inventories will clarify where large trees still exist.

- 34 The DEIS (p. 54) discusses overstory removal in 4A with abundant pine regenerated stands. 4A stands with many small trees are considered very high fire hazard (DEIS p. 77). We do not understand how thinning the mature overstory 4A (canopy cover <40%) would “*reduce aerial fuels, which would reduce the potential for individual tree torching and associated spotting to spread wildfire.*” The DEIS could better explain how fire in the overstory of a thin canopy vs. thick understory are two different modes of fire behavior.

Uneven-Aged Management: Where Possible

- 35 We support uneven-aged management as much as possible on stands that have multiple age classes and where BHNF is willing to create these stands over time. Uneven-aged management can also occur between stands. Design criteria and mitigation measures should be implemented to retain or create uneven-aged stands because they are rare and under-represented across the landscape. The rarity of these stands seems to negate the emergency to cut and create even-aged stands for MPB and fire mitigation. Most of the forest is even-aged and MPB and fire have still had major impacts. We suggest design criteria for individual tree selection with variable density and variable spacing.

Patch Clear Cuts (PCC): <1.0% of Identified Acres

- 36 Most proposed pine PCCs are limited to 2- or 3-ac across 1,900-ac within the identified 21,000-ac (DEIS Figure 9 p. 29). Less than 1% for PCCs is a negligible amount of temporary openings (SS1/2) proposed *only* in MA 4.1 (41.375-ac for limited motorized use and forest products) and 5.6 (34,043-ac for forest products, recreation and big game).

SS1/2 are not well distributed across the project area and a 2-ac PCC (DEIS p. 55) will not remain as viable wildlife habitat (seeds and berries for small mammals and birds, forage for big game, hunting

37 areas for raptors including northern goshawk) for a great length of time before heavily invaded by pine which becomes readily established in a scarified PCCs. We agree that a small 2-ac PCC will be completely transitioned within 20 years (DEIS p. 58) but suggest that most small PCCs regenerate much more quickly. We understand that PCCs are pine regeneration cuts and that USFS wants pine to regenerate within 5-years. Pine regeneration, for the most part, is not an issue in forested landscapes.

38 The DEIS (p. 58-59) states that “*within the next 20 year, the amount of seedling/shrub state is projected to diminish to near 5% in four of five MAs.*” But, later states that within SS3A, “*Ingrowth from seedling/shrub stands could also be expected.*” These two statements appear to be contradictory.

39, 40 The DEIS suggests and the Forest Plan allows up to 10-ac PCCs as pine regeneration cuts. We suggest that rather than the limited 2- or 3-ac PCCs proposed in BHRL, that the FEIS and ROD allow up to 10-ac. We know of no BHNH complaints in the past 20 years regarding the length of time previous PCC (1- to 10-ac) reseeded to pine. We also recommend that PCCs be proposed in some percent of acreage for MAs: 5.1, 5.4, and 5.43. The DEIS gave no justification why these 3 MAs were excluded for potential PCCs, given that 5.4 and 5.43 have big game and wildlife themes.

41 Figure 9 (DEIS p.29) is too difficult to comprehend to offer site-specific suggestions for PCC sites. DEIS gave no justification why only 2 MAs were selected. We suggest that the FEIS and ROD list the *entire project area and increase the potential total acreage up to at least 5,000-ac* (for example) over the 10-year projected span of BHRL. This expansion of acreage and MAs is necessary for wildlife habitat diversity *across the planning area*. Prior to an individual timber sale, time will allow both BHNH and

42 SDGFP wildlife biologists’ time to perform ground reconnaissance for PCC locations and justification. All PCCs should be located far from roads to offer wildlife solitude and should not occur in spruce or hardwood stands.

If NEPA has not already been completed, the following areas could be proposed for PCCs with design criteria and mitigation measures on Mystic District – Silver City, Thrall Mountain (Powerhouse Gulch and Thunderhead Fall Area), and the Stratobowl Bighorn Sheep Management Area. For Northern Hills

43 District – integrate treatment areas adjacent to BHNH and large-scale gold mines, and in the Exemption Areas of Deadwood, Lead, Central City, and Bureau of Land Management. Joint habitat treatment efforts would enable stakeholders to select up to 10-ac PCCs adjacent to cliffs and escape terrain for bighorn sheep (BHNH MIS and R2SS).

Structural Stages 4B/4C/5

We support that SS4B/C and 5 are not specifically targeted in BHRL for the next 10 years. However, as repeated throughout our comments, we cannot support removal of *inclusions and individual trees within pine stands* which fit the SS4B/C/5 description (not just stands) of >9” dbh with heavy crown closure for mechanical treatments (shaded fuel breaks, PCC, group selection, individual tree selection,

44 shelterwood cuts, etc.). Our realistic concern is that within SS3/4A, bigger trees (>16” dbh) and groupings of fairly large trees (13-16” dbh) will deliberately be targeted for removal. Small inclusions of these structural stage trees could be found within any other SS classification. If BHRL actually represents diversity, then design criteria and implementation guidelines need to create diverse tree structures *within stands*.

