Response to Public Comments on the

Mineral Forest Management Project

Draft Environmental Assessment

The draft Environment Assessment (EA) for the Mineral forest management project was issued for public comment in August 2005. Five parties submitted comments during the 30-day public comment period.

Each comment letter has been reviewed. The interdisciplinary team responded to all substantive comments. Substantive comments are defined as those that do one or more of the following:

- Question, with reasonable basis, the accuracy of information in the EA;
- Question, with reasonable basis, the adequacy of the environmental analysis;
- Present reasonable alternatives other than those presented in the EA; or
- Cause changes or revisions in the proposal. In other words, they raise, debate, or question a point of fact or policy.

Comments in favor of or against the proposed action or alternatives, or those that only agree or disagree with agency policy are not considered substantive. Brief responses are given for non-substantive comments. The following table lists each responder and his or her comments and provides the response to that comment.

Comment	Response
Responder #1: Hiram Rogers (Knoxville, Tennessee)	
Comment 1-1: Although not mentioned in the background materials for this project, mountain biking has been a significant recreation use of much of the area since at least the early 1990s. Use of that part of the project area southwest of the Terry Peak development, known as Dutch Flats, is documented in both the 1993 and 1999 (current) editions of "Exploring the Black Hills and Badlands, Guide for Hikers, Mountain Bikers and Cross-Country Skiers". Legitimate non-motorized use of the area has been impacted by increasing levels of ATV use including the development of illegal ATV user trails.	*The EA has been modified to recognize mountain bike use in the project area.*
When I last mountain biked in the area in September, 2004, I found that both roads 629-1 and 629-1A had been extended by illegal ATV traffic. Road 629-1A now extends 0.3 mile further west to the canyon rim, just west of the center of section 15. Road 629-1 now extends 0.2 mile farther west, and up a steep eroded slope to a viewless point on the canyon rim. Both roads had been badly eroded by ATV damage	*Annie Creek and most of Lost Camp Gulch are in Management Area 4.2A (Spearfish Canyon). Off-road motorized vehicle use is not allowed in this Management Area. The Forest Service will investigate the area and modify or add closure structures if necessary to prevent OHV use.* *Dutch Flats is open to off-road use. ATV use has*

Comment	Response
ontributing further to the "off road motorized vehicle traffic contributes to the level of disturbance" cited on page 48. Neither extension is shown on your project maps. Both extensions should be closed and the road extensions decommissioned. I applaud the decision to decommission the connection between the Lost Camp Gulch Road and BHNF Road 629.1 as shown in both alternatives 2 and 3. My experience indicates that this is the route ATVs use to access the area from Spearfish Canyon. This connector should be closed, barricaded and well signed in order to prevent ATV access to the Dutch Flats from Lost Camp Gulch. Since part of Dutch Flats is closed to off road motorized use, a hard closure at Lost Camp Gulch is needed to prevent further deterioration of the area.	*increased in recent years, probably due in part to construction of a residence accessible only from road 629.1. The residence is just beyond the gate on 629.1 and the gate is frequently left open. Under both action alternatives, the gate would be moved slightly further down the hill, beyond the residence, which would allow it to be closed year-round. An off-road motorized vehicle closure is not proposed under this project. The Black Hills National Forest is beginning a comprehensive, Forest-wide travel management plan to address both on- and off-road motorized travel, and the public is encouraged to participate in this process.*
Comment 1-2: Both alternatives include decommissioning of 629-1D and the connection between 629-1A and 629-1C, which is informally known as Leroy's loop. I biked on 629-1D in September and found that it remains a little used, but pleasant ride. The best management prescription for the road is to do nothing. Any work on the road will only make it less appealing to foot and bike use, the tread is not suffering from any illegal motorized use. The same recommendation holds for Leroy's Loop. This connector is gradually fading into the forest, and should be left alone. Access to the turkey guzzler on the west side, is available from 629-1C.	*The road connecting 629.1A and 629.1C is an unclassified road, meaning it is not part of the Forest Service road system. The road is not needed for land management because access is provided to the same areas by other roads. Forest Service direction requires that unclassified roads must be decommissioned or added to the official road system. Roads that are part of the official road system need regular maintenance and must meet certain standards. Therefore, adding a road to the system means additional cost. There is no reason to keep this road because access is provided to the same places by other roads. Decommissioning methods vary according to road condition, and if the road is becoming reforested on its own, there may be no need to take additional action.*
Two new roads are proposed in both alternatives 2 and 3. The new road 23 will make a nice loop with 629-1 and 6129-1A. New Road 22 could be tied into road 629-1E for another short loop. These new roads should only be left open for non-motorized use. I favor Alternative 3, subject to the conditions described above, for the Dutch Flats Area. Alternative 3 requires less reconstruction of road 629-1 and thus should cause less damage to the area. Overall Alternative 3 calls for less logging and less road building and will likely be less expensive to implement.	*Following relocation of the 629.1 gate, the road system would be open only to non-motorized use.*
Responder #2: Joe Seme (Deadwood, South Dakota)	
Comment 2-1: My wife and I received your proposal in the mail about the latest project in the Deadwood area.....we cannot thank you enough for the wonderful work the Forest service is doing on thinning trees ect. We live in Galena ..We totally support and appreciate all the work you people do in our area..your projects have helped our forest tremendously...If I can ever be of any service please call me.	*Comments noted.*

Comment	Response
Responder #3: Robert Scott (Bellevue, Nebraska)	
Comment 3-1: I have heard that the plans for managing a more healthy forest are coming together. I applaud the effort to cut down on the fire danger. I have three concerns I would appreciate you putting into the mix: 1. That the forest not be left looking like a jumbled mess (as it did in a lot of locations when the area was thinnned about 35 years ago).	*Logging slash would be reduced to levels required by the Forest Plan. Whole-tree yarding (moving the entire tree to a central landing spot rather than cutting tops and branches off immediately after felling) decreases the amount of slash left in harvest units and would be the preferred harvest method* (EA p. 13 & 39).
Comment 3-2: 2. That the forest, especially within 300 feet of [my] cabin not be so thinned and groomed like it is along Highway 385 beginning about five miles south, that it looks like a groomed urban park. 3. There are a handfull of really big old ponderosa pines within 150 feet of the cabin that it means a lot to me and my family that they have been there two or three hundred years. They are a connection to my great grandfather and great uncle who settled there. I realize that you are not going to please everybody when you execute this project you are in charge of. I'd appreciate your sensitivity to the above concerns. Please e-mail or mail to me any descriptions of what your final plans are for the area. Thanks.	*Public preferences in forest appearance vary; many people have expressed a favorable opinion of the fuel reduction project referenced in this comment. Most landowners want as much fuel as possible cleaned up next to their property, but some prefer a less managed appearance. The Forest Service will contact Mr. Scott and other interested landowners during layout of projects adjacent to private property to discuss proposed treatments and possible modifications that can be made while meeting treatment objectives.*
Responder #4: Ed and Deb Suvada (Deadwood, South Dakota)	
Comment 4-1: We live in a National Forest – a large tract of land covered with trees and underbrush not a National Nursery. The Forest Service is not supposed to be in the business of subsidizing the timber industry at the taxpayer expense. Logging will never reduce the risk of a wildfire, it just changes the title from Forest fire wildfire to Prairie fire wildfire. Mother nature is in control not the government.	*Forest Service timber sales are sold to the highest bidder above a minimum price. Timber purchasers' bids are based on market conditions. The Forest Service does not determine these prices or subsidize the industry.* *The effectiveness of forest management (both timber harvest and non-commercial treatments) in reducing wildfire severity and spread are discussed in the EA on pages* 39 and 40 *and in the fuels specialist's report in the project file. A summary of research on fuel treatment effectiveness can be found in the 2003 publication "Performance of Fuel Treatments Subjected to Wildfires" by Erik Martinson and Philip Omi, USDA Forest Service Proceedings RMRS-P-29, available at http://www.fs.fed.us/rm/pubs/rmrs_p029.html.*
Comment 4-2: The area in which we live FSR 248 was logged heavily about 14 years ago. The cycle of the pine tree in this region runs from 80-120 years. To remove the overstory leaves trees, which neither you or I or my children will ever see mature.	*Alternative 2 would cut most of the mature trees in several stands near road 248; Alternative 3 would cut fewer trees in fewer stands and retain more of the current appearance of the area, at least for the near future. The Forest Service acknowledges that regeneration of a stand changes its appearance, and that trees grow on a time scale that results in little evident change over the course of a few years.*
Comment 4-3: Logging in one area where access is easy and not logging across the meadow because of the	*Comment noted.*