45 Prescribed fire in these stands should aim for <5% mortality of these individual sized trees and with unique physical characteristics described herein. The DEIS and BE/BA state that with BHRL, only *individual* Northern Goshawks may be impacted but no population losses would occur which could

46 contribute to a viability threat and possible federal listing. As BHRL is presented which lacks design criteria and mitigation measures, we disagree with this assessment for the Northern Goshawk. Interior forest species such as the Northern Goshawk will have likely impacts to *populations* because *preferred and available* habitats are already limited (discussion herein). Therefore, all conifer forest communities that could possibly provide habitat for interior forest species should retain untouched *overstory* of these conifer trees during BHRL's lifetime unless wildlife biologists suggest otherwise.

Structural Stage 5

47 Inventoried acreages for SS5 have not changed since BHNH Forest Plan Phase II Amendment. We support BHRL's suggestion to conduct additional field review because inventory and paper exercises should take high priority for SS5.

Precommercial and/or Products Other Than Logs (POL) Thinning: 37 % of Proposed Acres

48 These treatments are proposed across all MAs on BHNH, up to 250,000-ac of the 672,800-ac identified area (USDA 2017). We suggest that acreage be increased due to proliferation of pine regeneration, especially in the wake of MPB infestation. See comments below on Structural Stages 2/3 and screening cover.

49 Rather than piling and burning these SSs, within or adjacent to hardwood stands, design criteria should incorporate these SSs to be hinged in hardwood stands and/or lop and scatter as impediments to wild and domestic ungulate browsing. (reference SDGFP BHRL Scoping Comments 9/19/16). Slash piles
50 should not be placed in spruce and hardwood stands.

51 We also highly recommend variable spacing and density of residual small pine rather than a pine plantation layout.

52 For SS2/3, we support thinning from below in most types of mature stands, and where BHNH wildlife biologists recommend under northern goshawk nest areas to retain stand integrity. Reduction of heavy pine understory (SS2/3) is a constant endeavor. However, design criteria for all vegetation treatments (mechanical and prescribed fire) should retain dense understory pine for wildlife screening cover along motorized roads and trails (open to public and administrative), and foot and horse trails. Dense tree stocking prevents off-roading, reduces poaching opportunities, and buffers some noise along motorized routes.

4. Pine Planting

53 Pine planting could occur on up to 5,000-ac in the southern Black Hills. We have spent considerable time with the Hell Canyon District staff discussing the need and merits of pine plantings. We request that design criteria and mitigation measures require both agencies to discuss possible pine plantings and seeding in advance to avoid critical wildlife habitat areas (such as bighorn sheep habitat). Plantings and
54 seeding are encouraged along motorized and non-motorized routes and trails and north- and east-facing slopes.

5. Mechanical Site Preparation: 9% of Identified Acres

This practice is proposed on up to 4,000-ac within identified 47,000-ac in sod-forming, non-native grasses, and possibly used in conjunction with prescribed fire, to create mineral seed bed for pine establishment. In 2008, BHNH Forest Supervisor issued a memo stating this practice is generally unnecessary (DEIS p. 145). We agree because it is applied in large polygons, exposes acres of public land to weed and non-native plant establishment, and likely impacts to native vegetation and sensitive

plants. Alexander et al. (1987) documented why site preparation was used decades ago in the 1970's and 80's. Alexander also stated that throughout 3 observed areas, the following occurred in at least one of the areas:

- The paper was based on limited observations.
- Other resource values in the observed areas were not listed and pine was the primary focus and benefactor of site preparation (much disturbance for one tree species which is ubiquitous).
- 55 • Problems with [pine] regeneration cannot be keyed back to a habitat type or types.
- Lack of adequate cone production was the major reason for lack of regeneration.
- Recommended extending the rotation age to 160 years for certain soil types.
- Pine is seral on one site and may not naturally regenerate to maintain itself.
- Soil types in combination with heavy grass understory inhibited pine regeneration.
- Alexander did not identify graminoid species.

56 If site preparation has been implemented in dominant non-native grasses such as Kentucky bluegrass, Timothy, and smooth brome, the results to the entire disturbed area should be included in the DEIS analysis. Our literature search for ripping of non-native grasses produced results in agriculture soils and mine reclamation sites but nothing related to mountainous ecosystems with specific soil types to regenerate a conifer species.

57 If pine regeneration is of top priority in these areas within the suitable timber base, perhaps there could be greater funds appropriated to hand plant and hand seed pine. Site prep lacks clearly defined long-term impacts to resources other than soils and pine. Because lack of seed production, in combination with sod forming non-native grasses, it is timely that BHNF seriously investigate mitigation for non-native grass invasion for multiple ecological reasons. These non-natives inhibit more than pine regeneration and can be poor wildlife habitat. Until there has been reliable science on the effects of ripping large polygons of non-native, rhizomatous grasses, we cannot support this practice and discourage continued use.

6. *Enhancement of non-pine vegetation*

We support non-pine vegetation treatments such as removal of pine from spruce and hardwood stands, removal of spruce from hardwoods stands, and removal of conifers from meadows with limited exceptions. However, we have serious concerns with the DEIS:

- DEIS lacks design criteria, mitigation measures, and implementation *standards* for mechanical and prescribed fire treatments in hardwoods.
- Treatments should be species specific.
- Hardwood "*inclusion*" was not defined.
- Proposal to re-type to conifer stands to hardwood was missing.
- Hardwood treatments require an interdisciplinary and interagency approach.
- Treatment acreages severely lacking.

58 This is the first forest-wide proposal to treat hardwoods and there are no design criteria (features), mitigation measures, and implementation guidelines and *standards*. When, where, and how to treat
59 hardwoods are critical elements missing from the DEIS. Hardwood and deciduous species react
60 differently to disturbances and each species should have separate guidelines: for example mountain mahogany, pin cherry, bur oak, paper birch, quaking aspen, green ash, etc. react differently to various treatments, position on the landscape, area herbivores, and other factors. Local science and experience should be integrated into a forest-wide hardwood treatment handbook. Without these directives, each

District's current staff (which come and go) will perform what he/she thinks is best without knowing the local conditions, local science, heavy browsing pressure, and typical responses of Black Hills hardwoods.

61 DEIS (p. 30) states: "*Declining aspen stands may be cut or burned to promote regenerations....aspen clones with numerous dead or diseased overstory stems, multiple aspen logs on the ground, and lack of younger age classes....treatment would occur while trees are dormant.*" If the stand is falling apart, wild and domestic ungulates have easy access through the stand due to lack of barriers and one can "see through" the stand. Simply regenerating these stands is not enough; protection of the regeneration also must be implemented. These stands need to be assessed: downed logs may provide ruffed grouse drumming logs (information lacking in DEIS), dead or dying trees may provide cavity habitat, and diseased trees may be critical food sources for woodpeckers and other insect gleaning birds and invertebrates.

63 We support that the DEIS mentioned hinging and other slash treatments to discourage large browsing animals, but the complete treatment of hardwoods is missing. We offer our assistance in imperative design criteria, mitigation measures, and implementation guidelines and standards because in the interest of the 45-day DEIS comment period, it is not useful to repeat a treatise of known and successful hardwood protection methods (including Kota 2005, Kota and Bartos 2010 (SDGFP editors), and Deisch et al. In Prep). SDGFP personnel have considerable experience *across the Black Hills* in how to hinge conifers, the conifer diameter-limit felling that best works, how to know where to hinge into an aspen clone, when to hinge, etc. Hardwood treatments require an interdisciplinary approach among wildlife biologists, botanists, foresters, silviculturalists, range ecologists, soil scientists, and recreation specialists.

64 Within the hardwood treatment handbook, clearfell-coppice of aspen in the Black Hills should *not be implemented* (SDGFP BHRL scoping comments 9/19/16). BHNH staff do not wish to have this treatment tool removed from the toolbox, but we only know of School House Gulch where this treatment was successful in the 1980's. Unfortunately, we can show multiple examples of where this method was a *failure* on federal and other land ownerships within the Greater Black Hills.

Clearfell-coppice is reserved for large acreages of aspen where commercial markets exist (Shepperd et al. 2006). Large blocks of large, mature, uncut aspen can sustain smaller harvested blocks and protect the entire clone from severe animal browsing and disease. *These forms of aspen simply do not exist in the Black Hills and this aspen regeneration method has limited, if any, application on BHNH.* Not since the freak chance of clearcutting 500+ acres in School House Gulch in the 1980's can BHNH or SDGFP point to a clearfell-coppice treatment that successfully led to a functioning clone outside of an 8' animal enclosure. The main reasons Schoolhouse Gulch was successful include clone genetics (there is no way to feasibly test genetics today), lack of wintering deer, elk, and cattle, and pure luck that the stand flooded the system and the majority of aspen shoots were not heavily browsed. There are no other large acreages of aspen on the SD side of BHNH and total browsing animal numbers are significantly higher today.

Shepperd et al. (2006) stated: "*Clearfelling does not work well in areas where aspen stands are small, unless cut units are fenced from browsing animals...following treatment. Although clearfell-coppice harvest can introduce new age classes of aspen into landscapes, old trees, which provide many ecologic characteristics that are desirable for aspen forests, are eliminated within cutting units.*" Drs. Dale Bartos and Paul Rogers concur with Shepperd (Pers. Comm. to Deisch August 2017). Removal of old aspen trees

also removes habitat for cavity dependent species. Rogers (2017) reiterates the dangers of losing entire western aspen clones to clearfelling.