Comment	Response
difficult access is contradictory, unless you view it from a monetary angle.	
Comment 4-3: In essence, by logging you are recreating the same environment that you are now telling us we need to rid ourselves (Renewable problem).	*Comment noted. See response to comment 4-1.*
Comment 4-5: Why do you find the need to leave a buffer zone if logging creates a healthy forest, why hide it show the touring public what you are creating?	*The draft EA mentions buffers only in association with protection of archeological sites and streams.*
Comment 4-6: You stated you would remove dead bug trees and current bug trees along with spraying for noxious weeds. How can we believe this after seeing the logging project you completed this spring 2005 near the Elk Ridge Subdivision or the one off Brownsville Rd, FSR - 1A neither one of the problems were corrected?	*Recent Forest Service projects near the Elk Ridge subdivision include the Elk Creek timber sale and parts of the Roubaix and Dano timber sales. A unit of the Elk Creek sale that was harvested in early 2005 is visible from Nemo Road near the main road into the subdivision. Harvest of this unit was expedited to cut green trees infested by mountain pine beetles before the new generation of beetles under the bark of these trees could mature and infest additional trees. Trees in this unit that already had brown needles were not cut as part of the timber sale because trees in this condition are no longer harboring beetles (so cutting them would have no effect on the spread of the infestation), and because trees that had been dead over the winter had little commercial value. Brown-needle trees may be addressed through non-commercial fuel treatments, but removal is not always a high priority because it has no effect on the spread of beetle infestation.* *The reference to a logging project off Brownsville road is not clear (the road number provided is incomplete).* *Forest Service records show infestation by Canada thistle at the location of the Elk Creek timber sale unit discussed above. Post-sale treatments that have not yet occurred will address weed infestation.*
Comment 4-7: Economy – in reality, it's less than 8% in all categories in the region and is just for the Rich and the Few. Supporters of logging do so only because they monetarily gain from it.	*Presumably the comment means that the timber industry comprises less than 8% of the regional economy. While it is true that changes in Forest Service timber output are unlikely to have a substantial effect on the total Black Hills regional economy, they could have major effects on communities with a high percentage of timber industry-related employment (USDA Forest Service 2001). Other economic sectors, such as tourism, depend on the presence of a diverse, healthy forest. Timber harvest is one tool used to maintain these conditions.*
Comment 4-8: Christmas trees - we have to protect our property from tree theft from permit issue time till Christmas? You could make more money off of the illegal cutting fines than you do off the actual permits. This extra money would enable you to hire a second law enforcement officer.	*Christmas tree cutting on the National Forest is conducted under permit and is not part of this project. The Forest Service directs Christmas tree cutters to National Forest System lands and conducts weekend patrols during Christmas tree cutting season. Any landowner experiencing trespass by tree cutters is encouraged to contact the Forest Service.*
Comment 4-9: What actions did you take against Mr.	*The Forest Service was not aware of the situation*

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Coburn when he clear-cut 23 acres and encroached onto the Forest Service property adjacent to the Sawyer Foundation? Was it the same action you would have taken against anyone else? A former Forest Service employee once expressed to us that her job was to Mutilate and Profit from the forest, not to Manage and Protect. We opt for no action in our area.	*described in the comment. The information has been forwarded to the USFS Law Inforcement and Investigations division.*
Responder #5: Jeremy Nichols, Biodiversity Conservation Alliance (Laramie, Wyoming), and Brian Brademeyer, Native Ecosystems Council (Rapid City, South Dakota)	
Comment 5-1: The DEA fails to give appropriate consideration to reasonable alternatives. Indeed, both alternatives presented in the DEA perpetuate the trend of removing mature forest that could otherwise become old growth forest habitat, of fragmenting the BHNF, of harming wildlife dependent upon old growth forest, of degrading watershed health, and of causing soil erosion. Therefore, we request the USFS analyze in detail the following alternatives and select one or more as the proposed action: • An alternative that defers harvesting in stands of 4C and 4B. Such an alternative would address the purpose and need of the Mineral timber sale and would contribute to restoring scarce old growth in the Black Hills National Forest. Indeed, with regards to old growth forest in the Black Hills, Mehl (1992), which is cited in the BHNF Land and Resource Management Plan ("LRMP") Final Environmental Impact Statement ("FEIS") LRMP FEIS, stated "Virtually all of the accessible areas have been cut over at least once since the mid 1870's" (p. 114). He further stated, "Since little old-growth ponderosa pine remains in the Black Hills old growth will have to develop from existing stands." Id. An alternative that defers harvesting stands of 4B and 4C would aid in restoring old growth forest and providing habitat for wildlife, which is entirely within the purpose and need. Additionally, the DEA discloses that by treating stands of trees in structural stage 4A, 3C, 3B, and 3A (i.e., not 4B or 4C), the goals of reducing both fire and mountain pine beetle risk will be achieved and that revenue will also be generated.	*As described on p. 10 of the draft EA, actions to work towards late-succession conditions in a block of stands are proposed under both alternatives. Given the widespread infestation already present in the project area, the result of taking no action in these and other stands at moderate or high risk of beetle infestation could well be loss of these stands, which would greatly increase the time until late-succession characteristics develop.* *Project goals are to provide a sustainable supply of timber, reduce hazardous fuels, maintain or enhance plant and wildlife habitat, and improve management of the transportation system (*EA p. 3-6). *Addressing the ongoing mountain pine beetle infestation is critical to providing a sustainable supply of timber, reducing hazardous fuels, and providing habitat for species that depend on live pine stands. Limiting forest mangement actions to 3a, 3b, 3c, and 4a stands would prevent treatment of nearly all stands at moderate or high risk of infestation by beetles. The EA does not state that taking actions only in structural stages 3a, 3b, 3c, and 4a would achieve project goals.*
Comment 5-2: • An alternative that addresses fragmentation concerns. According to recent scientific studies, the 1997 Revised BHNF Forest plan did not adequately address the impacts of fragmentation nor did it take appropriate steps to mitigate the impacts of fragmentation to forested landscapes and wildlife	*Shinneman and Baker (2000) interpret inter-stand differences in forest structure and presence of roads or trails as forest fragmentation. They conducted a GIS analysis on an area in the Black Hills part of the Bearlodge and Northern Hills Ranger Districts. The analysis considered each vegetation polygon in the Forest Service Resource Information System database to*

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habitat. After conducting a thorough analysis of fragmentation in the northern Black Hills, Shinneman and Baker (2000) specifically criticize the fragmentation "analysis" in the 1997 Revised BHNF LRMP, stating: Although the U.S. Forest Service made an effort to duplicate our landscape structure analysis methods in the Black Hills National Forest Final Environmental Impact Statement (Price, unpublished manuscript; USDA Forest Service 1996b), this 'revised' version of our research failed to adequately identify important patch characteristics, incorrectly measured landscape structure, did not compare the current managed landscape structure to pre-EuroAmericna landscapes, and ignored the spatial status of old growth forests altogether (D.J. Shinneman, unpublished manuscript). These inadequate analyses, combined with a lack of comprehensive digitized spatial data for forest harvest activities, initial over-estimations of old-growth, and under-estimations of the spatial extent of road impacts, have probably led to the misinterpretations of the current forest structural conditions on the Black Hills. (p. 331)	*be a separate "patch", or discrete island of forest. These polygons do not, however, represent discrete patches or islands of forest; they show often minor differences between adjacent stands. For example, an area of mature forest with 50 percent of the ground shaded by tree crowns may be delineated as a separate stand from another area of mature forest with 70 percent of the ground shaded by tree crowns. This level of difference does not indicate that each stand is an island, only that enough difference exists to separate the areas for analysis or management purposes. In addition, some polygons represent naturally occurring breaks in forest cover, such as riparian meadows. The authors do not distinguish between natural and created openings. The analysis also treats each road and trail equally, whether a heavily used county road or closed, vegetated two-track. In reality, effects of roads on forest habitat vary by road type and travel management status (open vs. closed).* *Proposed activities are not expected to negatively affect habitat trends or populations of any wildlife species across the Black Hills National Forest. Marten: see response to comment 5-6.*
The two make the following recommendations for addressing fragmentation in the BHNF, stating: In contrast to USFS recommendations, our analysis suggests that restoration of the Black Hills National Forest landscape to its range of natural variability will require: (1) restoration and maintenance of some large patches in order to regain large interior areas, (2) restoration of large areas of dense old-growth forest in order to increase rare interior old-2 growth habitat, (3) a strategy for road closures, as well as careful site selection for new roads, to reduce road edge habitat on the landscape, and (4) a management plan that maintains or restores connectivity between large core areas with similar habitat in order to reduce the degree of habitat isolation for species dependent on habitats such as old-growth forest (e.g., Noss and Harris 1986). (p. 332) Given that this study explicitly criticizes the 1997 Revised BHNF Forest Plan fragmentation analysis, as well as makes specific recommendations with regards to how the impacts of fragmentation can be mitigated at the project-level, the USFS must consider an alternative that addresses fragmentation impacts through the Mineral timber sale. Indeed, in the context of wildlife populations, fragmentation is a serious concern and it is disconcerting how the USFS summarily rejected	*See also response to comment 5-5.*