Shepperd et al. (2006) also stated that successful aspen suckering and regeneration is a 3-sided triangle: *“hormonal stimulation, growth environment, and protection of the suckers...and that any manipulation of aspen must satisfy all three of these requirements to successfully regenerate the species.”*

Regenerating the species goes beyond successful suckering. Successful regeneration is best defined as a healthy, functioning clone within 20-30 years in the Black Hills and is a stand that we cannot “see through” due to multiple age classes and higher stem densities. It is critical to for interdisciplinary and interagency approach to evaluate each stand or inclusion to determine which of the three elements exist and which elements could be provided.

When approved by a botanist, soil scientist and archeologist, one aspen regeneration method which could be evaluated is separation of roots from parent trees. Where other regeneration methods may not be efficacious, experimental tractor-ripping technique (Shepperd 2001) could be implemented to selected clones. Separation of roots interrupts auxin flow and allows sprouting. Unlike pine site preparation, this technique is a shallow, single-pass in a relatively small area.

Design criteria could also include individual tree selection to remove a few mature non-cavity hardwoods to expand hardwoods uphill or fill-in clone/stand interiors which have declined beyond regeneration.

65 There are issues with hardwood regeneration where fire prescriptions are not site-specific. Burning aspen-conifer stands to regenerate aspen is highly risky with heavy fuel loads (Shepperd 2001). Heavy ground fuels can damage soils and the aspen roots just below the soil surface. Also, thin-barked aspen boles and stems are sensitive to prescribed fire. Despite the fact that aspen can regenerate after fire and many resource experts believe fire will not harm an aspen clone, these statements are not always accurate in the Black Hills. Black Hills aspen clones and mixed-birch stands are relatively small, many are already in a declining state, have heavy conifer inclusions, and are unprotected from browsing ungulates. Aspen along the edges of larger stands and most aspen in smaller stands will die from heat stress alone, which can stimulate regeneration (but not always, depending on clone genetics). Aspen regenerating along the edges of stands are easily completely browsed off, or repeatedly browsed resulting in aspen shrubs. In the long run, fire through small stands can caused more environmental harm than benefit to the clone. Fire prescriptions need to consider each stand or inclusion, age of stand, fuel loads, removal (or hinging) of conifers, time of year, etc. Individual clones or inclusions may need to have fire lines where no fire/intense heat reach the clone. Prescribed fire should not be run through stands with hinged conifers/slash (fire will destroy the physical barriers), individual tree selection cuts (fire will burn off regeneration), stands <30 years of age (too difficult to once again gain height and density to withstand ungulate browsing), or stands with cavities (loss of wildlife habitat). If fire is applied, mortality should be less than 5% of the stand.

66 The DEIS (p. 69) states: *“Aspen often established itself in the understory of pine stands in the higher elevations of the Black Hills.”* This is erroneous. Aspen is a relic from cooler, glaciated times, is a pioneering species, and occurs in early successional (and disturbed) habitats. The DEIS statement is backwards because ecologically speaking, pine establishes itself in the understory of aspen due to the aggressive competition of pine for dominance (Buck and St. Clair 2012). Aspen is shade-intolerant and cannot easily establish itself in shade. Seeding itself (establishment) is generally not common in Black Hills aspen, but has been found in Canada and a few other places. Aspen in the Black Hills perpetuates

67 mostly by root stimulation (of established clones). Clones are a single organism. Pine is shade tolerant and can easily establish itself (seed) in understories of hardwoods (conifer invasion). Also, aspen does not always sprout prolifically after fire, it depends upon individual clone genetics, fire intensity and severity, and climate. If aspen and pine are mixed, the site should not be considered pine/aspen, but re-

68 typed to aspen. Aspen science for aspen in western landscapes is easily available in peer-reviewed, published literature and should be consulted. These DEIS statements are outdated, show a human preference for pine as a commercial species, undermines native vegetative communities, and ironically, contradicts BHRL purpose and need to maintain ecological integrity (resiliency).

69 Log landings and staging areas need to be placed away from hardwood stands. Skid trails and temporary roads should not be plowed through hardwood stands which fragments habitats but alongside these habitat types could help expand the hardwoods. The DEIS (p. 69) only mentions roads through birch stands, no other hardwood species. This needs to be corrected. Bur oak (tree form) is a very slow

70 growing species and every effort should be made to retain mature oak: do not consider removal as hazard trees and do not bisect stands.