Comment	Response
considering an alternative that addresses this significant environmental impact. Habitat fragmentation can isolate and reduce populations of less mobile species, such as Black Hills red-backed vole (Clethrionomys gapperi brevicaudus) and Black Hills flying squirrel (Glaucomys sabrinus), making them more vulnerable to stochastic events, which can in turn be exacerbated by habitat degradation (Wilcox and Murphy 1985, Lande 1993, Ruggiero et al. 1994, Couvet 2002, Carroll et al. 2004). Both the red-backed vole and flying squirrel have been found to be negatively impacted by habitat fragmentation (Nordyke and Buskirk 1991, Waters and Zabel 1995, Beauvais 1997, Martin and Anthony 1999, Reunanen et al. 2000). In addition, the pine marten, a sensitive species on the BHNF, requires dense canopy cover for habitat, also making the species sensitive to fragmentation (Buskirk 2002). In addition, fragmentation raises serious concerns over the genetic fitness of populations of wildlife on the BHNF. Fragmentation can lead to detrimental inbreeding and a build up of mildly deleterious mutations, both of which can impair population survival (Lacy 1987, Couvet 2002). On the Black Hills in particular, fragmentation is reported to be negatively impacting the brown creeper, a proposed management indicator species ("MIS") (Anderson and Crompton 2002). Virtually echoing the concerns of Shinneman and Baker (2000), Anderson and Crompton (2002) state that to ensure protection of the brown creeper across the BHNF landscape, "large tracts of unlogged, mature forest should be retained throughout the Black Hills" (p. 372). The two continue: These areas contain the habitat characteristics associated with many timber-gleaning insectivores and ovenbirds. As the landscape becomes more fragmented, the value of large contiguous tracts of dense forest will become increasingly important to maintain populations of interior-dwelling birds. (Id.) An alternative that specifically addresses the impacts of fragmentation therefore warrants detailed consideration in the Mineral DEA. In the context of maintaining viable populations, it makes sense for the USFS to ensure, as Anderson and Crompton (2002) recommend, large tracts of unlogged, mature forest be retained.	
<u>Comment 5-3</u>: • An alternative that prohibits commercial logging of trees 10" in diameter or less. Such an alternative would address the need to reduce fuel loading, risk of crown fire, and risk of mountain pine beetle infestation. In addition, such an alternative would	*Sawtimber usually consists of trees over 9" DBH. Limiting harvest of sawtimber to trees between 9" and 10" DBH would almost certainly make any resulting timber sale unprofitable for potential purchasers and/or physically impossible to implement. Stands in the project area include a mix of trees of various diameters.*

Comment	Response
provide commercial timber, as the DEA discloses that sawtimber generally includes "trees with a diameter of 8 inches or greater." EA p. ii. Obviously, establishing a diameter limit of 10" would still enable all trees 8-9.9 inches to be harvested, still providing an opportunity to produce commercial forest products. Such an alternative would also contribute to the restoration of more abundant large diameter trees and consequently, more abundant large diameter snags in the future. As will be discussed in more detail in these comments, large diameter trees and snags are extremely scarce across the BHNF. Such an alternative would address the need to reduce fuel loading, risk of crown fire, and risk of mountain pine beetle infestation. In addition, such an alternative would provide commercial timber, as the DEA discloses that sawtimber generally includes "trees with a diameter of 8 inches or greater." EA p. ii. Obviously, establishing a diameter limit of 10" would still enable all trees 8-9.9 inches to be harvested, still providing an opportunity to produce commercial forest products. Such an alternative would also contribute to the restoration of more abundant large diameter trees and consequently, more abundant large diameter snags in the future. As will be discussed in more detail in these comments, large diameter trees and snags are extremely scarce across the BHNF. If the USFS concludes an alternative that prohibits harvesting of trees 10" in diameter or less, then we request the USFS rigorously explore and objectively evaluate an alternative that prescribes 12" diameter limits and 14" diameter limits. Such alternatives would ensure that larger diameter trees are retained for wildlife habitat, for future snag creation, for future late successional forest creation, and down woody debris recruitment. Although we understand the USFS is proposing to leave some green trees, we request the USFS consider leaving more green trees and consider leaving green trees larger than 12" in diameter and larger than 14" in diameter as separate alternatives. Consideration of such alternatives will also ensure a well-informed decision that is fully aware of the various environmental trade-offs associated with the decision to implement the Mineral timber sale, as well as the actual environmental impacts of the decision.	*Cutting and removing just the intermixed trees 9-10" DBH would probably result in unacceptable levels of damage to the remaining trees. The cost of mobilizing logging equipment and construction or maintenance of access to cut only the trees 9-10" DBH would far outweigh the value of the extracted trees. In all likelihood, a sale consisting of only these trees would not sell. Furthermore, this type of treatment would not meet objectives for most stands (e.g., noticeably reducing hazardous fuels or risk of mountain pine beetle infestation, increasing growth, obtaining regeneration), because reduction of stand density would be minimal. For these reasons, this alternative was not analyzed in detail.* *Alternatives imposing various other diameter limits on timber harvest would have some of the same feasibility problems, but the primary reason none of the suggested diameter-limit alternatives was considered in detail is that the comparison of existing and desired conditions in the project area did not show a need to retain all trees of any particular diameter. Analysis of tree diameter distribution across each watershed in the project area shows that each diameter class is represented and would continue to be represented under each alternative. Proposed treatments such as thinning, fuel reduction, and prescribed fire emphasize retention of all or most of the larger-diameter trees in each stand. Furthermore, the alternatives considered in detail provide a range of tree retention, from Alternative 1, which would retain all trees, to Alternative 2, which would cut the most large-diameter trees (overstory removals and seedcuts). Alternative 3 would retain more large trees than Alternative 2 due both to less area treated and fewer overstory removal cuts.*
<u>Comment 5-4</u>: **Mountain Pine Beetle** We also question the USFS's assumption that simple reductions in stand density will reduce mountain pine beetle risk on the BHNF and in the Mineral timber sale area. Not only has extensive past logging apparently failed to lessen the risk of future pine beetle infestation,	*Risk of infestation by mountain pine beetle varies according to stand structure, average tree diameter, and stand density (Stevens et al. 1980). "Hazard Rating Ponderosa Pine Stands for Mountain Pine Beetles in the Black Hills" (Schmid et al. 1994) provides further detail on relevant methodology and results indicating that*

Comment	Response
but studies have found that infestation is not a function of stand density in the Black Hills. In a study of mountain pine beetle risk in thinned and unthinned stands on the BHNF, Schmid et al. (1991) found that there appears to be no relationship solely between stand density (i.e., basal area) and mountain pine beetle risk and susceptibility. Schmid et al. (1991) state: The success of partial cutting in reducing MPB-caused mortality is frequently attributed to the change in host resistance created by the reduction in stand density (Mitchell et al. 1983). The relatively equal but moderate to severe stress levels among GSLs [growing-stock levels] observed in this study suggests that host resistance would be relatively equal among our GSLs. If host resistance is relatively equal, then differential MPB-caused mortality among various GSLs must be influenced by other factors, such as microclimate, as suggested by Bartos and Amman (1989). Host resistance by itself may not be totally responsible for the differential mortality. (p. 754) The proposed actions do not seem to be based on any consideration of the possibility that mountain pine beetle risk is not related to stand density and consequently, fails to ensure the project meets the purpose and need. In addition, because risk is not entirely related to stand density, the USFS's assumptions underlying the proposed action, namely that logging or thinning are needed to address any purported mountain pine beetle risk, are unsupported.	*stand density is a key component of risk. Shepperd and Battaglia (2002) further describe this relationship.* *Schmid and Mata (1992) state that "prior to determining growth rates in the GSL 100 and the control, we thought microclimate was probably more responsible for the lack of reinfestation after cutting because Schmid et al. (1991) found the diameter growth in the residual trees in the partially cut stands and their respective uncut control in another set of GSL plots did not differ for the first two years following cutting. However, the trees in those plots were responding under drought conditions, so an increased growth rate in the cut stands would not be expected immediately. When we sampled trees in the GSL 100 and control plot in September 1991, diameter growth had increased significantly in 1990 and 1991 (the two years following cutting) as compared to 1989." The paper goes on to describe uncertainties regarding the primary reason for the resistance of trees in thinned stands to mountain pine beetle attack, but clearly concludes that trees in thinned stands are at lower risk of attack.*
<u>Comment 5-5</u>: **Late Successional Forest** We are very concerned that the USFS is proposing to directly impact and reduce the availability of old growth forest habitat through the Mineral timber sale. The USFS has estimated that only around 1.5% of the entire BHNF is considered old growth. See, Figure below. Most recently, however, the USFS disclosed in the Draft EIS for the Phase II Amendment to the BHNF LRMP, that only 2,646 acres of ponderosa pine are in structural stage 5, a decline of nearly 20,000 acres. This amounts to only 0.22% of the entire BHNF. See, Phase II DEIS, Table 3-6 at 3-11 – 3-12. Furthermore, old growth in the BHNF exists as scattered, small stands that are neither connected nor of sufficient size to support many wildlife species. In addition, many stands exist on steep slopes and/or are near roads or campgrounds. This is an extremely low amount of old growth and it is difficult to believe that any direct impacts to old growth forest would not pose significant impacts to this important habitat component, to species dependent upon this habitat (especially sensitive species), as well as to the diversity of plant and animal communities in the BHNF. Of particular concern, however, is that the proposed action seems premised on the assumption that the entire	*The EA (*p. 52-95), *Mineral Project Biological Assessment/ Biological Evaluation, and Mineral Project Wildlife Specialist's Report disclose effects on sensitive and management indicator species that may be found in the project area. None of the alternatives would affect viability of populations across the Black Hills National Forest of species associated with late-succession forest. There is no indication that maintenance of species viability across the Forest requires retention of all stands in the project area for development into late-succession forest.* *The proposed action is not based on an assumption that the entire Black Hills, or even the Mineral project area, historically had only frequent, low-intensity fires. Both action alternatives would retain a variety of forest structures in the project area and would manage a contiguous block of stands for late-succession characteristics* (EA p. 52 and 53). *Shinneman and Baker (1997) conclude that the central and northern Black Hills may have historically included large expanses of dense, mature forest. Baker and Ehle*