71 The DEIS ROD needs to include that hardwood stands (and some inclusions) treated for conifer hinging/slash/removal should be re-typed as hardwood regardless of stand size. Forest diversity is critical and small aspen stands are the general rule in the Black Hills. Thus, every small hardwood stand is disproportionately critical in its contribution towards diversity, such as with the bird, small mammal, bat, invertebrate, and plant communities. Bird species richness and abundance are higher in aspen stands than in pine. (Rumble et al. 2001, Griffis-Kyle and Beier 2003). And, bird species richness and abundance do not vary with size of the aspen stand/inclusion or isolation index, suggesting that all hardwood occurrences matter to bird species diversity across the landscape (Griffis-Kyle and Beier 2003).

72 Design criteria should include to remove/hinge conifers *at least 2 pine tree lengths* from the edges of hardwoods (includes hardwood shoots and saplings) to reduce sunlight and other resource competition. Pine and spruce should be a good distance from hardwoods to help create more fire resistant, asbestos hardwood stands.

73 The exception of removing pine from non-pine plant communities is with large (>16" dbh), yellow-bark or legacy pines. While pine in Black Hills aspen do not add to bird species diversity (Rumble et al. 2001), the lack of large pine across BHNH could be considered as habitat for interior forest species and as wild turkey roosts. An occasional large pine in non-pine plant communities should be included in design criteria and be evaluated by BHNH district and SDGFP wildlife biologists prior to pine removal.

74 The DEIS (p. 61) mentions issues with pine regeneration in "*oak thickets*". If there are oak thickets on the SD side of BHNH, the patch of oak should be re-typed as oak, not pine. Oak sprouts after disturbance and in the past, BHNH in the Northern Hills has repeatedly cut oak because it was determined to be an insignificant vegetation type, despite forest plan direction to increase oak. Continuing to cut "*oak thickets*" promotes oak thickets. Where oak occurs in SD, it is a significant ecological player and should be left alone. Bur oak provides bird and small mammal habitat and wildlife mast.

75 Mechanical treatments to remove pine and spruce from hardwoods, causes more sunlight for shade-intolerant hardwood species. The DEIS (p. 88) states that additional solar radiation could change micro-habitats by increasing temperature and evapotranspiration. Please provide a citation for *evapotranspiration* in hardwood vs. conifer stands. Buck and St. Clair (2012) report that aspen increase

soil moisture and respiration in Rocky Mountain ecosystems. Hardwood (aspen and birch) stands are more moist than mixed hardwood/conifer stands (thus, another reason to remove water-using pine) and the flora and fauna which evolved within these hardwood stands are generally tied (often obligates) to hardwood stands.

Further, the DEIS states that disturbances to soil mycorrhizal fungi could impact sensitive plant species. If the analysis is referring to potential harm to plants which evolved in association with hardwood stands, the soil disturbance statement seems reasonable (Clark and St. Clair 2011). If the analysis is referring to potential harm to plants which evolved with pine and spruce, but occur under hardwoods, the statement needs clarification. It is our understanding that soil mycorrhizal fungi are tied to the soils and the species which evolved in hardwood or conifer stands (Clark and St. Clair 2011). Therefore, the DEIS needs to clarify how conifer-associated sensitive plants are existing under hardwood stands.

76 The DEIS lists (p. 89) sensitive plant species which evolved with microsite hydrological and fungal requirements, but does not mention if these species occur within hardwood or conifer stands. This is an example of where design criteria would trigger a need to survey hardwood stands prior to mechanical or fire treatments.

77 Prior to removal from meadows or pine, white spruce stands require wildlife biologists to survey for wildlife values, such as the American Martin, kinglets, and other spruce habitat wildlife. Variable age classes and sizes of spruce are required for differing avian foraging repertoires.

78 Lastly, the DEIS proposed to treat less than 10% (4,000-ac of 40,500-ac defined area) of the entire project area, which is short-sighted. Treating 4,000-ac in the next ten years will not work towards meeting the *current and limited life span* of the BHNF Forest Plan Phase II Amendment (Objectives 201-205, 239-LVD). For aspen alone, Objective 201 strives for a minimum of 92,000-ac of aspen and 16,000-ac of bur oak within the lifetime of Phase II. Treating only 4,000-ac across aspen, birch, oak, mountain mahogany, meadows and other non-pine communities illustrates a heavy bias towards deliberately retaining pine, even where it is ecologically misplaced. The DEIS needs to increase the total number of potential treated acres closer to 40,500-ac to be considered a resiliency project.

7. Road work and other associated activities

79 PBR proposed enormous road packages (50 miles new, 160 miles temporary, and 46 miles conversion to system roads). BHRL DEIS did not mention the ability to use these same routes, possibly reducing the miles of new and re-constructed roads. No roads were proposed to be closed in BHRL and the ROD should offer this mitigation measure if needed. No *net* roads should be added to the public system unless other roads are closed which are of resource concern. Roads in big game and late successional MAs should be temporary, if needed at all. The DEIS (p. 101) mentions a few concerns with roads and wildlife but neglected to mention habitat fragmentation and effects (25 acres total of vegetated habitat to be permanently "modified" or fragmented), and no zone of disturbance on both side of roads was discussed.

8. One BHNF Phase II Forest Plan amendment

No comment.

9. Botanical Areas

81 The integrity of botanical areas and their purpose for selection should be honored in all vegetation treatments and road construction/reconstruction.

10. Riparian Areas and Streams

Again, because of the expansiveness of this project and on-going PBR, it is very difficult to offer site-specific comments. The DEIS (p. 39) discusses hydrology and that no new permanent roads are being constructed (unless approved by Forest Service hydrologist) but then the DEIS continues to state that
 82 BHRL proposes additional stream crossings within: the Headwaters of Spring Creek (4 crossings), Newton
 Fork-Spring (2) crossings, and Sheridan Lake-Spring Creek (1 crossing) Watersheds. These statements are
 contradictory. The headwaters of Spring Creek already contain an alarming 68 road/stream
 83 crossings. Newton Fork- Spring Creek contains 81. The DEIS should consider using existing crossings and
 without field reconnaissance, we cannot support additional crossings which are another source of
 84 sediment for these already impacted watersheds. Design criteria, mitigation measures, and
 implementation should require use or improvement of existing crossings. These watersheds should not
 have additional fragmentation. In fact, some existing road crossings should be analyzed to be removed
 to improve connectivity in the watersheds and reduce further degradation in the watershed.

The DEIS (p. 39) also mentions the use of the AMZ protecting 100 feet of each side of perennial and
 intermittent streams, 100 feet of wetland, springs, and stream sinks. We fully support these mitigation
 measures which protect riparian areas and reduce sediment loading in watersheds. The DEIS (p.40)
 85 states that skid trails may be placed in the outer half of the AMZ (50-100 feet from the stream, wetland,
 or spring). This is contradictory of protecting 100 feet on each side of a waterway. We cannot support
 disturbances within 100 feet because it eliminates the whole protective measures of AMZ. The DEIS
 86 must discuss how a compromised AMZ "buffer" reduces erosion. How will a shortened buffer act as a
 sediment filtering capacity? All anticipated sediment *and silt* (small vegetation) effects must be
 disclosed for all aquatic life, including macroinvertebrates and gill-breathing species. These life forms
 are obvious omissions within the DEIS.

Commercial timber harvest may occur in AMZs on up to 4,516 ac. (DEIS p. 161). Again, what is the point
 of the AMZ if heavy machinery is allowed within this buffer? Mechanical treatments can lead to
 potential sediment *and silt* loading in streams, wetlands and other riparian features. It is stated that
 87 "*Observations in the Black Hills show that commercial logging generally does not generate sediment*
 (USDA Forest Service 2011e, 2011f)." "Generally" is not environmentally sound as one sedimentation
 and silting event can completely kill macroinvertebrates and other aquatic life. Design criteria,
 mitigation measures, and implementation standards/guidelines are necessary. What type of water
 quality sampling is performed both before and after (immediately to long-term) mechanical
 disturbances to evaluate sediment and silt loading from logging and road construction (including stream
 crossing)?

88 What effect does timber harvest within the AMZ have on stream shading and riparian function? The
 DEIS did not disclose these reasonably foreseeable actions and is therefore, an incomplete analysis.

11. Livestock Grazing and Range

We greatly appreciate the mention of aspen regeneration (DEIS p. 94) and the need for shoot protection
 and coordinating livestock grazing.

89 Perhaps we missed it elsewhere in the DEIS, but there should be design criteria and flexibility to
 schedule grazing to allow fine fuel buildups prior to prescribed fires, and/or ability keep livestock off
 burned areas until vegetation recovery (such as shrubs) can withstand grazing pressure.

90 The DEIS (p. 94) mentioned that “grazing patterns would be likely to change during the period of time when proposed activities result in an increase in forage (Uresk and Severson 1988)” but did not state what that change could be. For example the livestock directives for additional forage are slightly different between MAs 5.1 and 5.4.

12. Wildlife Effects Analysis in DEIS and Specialist’s Report (BE/BA)

Northern Goshawk

91 The DEIS (Pp. 104-107) discusses the current habitat availability for the Northern Goshawk. The information is alarming. To an already declining population (based on habitat occupancy), the BE/BA draft assessment of impacts by BHRL to northern goshawk populations appears to be incorrect and *should state, at a minimum, that populations may result in loss of viability in the planning area which is most of BHNF.* The DEIS cited one source that stated prey availability may have more of an impact on goshawk reproduction than nesting habitat. That is within a healthy population where preferred nesting habitat is *abundant and available.* Neither abundance nor availability of preferred habitat exist at this time in the Black Hills according to many BHNF reports. At some point, populations have exceeded a threshold and have become dangerously low, that no amount of food will make up for lack of nesting habitat. The DEIS did not discuss these viability concerns or justify further cutting of goshawk habitat. The DEIS discusses that it will take years to re-establish late successional habitats. BHNF determination of no loss of population viability is erroneous and should be re-evaluated with the entire BHNF wildlife biologist staff and other northern goshawk experts. We support our contentions below.