Comment	Response
ponderosa pine forest of the BHNF is naturally "open and park-like," and that, to "restore" forest health and/or address fire risk concerns, extensive logging and thinning is necessary. Such an assumption, while partially true for portions of the BHNF, is not universally valid and reflects the USFS's attempt to selectively utilize science in the development of the Mineral timber sale. [map omitted] Indeed, much scientific information exists showing that ponderosa pine forests across the western United States, including those in the Black Hills, are naturally more diverse in terms of structure and fire regimes. In particular, while some ponderosa pine forests are naturally more open and park-like and naturally affected only by surface fires, particularly those in the southwest and at lower elevations, many ponderosa pine forests can be more dense and naturally (if not consistently) affected by relatively infrequent, stand-replacing fires, or fall within a mixed-severity fire regime (Baker and Ehle 2001, Schoennagel et al. 2004). In fact, Shinneman and Baker (1997) report much of the BHNF, was likely more influenced by stand replacing fires than surface fires, which resulted in larger, more continuous tracts of dense, old forest. Such a finding is not anomalous. Baker and Ehle (2001) state: Longer fire rotations and spatially patchy fires also suggest that a greater diversity of forest structures probably existed in the pre-Euro-American ponderosa pine landscape, possibly leading to some crown fires. Dense thickets of regenerating trees or dense old patches of trees may have been a part of the pre-Euro-American ponderosa pine forest landscape (e.g., Shinneman and Baker 1997), since there is more opportunity for these to have occurred. (pp. 1223-1224) Schoennagle et al. (2004) state: There is also evidence of mixed-severity fire regimes that predate fire suppression in some forests dominated by ponderosa pine, and even in pure or nearly pure ponderosa pine stands at low to mid elevation (Veblen and Lorenz 1986, Mast et al. 1998, Kaufmann et al. 2000, Ehle and Baker 2003). Historically, forests that experienced mixed-severity fire regimes had variable densities of ponderosa pine, Douglas fir, grand fir, and western larch, depending on their location. These forests constituted a mosaic of even-aged stands resulting from stand-replacing fire with uneven-aged stands that experienced low-severity surface fires and episodic tree regeneration (Arno 1980, Brown et al. 1999, Kaufmann et al. 2000). (p. 670)	*(2001) object to fire-scar analysis techniques used to estimate fire return interval, arguing that dense, mature ponderosa pine stands were far more common across the West than generally believed. Brown and Cook (2004) show that, in the Black Hills, dense, even-aged stands may have existed on large areas when climatic conditions were favorable. Many dense, even-aged stands have been infested by beetles during the ongoing epidemic, indicating that current conditions may not favor widespread persistence of these stands..* *The primary purpose of the Mineral project is not to create open stands typical of a forest with frequent, low-intesity fire, but to address the mountain pine beetle infestation and fuel hazards. Alternative 1 would retain all near-term options for development and management of late-succession forest in the project area; however, because these dense, mature stands are the ones most likely to be infested during the ongoing mountain pine beetle epidemic, this alternative could result in the fewest options for late-succession development in the next several decades. The action alternatives would reduce the risk of complete loss of mature stands.* *The Mineral project EA does not claim that stand-replacing fires did not historically occur or that the entire BHNF should be in a low-severity fire regime.* *The Mineral EA does not claim that the project area is "unhealthy" due to being outside the range of natural variability; it states that the project area includes large areas of mountain pine beetle infestation, which is not compatible with the management direction for this area.* *Effectiveness of fuel treatments: see response to comment 4-1.* *Late-succession forest is discussed on* EA p. 57. *Currently no stands in the Mineral project area have been identified as late-succession. Both action alternatives would work towards development of late-succession conditions in a block of stands* (EA p. 9 and 22) *while reducing risk of loss of these stands to mountain pine beetle. Management of these stands for late-succession conditions will be tracked in the Forest vegetation database. The cumulative effects of proposed actions on all forest structures is found on EA p.*33-35.

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Studies of Rocky Mountain ponderosa pine forests invariably report more diversity in terms of structure and fire regimes (e.g., Baker and Ehle 2001, Ehle and Baker 2003, Graham 2003). Other studies and reports from the BHNF have similarly reported that the ponderosa pine forests of the Hills are not always open and park-like, and that naturally dense growth is a natural phenomenon in the Black Hills (Graves 1899, Duthie 1930, McAdams 1995). As Duthie (1930) stated: The western yellow pine of the Black Hills has a peculiar habit, when the old forest has been killed or cleared away, of reproducing in dense thickets. I say this is a peculiar habit because it is unlike the behavior of the same pine in forests farther west where the seedlings will not stand crowding, and come up sparsely. But in the Black Hills the western yellow pine has acquired a characteristic of the lodgepole pine in that the seedlings come up in dense stands crowding each other, yet clinging tenaciously to life until growth practically reaches a stalemate….Some of these dense stands may be found where the trees are two hundred years old and the deadlock persists.	*The Duthie (1930) excerpt references the prolific nature of ponderosa pine regeneration (seedlings and saplings) in the Black Hills. Dense concentrations of trees this size can be seen across the Northern Hills Ranger District, but stands at this density tend to stagnate. If not thinned out by heavy snow, fire, management, or other events, extremely dense stands of small-diameter trees can persist for decades (Shepperd and Battaglia 2002).*
The DEA does not seem to reflect scientific views suggesting the ponderosa pine forests of the BHNF likely fall within a mixed-severity fire regime despite supporting scientific evidence. In fact, Schoennagel et al. (2004) cite the ponderosa pine forests of the Black Hills as an example of a mixed-severity regime. In any event, the proposed actions do not seem to be based on a serious or objective consideration of the fact that the ponderosa pine forests of the BHNF may be more diverse. In other works, the USFS relies heavily on the work of Peter Brown to refute the findings of Shinneman and Baker (1997), as well as the notion that the Black Hills likely experienced stand-replacing fires and was not universally "open and park-like." This reliance is suspect as Peter Brown's dissertation suggests otherwise. Indeed, Brown (2003) states: A prevailing model for historical conditions in ponderosa pine forests is that frequent, episodic surface fires maintained open, low-density, uneven-aged forests. However, this model does not apply uniformly to ponderosa pine forests in the Black Hills of southwestern South Dakota and northeastern Wyoming. Infrequent stand-replacing fires also occurred and apparently resulted in large landscapes of even-aged trees. (p. 61, emphasis added) Peter Brown's dissertation was based on research on the Limestone Plateau, which the USFS often points to as evidence that stand replacing fires did not historically occur on the BHNF. It is difficult to reconcile contradiction of Peter Brown's conclusions. In addition,	*Contrary to the assertion in this comment, Schoennagel et al. (2004) cite the ponderosa pine forests of the Black Hills as an example of a low-severity fire regime. Schoennagel et al. postulate that assuming all Western forests historically had a low-severity fire regime is unwarranted. They reference the Black Hills in a section titled "Low-severity fire regimes", which states that "In the Black Hills of South Dakota, the mean fire interval was 20 to 23 years at each of four low-elevation ponderosa pine sites (about 100 ha each) for the period from 1388 to 1900 (Brown and Sieg 1996). …these studies clearly indicate a significant difference in fire interval and severity between low-elevation, dry ponderosa pine forests and high-elevation, moist subalpine forests." The Mineral project area and Black Hills as a whole do not include high-elevation, moist subalpine forests. Schoennagel et al. also estimate that pure ponderosa pine forests historically had a low-severity fire regime and that forest types consisting of ponderosa pine mixed with other conifers had mixed-severity fire regimes (p. 668).* *Over all, literature cited in this comment shows that there are different interpretations of the available data on fire regimes across the West and in the Black Hills. Most literature seems to agree that much of the Black Hills had a low-severity fire regime but that some areas, under some climatic conditions, had higher-severity disturbances. The comment argues that the project area*