Desired conditions for SSs within 5 MAs is 13% below objective. Out of 132 known territories, only 18% (24) include at least 180 acres of suitable nesting habitat. The BHNF monitoring reports indicate habitat diversity for the northern goshawk was found to be declining (USDA 2015b) as confirmed in the DEIS. Goshawk Territories monitored and occupied (USDA 2015b Table 36, p. 67) show a significant variation in percent occupied territories from 2012 to 2014, 56%, 16%, and 30% respectively. Some reporting variation may be due to staff time, but the MPB and timber harvests were having measurable effects on last successional habitats during this same time frame. Rocky Mountain Bird Observatory (2009) indicated a decline in number of individual goshawks observed from 2005 to 2009, 15, 3, 6, NA, and 9, respectively. The best available science specific to BHNF indicates a precipitous drop in goshawk *populations* across the forest. BHRL project area is over 90% of the BHNF, essentially the entire forest.

However, the BE/BA (USDA 2017 p. 58) determined that both the action and non-action alternatives would result in a “*may adversely impact individuals, but not likely to result in a loss of viability in the planning area, nor cause a trend toward federal listing.*” How can the no action (no shaded fuel breaks, no hazard tree removal, no incidental removal of large trees and SS4B/C/5) be considered the same negligible viability threat level as BHRL (action alternative) which will remove an undetermined number and stands of large trees and SS4B/C? Further, MPB concerns superseded forest plan *standards* for goshawk habitat. Now that the MPB epidemic is over, these late successional stands and large trees with interlocking crowns within younger SSs, should no longer be targeted by PBR. BHRL’s analysis failed to *estimate additional lost habitat due to PBR, which is neglecting reasonable foreseeable, connected, and cumulative effects analyses.*

While fires, constant road building, timber harvests, and insects have depleted much of the late successional stands/tree characteristics required for goshawk nesting habitat, the DEIS and BE/BA conclude that goshawk populations are not a viability issue and that only individual birds could be negatively impacted. The DEIS did not provided scientific literature to support that a late successional *nesting* obligate, such as the Northern Goshawk, that has lost at least 82% of its *available habitat* (and

that does not necessarily equate to preferred habitat) is not at viability risk. Viability is defined by USFS to be population stability, not harm to individuals, however, the *DEIS did not offer a threshold of when goshawk population viability could become a concern*, which is a major omission in the effects analysis.

Further, the DEIS states that “*potential habitat is likely to decrease*” even more with fuel breaks, near WUI, roads and infrastructure. Until BHNF and the ROD put a moratorium on no additional loss of goshawk habitat and known territories, the availability of habitat (and some of that habitat is likely not preferable) falls well below 82%. The DEIS cites various standards to protect goshawk territories and nest areas, but that has not been the strict case in the past as pointed out in the DEIS. BHNF wildlife biologists and SDGFP (which lists Northern Goshawk as a species of conservation concern) are not going to be have their biological expertise met when fire, hazards, and other concerns continue (year after year) to supersede the viability of an entire species.

13. *Bighorn Sheep*

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The DEIS and BE/BA only cited the SDGFP fisheries and bat management plans. The bighorn sheep management plan is found at <http://gfp.sd.gov/wildlife/management/plans/default.aspx>. Please update the DEIS and BE/BA biological information. Attached is a 2017 summary (SDGFP. Lehman 2017):

Four herds of bighorn sheep (Deadwood, Rapid City, Custer State Park, Elk Mountain) currently reside in the Black Hills area. Ground counts were conducted from November 2016 thru January 2017. For Hell Canyon minimum counts indicate there are 14 rams, 12 ewes, and 8 lambs for a total of at least 34 sheep. In Deadwood, summer ground counts for 2017 indicate 2 adult ewes, 11 yearlings, and 1 lamb for a total of 14 sheep. Unfortunately, the Deadwood herd is experiencing a pneumonia die-off and *Mycoplasma ovipneumoniae* has been detected in that herd. In Custer State Park, based on disease research testing and marking of individuals there are currently a minimum of 6 rams, 11 ewes, and 9 lambs for a total of 26 sheep. For Rapid City minimum counts indicate there are 11 rams, 36 ewes, and 8 lambs for a total of at least 55 sheep. At Elk Mountain using a Poisson Log-normal mark-resight model we estimate 159 sheep (95% CI = 81-312). Overall, in the Black Hills we estimate at least 209 sheep using minimum counts, but using the mean estimate from the Elk Mountain herd we estimate we have 298 sheep in the Black Hills. The Badlands have a minimum of 160 sheep in the National Park (Eddie Childers, personal communication).