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Baker and Ehle (2001) call into question the accuracy of several fire history studies on the BHNF, including Brown and Sieg (1996), Brown and Sieg (1999), and Brown et al. (2000). In particular, the authors raise concerns over the level of uncertainty associated with assessing surface fire histories in ponderosa pine forests. Baker and Ehle (2001) state: > The uncertainty we identify in fire-history results suggests that present concepts of the role of fire in maintaining the structure of ponderosa pine forests are less certain. Surface fire is still very important to these forests. However, the longer mean FIs [fire returnintervals] and fire rotations that certainly occurred, and the spatially patchy nature of fire, somewhat diminish the magnitude of control of forest structure by fire relative to present conceptions of fire's importance in ponderosa pine forests. (p. 1223) The USFS has yet to address the findings of Baker and Ehle (2001) as they relate to the uncertainty in surface fire history studies that have been done in the BHNF. This alone suggests the BHNF has not appropriately developed proposed actions that truly meet the purpose and need, or that the purpose and need itself is fatally flawed. Regardless, Peter Brown's research on the Limestone Plateau and other areas in the Black Hills are but one piece of scientific information the USFS should be using to objectively evaluate whether or not . Obviously, the BHNF is much more diverse than the USFS gives it credit, experiencing both surface and stand-replacing fires, and supporting both open, park-liked stands and large tracts of dense old growth. While the USFS has turned these scientific views into opposing views, in fact they are mutually inclusive and indicate that forest management must take a more complex view of the forest in order to restore forest health and adequately protect native species and their habitats. The implications of the USFS's assumptions are substantial and of great concern. In particular, because the USFS seems to assume the entire BHNF naturally and entirely falls within a low-severity fire regime, the agency also asserts that the Mineral timber sale area is outside its range of natural variability, or, as the USFS claims, "unhealthy." As a result, the USFS is proposing extensive logging and thinning to "restore" the forest through the timber sale. Such a proposal is ill-founded given that scientific data strongly indicates the BHNF falls within a mixed-severity fire regime, and that, while some areas may be outside their range of natural variability, such a condition is not consistent across the entire forest. The results of ramped up logging and thinning in the Mineral timber sale area could therefore be seriously detrimental to the health of the BHNF. As Schoennagel et al. (2004) state, "…current fire regimes	*should include large expanses of dense, mature forest typical of a high-severity fire regime. The current beetle infestation does not seem to be compatible with maintenance of large expanses of dense, mature forest, and one of the purposes of the Mineral project is to reduce the risk of losing more of these mature stands to beetle infestation.*

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and stand densities in mixed conifer forests are likely to be within the historical range of variability, or at least are not likely to be as far outside this range as those in the dry ponderosa pine forests discussed above (Veblen 2003)" (p. 671, emphasis added). The authors go on to state: > Fuel-reduction treatments (mechanical thinning and prescribed burning) may effectively reduce fire severity under moderate weather conditions, but these treatments may not effectively mitigate fire behavior under extreme weather conditions and may not restore the natural complexity of historical stand and landscape structure. (p. 673, emphasis added) Coupled by the findings of Shinneman and Baker (1997) and Baker and Ehle (2001), as well as other studies that have documented mixed-severity fire regimes in other ponderosa pine forests (e.g., Ehle and Baker 2003), the best available scientific information strongly indicates that efforts to control or alter future fire behavior through fuels reduction treatments will not only be ineffective in the Mineral timber sale area, but that such efforts will only lead to detrimental, not beneficial, impacts to the Black Hills ecosystem and to species of wildlife that depend on the naturally complex and diverse ponderosa pine forest structure of the BHNF. All in all, the DEA and Mineral timber sale does not seem to be based on an objective look at relevant scientific information regarding natural forest conditions and fire regimes in the BHNF and in particular the timber sale area. The assumptions underlying the proposed action are thus flawed and indicate the purpose and need will not be met by the proposed action. Furthermore, we question how the BHNF assessed impacts to late successional forest? In other words, how did the BHNF determine that impacts to late successional forest would not be significant? We are also concerned that the DEA fails to adequately analyze the cumulative impacts to late successional forest. For instance, although the DEA claims there would be no cumulative impacts, wouldn't the timber sale, in harvesting stands of SS 4C and 4B, affect the future abundance and distribution of old growth forest? Why wasn't this cumulative impact considered? Regardless of the BHNF's assumptions about old growth on the Black Hills, it is undeniable that the Mineral timber sale will have impacts on future old growth abundance and distribution. Disclosing such impacts is vital to ensuring the public understands the impacts of the timber sale and that the decisionmaker is well informed. Disclosing such impacts are also important given that scientific studies have determined the Black Hills once naturally supported more old growth forest, especially in the Northern Hills where the climate is more moist (see e.g., Shinneman and Baker 1997, Baker and Ehle 2001).	

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Comment 5-6: **Sensitive Animal Species** The DEA neither presents nor references population data that would provide a context for the BHNF's determination that the viability of sensitive species would not be negatively impacted and/or jeopardized as a result of the Mineral timber sale. Additionally, the DEA fails to even explain whether a viable population of marten, goshawk, three-toed woodpecker, northern leopard frog, Black Hills red-bellied snake, or black-backed woodpecker currently exists on the BHNF. A viable population is defined at 36 CFR § 219.19 as "one which has the estimated numbers and distribution of reproductive individuals to insure its continued existence is well distributed in the planning area." As it is, neither the 1997 Revised Forest Plan or 2001 Phase I Amendment explain what constitutes a viable population of marten, goshawk, or black-backed woodpecker and whether viable populations actually are in existence. The BHNF has a duty to determine and disclose information regarding viability if it is going to assert that the Mineral timber sale will not jeopardize the viability of these species. The failure to disclose whether sensitive species are currently viable is further disconcerting since scientific studies have clearly established general concepts of what constitutes viable populations of vertebrate species. For instance, it has been reported that a viable population of pine marten (Martes Americana) should be around 6,884 adults (Reed et al. 2003). Reed et al. (2003) generally found "that a minimum habitat area capable of supporting approximately 7000 sexually mature adults is required to maintain long-term minimum viable populations of vertebrates in the wild" (p. 27). Given this scientific information, we request the Forest Service explain whether enough habitat exists to support viable populations of sensitive species and whether viable populations even exist. The analysis of impacts to northern goshawk appears lacking. For instance, the discussion entirely fails to discuss the impacts of recent fires, which have affected well over 10% of the entire BHNF. We are very concerned that fires have limited the availability of nesting habitat and that the Mineral timber sale could pose significant cumulative impacts to goshawk nesting habitat. We are also very concerned that, given the impacts of recent fires, timber may be harvested from the Black Hills at an unsustainable rate and may be negatively affecting sensitive species like the northern goshawk, pine marten, and others. This concern derives from the fact that the current Allowable Sale Quantity and sustainable yield calculations were based on a suitable timber base that included areas that have been entirely burned and no longer contribute any actual timber to the suitable base. Proportionately, less timber is now available in the BHNF, yet all indications are that the USFS harvesting	Section 3.3 *of the EA includes numerous references to population data, and viability determinations are supported by reference to various studies.* *Black-backed woodpecker is discussed* on EA p. 71 and 80 *Population and habitat trends appear to have been increasing over the past several years (USDA Forest Service 2004b).* *Reed (2003) indicates that the populations studied "represent a wide range of habitats, ecologies, and geographic locations". The EA discusses marten at p.* 65 and 83. *The Black Hills marten population is estimated at about 124 individuals (USDA Forest Service 2004b). Population trend appears to be stable; population may be at carrying capacity (Fecske 2003).* *Northern goshawk is discussed on EA* pages 66-68, and 79. *The Forest-wide Allowable Sale Quantity (ASQ) for this decade is 838,000,000 board feet, or about 83,800,000 board feet per year. Annual Forest-wide monitoring reports show that the Forest has not offered this level of timber recently. Offered sawtimber volume was 65,200,000 board feet in FY 2003 (USDA Forest Service 2004b), 49,500,000 board feet in FY 2002, 36,500,000 board feet in FY 2001, 2,800,000 board feet in FY 2000, 82,700,000 board feet in FY 1999, and 77,000,000 board feet in FY 1998 (USDA Forest Service 2004a). Harvest levels have not approached the decadal maximum allowed by the Revised Forest Plan, and it is unlikely that harvest of the timber base reduced by wildfires in the last five years has become unsustainable.* *As stated on* EA p. 75, *no barriers to snake movement would be created adjacent to wetlands under any alternative. Furthermore, all roads proposed for construction would be closed following use.* *Determination of effects on leopard frog is based on potential for proposed activities to occur in or alter leopard frog habitat.* *Forest-wide status of these species is disclosed in Black Hills National Forest annual monitoring reports (USDA Forest Service 2004a, b).* *Use of a standard silvicultural system does not guarantee that one step in the system will automatically be followed by the next. Other factors, such as fire, changing laws and directives, evolving land management philosophy, etc., determine the actions that take place over time in a stand. Cumulative effects*

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at or near the same rate allowed under the 1997 Forest Plan. It is difficult to see how maintaining the status quo in this case can possibly meet NFMA's sustained yield mandate and/or adequately protect wildlife according to laws and regulations. We request the USFS fully explain how it can possibly protect wildlife dependent on old growth and/or relatively undisturbed forest habitats in light of strong indications that timber is being harvested at an unsustainable rate from the BHNF. We also question how the BHNF assessed impacts to northern leopard frog and Black Hills red-bellied snake? It is unclear whether Forest Plan Standard 3116 will be complied with. Although the DEA claims that this Standard will not be violated, there is no information or analysis presented in the DEA to suggest this is accurate. The analysis and assessment of impacts to sensitive species, in particular the northern goshawk, black-backed woodpecker, and Lewis' woodpecker, is also lacking in that it fails to disclose how past, present, and reasonably foreseeable timber sales impact these species. Of particular concern is that past timber sales have likely impacted individuals of these species. Indeed, in virtually every biological evaluation prepared for every timber sale on the BHNF, the USFS concludes that individuals of these species will be impacted. These impacts add up, or are cumulative, and must be considered in light of the direct and indirect impacts, as well as the USFS's duty to maintain viable populations of native vertebrate species. Also of concern is that the USFS entirely fails to address future timber harvesting in stands subject to shelterwood methods of harvesting and/or other harvest methods that require repeated entries. If a stand will likely be entered for harvesting in the future because of the method of harvest, the USFS must analyze and assess this reasonably foreseeable action in relation to its impacts to wildlife, especially sensitive species.	*analysis must take into account "reasonably foreseeable" future actions (40 CFR 1508.7). At this time, future silvicultural activities in the Mineral area have not been planned and are not foreseeable.*
Comment 5-7: **Management Indicator Species** The DEA fails to provide or reference population trend data for pygmy nuthatch, fringed myotis, and other MIS, despite clear regulatory direction requiring such information before making project-level decisions. Although the DEA references some population data for birds monitored through the Rocky Mountain Bird Observatory, we can find no indication that this represents actual trend data. Furthermore, it is unclear to what extent the USFS has surveyed for pygmy nuthatch and other MIS within the project area. We request the USFS explain all efforts it has undertaken to ascertain the presence of MIS in the project area and what protocol were used to asses their presence and population trends where necessary. We also seriously question the BHNF's analysis and assessment of impacts to brown creeper. According to Anderson and Crompton	*Analysis for each management indicator species in Chapter 3 of the EA includes a summary discussion of population viability and trend based on available information. Discussions of pygmy nuthatch and other MIS reference available survey information, including surveys completed by the Rocky Mountain Bird Observatory, USGS Breeding Bird Surveys, and observations by Forest Service personnel. The Forest Service has not conducted surveys to determine populations of individual species in the project area, and it is not necessary to do so to support the determination of limited effects across the planning area (the entire National Forest).* Goshawk surveys in the project area are discussed on EA p. 66-68. Forest-wide bird surveys are discussed on pages 61 and 62. Surveys of land snails are discussed on

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(2002), brown creeper avoid logged areas (by shelterwood cuts) and are sensitive to patch size. The DEA makes no mention of this paper, its findings, or the inverse relationship between shelterwood logging and brown creepers, and their sensitivity to forest fragmentation.	pages 76, 77, and 83. State data on big game species are presented on pages 84-86. *Anderson and Crompton (2002) reported that brown creepers used only the densest portions of the forest in their study area and that these areas were characterized by large pines as well as a dense midstory. They concluded that creepers are often closely associated with late-successional ponderosa pine forests and may have been the species most sensitive to timber removal in their study area. Wiggins (2005) concurs that brown creepers depend on interior forest with mature trees and snags. Both action alternatives would treat certain stands to increase late-succession characteristics over time (see description of treatment on* EA p. 9-22). *Hazardous snags may be cut during implementation of any alternative. These actions would decrease potential brown creeper habitat in the treated parts of the project area until stand density increases, trees mature, or snags form. Untreated parts of the project area would continue to provide potential habitat, and could benefit indirectly from the treatments through reduced risk of stand-replacing fire. Effects in the project area are not expected to influence Forest-wide habitat or population trends.* *The Forest Plan is governed by the MIS concept of the 2005 rule (36 CFR 219.14(f)). Under the 2005 Planning Rule, there is no obligation to conduct site-specific monitoring or surveying of a proposed project at the project level. Furthermore, existing Forest Plan monitoring requirements for MIS may be satisfied by considering data and analysis relating to habitat. The Revised Forest Plan as amended in 2001 establishes monitoring and evaluation requirements that do not require population monitoring for MIS, but rather employ habitat capability relationships. The Phase 1 Amendment monitoring and evaluation requirements do not require population monitoring for MIS, but rather habitat capability relationships.* *The decision for this project will be signed under the regulations of January 2005 (36 CFR 219.8(b)). Accordingly, section 219.14(f) applies to the MIS analysis, which states the Responsible Official may comply with any obligations relating to MIS by considering data and analysis relating to habitat unless the plan specifically requires population monitoring or population surveys for the species. The monitoring and evaluation requirements in the Forest Plan as amended by Phase 1 do not require population monitoring for MIS, but rather habitat capability relationships.* *See comment regarding fragmentation.*

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Comment 5-8: **Sensitive Plants** It is unclear to what extent high quality sensitive plant habitat has been surveyed and/or to what extent such habitat will be protected. Furthermore, it is unclear how the BHNF assessed impacts to sensitive plant species and how the Forest overall concluded that impacting any sensitive plant species and their habitats would not jeopardize species viability on the BHNF.	*Extent of sensitive plant surveys is discussed on EA p.* 14 and 90. *Qualified botanists conducted botanical field surveys for Region 2 sensitive plants in the project area during the* 1999, 2001, 2002, 2003, and 2004 *field seasons. Protection of potential sensitive plant habitat is discussed on* EA pages 90-95. *Design criteria and mitigation measures relevant to sensitive plants are found on* page 14. *The project botany Biological Evaluation (Mineral Analysis File) concluded that none of the alternatives was likely affect populations with specified design criteria and mitigation. Sensitive plant sites in the project area would be monitored under all alternatives* (EA p. 17). *The Forest Service monitors populations of sensitive plants across the Black Hills National Forest; methods and results are described in the FY2004 Monitoring and Evaluation Report (USDA Forest Service 2005).*
Comment 5-9: **Snags** *The Inadequacy of Existing Snag Conservation Measures* Already, existing snag and green retention standards under the Phase I Amendment have been found to be inadequate for certain species of wildlife in the BHNF. In a Conservation Assessment for the silver-haired bat (Lasionycteris noctivagans), Schmidt (2003b) states: The 2001 Phase I Amendment to the LRMP increased minimum hard snag requirements to 2 snags/acre for Ponderosa Pine forest on south and west slopes, and 4 snags/acre on north and east slopes (US Forest Service 2001). Recommended average snag densities of 2-4 hard snags per acre (Phase I Amendment LRMP) were far below the minimal snag density of 21 snags/ha reported by Mattson et al. (1996) for this species in the Black Hills National Forest. (p. 9) This statement refers only to snag density standards, which are but one component of snag habitat. Snag retention standards are also inadequate based on the needs of wildlife. For instance, the silver-haired bat in the Black Hills utilizes snags 44 cm in diameter (17.32 inches dbh) for maternity roosts (Mattson et al. 1996). Yet, snag retention standards under Phase I require minimum snag diameters to be only 10" dbh, and requires that only 25% be greater than 20" dbh. On its face, the standard is inadequate because it allows snags to be retained that are of insufficient diameter for the silver-haired bat. However, by requiring only a certain proportion to be larger diameter, the USFS is essentially ensuring no snag habitat is available for the silver-haired bat. This similarly provides insufficient habitat for several other species, as will be discussed below.	*According to the silver-haired bat conservation assessment (Schmidt 2003c), "Timber harvest can have beneficial or detrimental impacts on* Lasionycteris noctivagans, *depending on application. Timber harvest which promotes forest with lower density of trees overall, and relatively greater numbers of mature trees, can help provide suitable roosting sites for these bats. Additionally, recruitment and retention of snags was recommended by Campbell et al. (1996) as well as Mattson et al. (1996)."* *Thinning proposed under all alternatives would result in stands with lower tree density and a relatively higher proportion of mature trees. All alternatives would retain existing snags except those that are a hazard to workers. All alternatives would retain sufficient green trees to provide large-diameter snags over time.* *The Forest Plan requires, rather than allows, retention of all snags, except those that are a safety hazard or in areas designated for cutting of standing dead trees (guideline 2304a, treated as a standard under the Phase 1 Amendment). There are no designated standing-dead fuelwood cutting areas in the Mineral project area. Standard 2301 requires that snags counted to determine snag density are more than 10" DBH, and that 25% are more than 20" DBH. By requiring that 25% of snags exceed 20" DBH, the Forest Service does not ensure that "no snag habitat is available" for this species. In fact, requiring retention of snags and large-diameter green trees ensures that habitat will be available.*
Comment 5-10: **Existing Snag Diameters** Snag diameters on the BHNF are extremely low and are already insufficient to meet the needs of wildlife	*Spiering and Knight (2004) did find that large-diameter snags are important for cavity-nesting birds and occur at low densities in the Black Hills, but did not conclude*