Bighorn Sheep Ratios						
Herd	Lambs /100 Ewe	Rams /100 Ewe	%Ram lass 1	%Ram Class 2	%Ram Class 3	%Ram Class 4
Rapid Creek	17	33	17.00%	33.00%	17.00%	33.00%
Spring Creek	29	24	0.00%	75.00%	25.00%	0.00%
Hill City	0	100	0.00%	100.00%	0.00%	00.00%
Elk Mt	72	108	0.00%	30.00%	40.00%	30.00%
CSP	82	55	33.00%	0.00%	67.00%	0.00%
Hell Canyon	67	117	0.00%	71.00%	29.00%	0.00%
Deadwood	17	17	100.00%	0.00%	0.00%	0.00%

14. *Mule and White-Tailed Deer, Elk, and Wild Turkey*

The DEIS and BE/BA only cited the SDGFP fisheries and bat management plans. All completed species management plans are found at <http://gfp.sd.gov/wildlife/management/plans/default.aspx>. Please

update the biological information. The elk discussion cited SAIC (2003). SDGFP and WYGP prepared most of that memo during the Forest Plan Phase II Amendment. Since that time, additional and critical research have been conducted on elk in the Black Hills. For example, elk security blocks do not apply to Black Hills elk and elk habitat. Security blocks are a management component in Montana when hunting licenses were extremely numerous. This is not the case in a restricted harvest for in-state residents only. The limited time to review the DEIS and BE/BA prevent SDGFP from better reviewing the wildlife information but enough time was spent to offer BHNF the opportunity to update species accounts relevant to BHRL and BHNF habitat management, big game winter range, and other MAs.

Wild turkey and mountain lion are classified as big game in SDCL and corresponding big game laws. Wild turkey roost habitat was not mentioned as another ecological reason for retaining big trees with roost tree characteristics.

Many University research efforts on various Black Hills species are missing in the DEIS. For example, ruffed grouse (Mehls et al. 2014), northern flying squirrel (Hough and Dieter 2009), and many black-backed woodpecker publications.

Incomplete DEIS

1. Lack of Monitoring, Design Criteria, Mitigation, and Implementation Guidelines

Monitoring is supposed to be conducted at the forest-wide level, not project level (Obj. 221). And yet, PBR and BHRL are forest-wide level projects. This appears to make monitoring problematic and overwhelming (DEIS p. 42-43). For example, there are few stated wildlife and fisheries monitoring activities, no monitoring for non-pine vegetation to determine responses of pine removal, no monitoring to ensure large pine and SS4B/C and 5 are in-fact kept intact, and no mention of site-specific, sale-specific monitoring (which are subsets of this larger forest-wide project).

PBR offered design criteria, mitigation, and post-PBR, released implementation guidelines but BHRL did not offer sufficient guidance for a forest-wide project. BHRL DEIS (page 37-41) gives casual reference to USDA Forest Service documents which may provide treatment guidance. Most analyses within the DEIS assume Forest Plan directives will be followed. This is insufficient as each district and staff member will interpret these differently, or not at all. Many BHNF staff cannot recite the Forest Plan for all resource concerns and an in-hand reference guide would assure some adherence to directives. Some design features for certain activities were listed, but are incomplete. USFS Forest Plan Implementation Courses require that these directives be included up front and integrated within all NEPA documents. Secondly, The Council on Environmental Quality NEPA Implementing Regulations at 40 CFR 1500-1508 defines mitigation at Section 1508.20. Therefore, BHRL DEIS is incomplete and cannot possibly provide comprehensive information to the final Decision Maker to make a well informed FEIS and ROD.

The wildlife section only contains northern-long-eared bat and raptor nest mitigation; nothing on cavity species, ruffed grouse, Management Indicator Species, R2 Sensitive Species, nor Species of Local Concern, or Management Area specifics such as big game winter range and late successional areas. The DEIS (p. 132, 156, 161, 164-165) mentioned culvert placement in streams (for correct passage and flow: Forest Plan Standard 1203) and wet areas. However, correct culvert placement has been problematic for years on BHNF (and state lands) where timber projects and road construction have occurred (SDGFP staff experience and SDGFP attendance at BMP Audit Courses). Design criteria and monitoring should be included for actual proper culvert installment.

Botany design criteria and mitigation are almost completely missing. Little mention of sensitive species (other than buffers for site preparation and 100' may be too short of a distance if in native plant communities), no mention of botanical areas, or how 80% of montane grasslands recommended for conservation will be mitigated (DEIS p. 83). If impacts to these special designation areas are in the BHRL Botany Specialist Report, they should be included upfront within the DEIS along with design criteria and monitoring activities.

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