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(Spiering and Knight 2004). The existing conditions indicate that snag-dependent wildlife are essentially living on deficit habitat, a situation that will only lead to declines and potentially extirpations of snag dependent wildlife. Spiering and Knight (2004) estimate that of the snags in the BHNF, snags greater than 20" dbh average only 0.2 per acre. This isn't even a whole tree. Adding to that, snags between 15 and 19" dbh average only 0.5 per acre. Together, snags greater than 15" dbh average 0.7 per acre across the BHNF. [diagram omitted] Several species of wildlife are reported to depend on larger diameter snags, most with diameters of around 20" or greater, but at least greater than 15" dbh. Indeed, Spiering and Knight (2004) report that wildlife use of snags increased as diameter increased. In addition, all species of wildlife that require large diameter snags invariably require more than one per acre. The welfare of the pygmy nuthatch is of particular concern given its extremely low numbers in the BHNF (Panjabi 2001, 2003, 2004). Elsewhere, the species is common in ponderosa pine forest (Ghalambor 2003). This strongly indicates that past and present management has led to significant declines in habitat for the species, a conclusions supported by scientific studies on the nuthatch. Indeed, the pygmy nuthatch was one of four species that showed a significant reduction in population density with a reduction in snags (Scott 1979). [diagram omitted] Even under the USFS's liberal and unsupported estimate that snags greater than 15" dbh average 1.63 per acre, habitat conditions on the BHNF are insufficient to ensure the viability of snag-dependent wildlife. To begin with, the pygmy nuthatch, Lewis's woodpecker, silver-haired bat, fringed myotis, American kestrel and other species have been found to depend on snags 17" or greater (see table above). Thus, including snags 15" or even 16" in diameter in estimates of suitable habitat for these species is inappropriate as such snags are not suitable habitat. Furthermore, and as will explained further in these comments, the silver-haired bat, Lewis's woodpecker, and other species require higher snag densities than 1.63 per acre. Although the USFS may claim that large diameter snags (i.e., >15") exist in sufficient numbers in parts of the BHNF, this conclusion is difficult to stomach. On the one hand, if averages are so low, then obviously there more areas where there are no or very few large diameter snags than there are areas with sufficient numbers. The averages clearly show that, on balance, there cannot possibly be more areas that	*that snag densities are insufficient to meet the needs of wildlife. Both Mineral action alternatives would retain existing snags and large green trees in all treated areas to provide snag habitat now and in the future.* *Panjabi (2004) states, "Pygmy Nuthatch is a rare but regular, and apparently widespread, resident of the Black Hills." He does not conclude that observation of relatively few individuals indicates that the species' welfare is threatened. Ghalambor (2003) makes no conclusion regarding pygmy nuthatch population trends in the Black Hills. Scott (1979) states that pygmy nuthatch populations declined substantially after timber harvest that left* no *snags but that populations increased slightly in the treated stand where snags were left standing. Proposed harvest would leave nearly all existing snags in place; based on Scott, one could conclude that the project is likely to lead to an increase in pygmy nuthatch populations.* *Lentile et al. (2000) indicate that snag density tends to correlate with overall stand density. This study was conducted in unmanaged stands. There is no indication that selective timber harvest "decimates" snag populations, particularly when snags are not cut unless they pose a hazard. The action alternatives would comply with Revised Forest Plan direction for existing snags and large green tree retention.* *Logging does not "invariably target large diameter trees". While overstory removal would cut the larger trees (except for those retained for future snags), thinning proposed under all alternatives would retain the largest, best-formed trees.* *Data on snag density in the Mineral project area are incomplete, but pathogen surveys indicate high densities of beetle-killed trees in certain locations, and there are many additional scattered pockets. Tree mortality has not been a slow process in these locations in recent years. One purpose of the proposed action is to reduce the level of beetle-caused mortality, but some trees will continue to be infested, especially in untreated areas. Many of the infested trees with no commercial value will continue to stand. Overall, the beetle infestation is providing a high level of snags.*

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have sufficient numbers of large diameter snags than areas with few to no such snags. In addition, this conclusion ignores a key component of managing for diversity and viability, ensuring well-distributed habitat. If some areas of the BHNF have sufficient large diameter snags, while may areas do not, it is difficult to believe that this represents well-distributed habitat sufficient to ensure the viability of snag-dependent species of wildlife. In any event, the USFS has not pointed to any information or analysis showing where these areas of sufficient large diameter snags are located, how large these areas are, or whether they are actually utilized by snag-dependent wildlife. At best, the USFS is arm waving and at worst, is attempting to gloss over its embarrassing snag data. Adding to the concern over the inadequacies of existing snag diameters is the fact that snag recruitment will invariably produce fewer and fewer large diameter snags as the BHNF continues to experience extensive logging and thinning. To address the shortages of large diameter trees, there needs to be sufficient numbers of large diameter trees. Yet, the USFS has disclosed that, in total, live trees greater than 15" dbh average only 9.4 per acre across the entire BHNF. Trees greater than 20" average only 1.3 per acre. Although if every tree greater than 15" were to die tomorrow and become snags, some of the problems may be solved, this is not what happens in reality. In reality, mortality is a slow process. We have seen estimates in project-level EA's of less than one tree per acre per year. Thus, even by existing mortality rates, it is likely that sufficient numbers of large diameter snags will not come into existence for years to come. However, this would only happen if stands were unmanaged. [diagram omitted] As it is, the USFS intensively manages the BHNF and the Mineral timber sale will exacerbate snag habitat deficits. One goal of the Mineral timber sale is to reduce tree mortality, making it even less likely that sufficient large diameter snags will be produced within a reasonable timeframe, both in the project area and across the BHNF. Furthermore, logging invariably targets large diameter trees. Thus, even though there may be sufficient large diameter trees to ensure future creation of enough large diameter snags, logging ultimately removes many of these trees and, in combination with the associated mortality rate reductions, artificially keeps both the numbers of large diameter live trees and large diameter snags depressed (the snags moreso). Ultimately, the timber sale is a recipe for further reductions in already much-reduced large diameter snag densities for decades to come.	
<u>Comment 5-11</u>: **Snag Densities**	*According to the Mineral Project Area Vegetation*

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Snag densities on the BHNF are also extremely low and are already insufficient to meet the needs of wildlife (Spiering and Knight 2004). As Anderson (2003) states with regards to the black-backed woodpecker: > Snag surveys on the Black Hills National Forest showed an average of 173 hard snags of ponderosa pine per 100 acres (40.5 ha) greater than 25.4 cm (10 inches) dbh (USDA Forest Service 1996). A separate study found an average of 3.6 snags greater than 25.4 cm (10 inches) dbh per 0.4 ha (1 acre) in stands not actively managed for 20 to 30 years on the Black Hills National Forest (Lentile and others 2000). These numbers mean that many stands have much lower than the number of snags recommended by many sources (Scott 1978; Scott and Oldemeyer 1983a; Raphael and White 1984; Zarnowitz 1985; Goggans 1989a; Bate 1995; see Table 17), so it is important to conserve snags as possible. (p. 23) The existing conditions indicate that snag-dependent wildlife are again essentially living on deficit habitat, a situation that will only lead to declines and potentially extirpations of snag dependent wildlife. Lentile et al. (2002) estimate that snags in the BHNF greater than 10" dbh average only 3.96 per acre. [diagram omitted] Spiering and Knight (2004) estimate that snags greater than 15" in diameter average 0.7 per acre. Currently, this is insufficient to meet the documented needs of several snag-dependent species. [table omitted] Indeed, as can be seen by the above table, several species require snag densities to be grater than 4/acre, some much larger. Although snag diameter requirements for the Sharp-shinned and Cooper's hawks are not reported, it is assumed that, like other wildlife, these snags should be greater than 10" dbh, which is currently required under the Phase I Amendment. As explained, densities of snags greater than 10" dbh are reported to be less than 4 by Lentile et al. (2002). And, although snag densities are based on burned areas in some cases, we assume that estimates of snag densities in the BHNF include recently burned areas. Of more concern, however, are the extremely low densities of large diameter snags, or those greater than 15" dbh. The Lewis's woodpecker and silver-haired bat in particular require high densities of large diameter snags. Currently, snags greater than 15" dbh average 0.7 per acre, while the silver-haired bat requires 8.5 snags per acre greater than 17.32 inches and the Lewis's	*Report (Mineral Analysis File), the project area currently contains an average of 3.57 live trees per acre over 16" DBH and 1.94 live trees per acre over 20" DBH. Within 20 years of implementation of Alternative 2, which would conduct timber harvest on more of the project area than Alternative 3, there would be an average of 4.15 live trees per acre over 16" DBH, and 3.26 per acre over 20" DBH. These data show that the project would meet Forest Plan direction regarding large-diameter trees that could become large-diameter snags.* *Panjabi (2004) states that black-backed woodpecker populations increased significantly in the two years after the 2000 Jasper Fire but have since begun to decline. Black-backed woodpeckers are known to prefer younger burns, so it is not surprising that they would leave older burns for more recent ones.*

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woodpecker requires 24 snags per acre greater than 18.7 inches. While the USFS claims that recent fires have created "extensive" areas of snags, the agency has yet to show what the average diameter of these snags are. If snag diameters are similar to live tree diameters on the BHNF, then it is highly likely that densities of large diameter snags even in burned areas are extremely low and likely below the needs of the black-backed woodpecker, Lewis's woodpecker, and others. Although black-backed woodpeckers have been found in the Jasper burn area, it is interesting to note that populations have been declining significantly in the last two years (Panjabi 2004). Adding to the concern over the inadequacies of existing densities of large diameter snags is the fact that snag recruitment will invariably produce fewer and fewer large diameter snags as the BHNF continues to experience extensive logging and thinning. To address the shortages of large diameter trees, there needs to be sufficient numbers of large diameter trees. Yet, the DEIS discloses that, in total, live trees greater than 15" dbh average only 9.4 per acre across the entire BHNF. Trees greater than 20" average only 1.3 per acre. Although if every tree greater than 15" were to die tomorrow and become snags, some of the problems may be solved, this is not what happens in reality. In reality, mortality is a slow process. As it is, the USFS intensively manages the BHNF and the Mineral timber sale will exacerbate snag habitat deficits. One goal of the Mineral timber sale is to reduce tree mortality, making it even less likely that sufficient large diameter snags will be produced within a reasonable timeframe, both in the project area and across the BHNF. Furthermore, logging invariably targets large diameter trees. Thus, even though there may be sufficient large diameter trees to ensure future creation of enough large diameter snags, logging ultimately removes many of these trees and, in combination with the associated mortality rate reductions, artificially keeps both the numbers of large diameter live trees and large diameter snags depressed (the snags moreso). Ultimately, the timber sale is a recipe for further reductions in already much-reduced large diameter snag densities for decades to come.	
<u>Comment 5-12</u>: **Snag Persistence** Casting the efficacy of any snag retention standards into doubt, however, especially in relation to the retention of large diameter snags, is information that suggests snag persistence is seriously jeopardized when stands of trees are logged or thinned. Indeed, although the USFS claims that snag persistence averages around 15 years, a review of data relies upon by the USFS suggests that this is not uniformly the case. In a statement by Brian Brademeyer,	*The Forest Service has reviewed Lentile et al. (2000). The commentator's bibliography does not list Lentile et al. (2002). The Forest Service is not aware of this publication and assumes it is a typographical error. Lentile et al. (2000) concludes that median snag persistence is 15 years, but that variability exists amoung sites due to differences in stand age and structure. Conclusions of Lentile et al. and Spiering and Knight (2004) are being reviewed at the Forest level as*

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a local resident of the Black Hills and a civil engineer who graduated from the Massachusetts Institute of Technology, found that, based on Lentile et al. (2002), logging and thinning significantly reduce snag longevity. Based on simple math, Brademeyer found that, based on the data in Lentile et al. (2000), snag persistence is negatively correlated with basal area. In other words, snag persistence decreases as basal area decreases. Brademeyer found, for instance, that an existing 100-year old snag could be expected to persist for less than one year (only 7 months) after thinning a stand down to 40 basal area, even without direct damage to the snag through logging. By way of comparison, a 250-year old tree dying in an old-growth stand of 150 basal area could be expected to provide snag habitat for an average of 49.8 years, 4 times as long as a 100-year old tree. Similarly, reducing an existing stand (say 100-year old trees) from 110 basal area to 40 basal area would literally decimate existing snag habitat, reducing the future lives of existing snag from 6 years down to 7 months. The statement of Brian Brademeyer is attached to these comments. Because the USFS assumes uniform snag persistence across the BHNF, the agency is relying on flawed assumptions with regards to the Mineral timber sale. Because the BHNF is so intensively managed, with most of the forest experiencing logging and thinning within the last 20 years, it can be expected that snag persistence has been significantly reduced. This would explain the extremely low snag densities. Furthermore, other factors that affect snag persistence include snag removal for safety reasons, illegal firewood cutting, and inadvertently knocking down snags during timber harvesting operations, making it likely that snag persistence is even lower. Data related to snag longevity in managed stands casts serious doubt as to whether snag retention measures are effective at providing adequate wildlife habitat. Additionally, will safety hazard snags be logged? If so, we request the BHNF consider an alternative that, instead of cutting safety hazard snags, leaves a forested buffer around these snags equal to or greater than the height of the snag. This will address the need to retain existing snags for wildlife, especially in light of widespread snag shortages.	*part of the ongoing Phase 2 Amendment effort for possible inclusion in future program guidance. The Mineral project complies with Phase 1 Amendment direction on snag size and frequency* (EA p. 58). Safety-hazard snags would not be "logged". They would only be cut if they present a safety hazard to workers (EA p. 14 and 58). Any cut snags would be left in place (EA p. 14 and 58). *An alternative that would leave a buffer around potential hazard snags was considered but not analyzed in detail. This alternative would be difficult to analyze because density and potential hazard of existing snags are not known. These factors would have a substantial effect on analysis of effects. For example, if a stand averaged four snags per acre, each 30 feet tall, a buffer equal to snag height around each one would consume 26 percent of the stand. If 74 rather than 100 percent of the stand were harvested, effects and outputs would be substantially different from those disclosed in the EA. A more feasible approach to maintain snags in treated areas is to emphasize snag retention during sale layout and implementation, monitor snag density and the effectiveness of prescribed mitigation, and reserve the option of creating snags.* *Lentile et al. (2000) was used in conjunction with Forest Plan direction to establish snag retention standards for the Mineral project. Snag habitat is evaluated in the EA* (p58) *and the Wildlife Biologist's Specialist Report. Lentile et al. found that "50% of the snags persist longer and 50% less than 15 years…" but qualify the statement with "We need to know how and when certain trees are likely to die, and how long subsequent snags will persist."* *Brademeyer's declaration states that there is a correlation between the basal area of a stand and snag persistence. This information was mathematically extrapolated using data presented in Lentile et al. This correlation may or may not occur, but it is outside of the premise and parameters of the research.*
<u>Comment 5-13</u>: **Soils and Waters** Although the DEA discloses that all streams are meeting their beneficial uses in the timber sale area, we question how much monitoring has actually been done? Furthermore, although the South Dakota Department of Environment and Natural Resources may claim that streams are not impaired, we question to what extent water quality has been monitored within the Mineral timber sale area and to what extent concerns have been	*The South Dakota Department of Environment and Natural Resources (SDDENR) is responsible for administering the Clean Water Act in South Dakota. The 2002 South Dakota 305(b) Water Quality Assessment indicates that existing water quality violations are under the threshold required to list a waterbody as impaired. The effects analysis for soils and water indicates that the project would have no negative effect on water quality, and over the long term would*

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expressed by DENR over watershed health in the Mineral timber sale area. Regardless, the BHNF is obligated under the Clean Water Act to fully comply with water quality standards. Nowhere in the Clean Water Act does it allow federal agencies latitude to violate water quality standards. Thus, we request the BHNF revisit its analysis of impacts to water quality and ensure that all applicable state water quality standards are complied with as a result of the Mineral timber sale. To this end, it is unclear the extent to which the USFS has conducted and/or will conduct baseline stream health surveys within the Mineral timber sale area. According to the USFS's Watershed Conservation Practices Handbook ("WCPH"), FSH 2509.25, and the BHNF LRMP, management actions must be undertaken so that "stream patterns, geometry, and habitats are maintained, or improved toward robust stream health." The WCPH at FSH 2509.25-05 defines stream health as, "The condition of a stream versus reference conditions for the stream type and geology, using metrics such as channel geometry, large woody debris, substrate, bank stability, flow regime, water chemistry, and aquatic biota." To assess stream health, the WCPH further states, "T-WALK (Ohlander 1996) is the minimum regional stream health screening tool; field methods used must be at least as rigorous." In the case of the Mineral timber sale, there is no indication that T-WALK or a method as rigorous has been used to assess stream health and ensure compliance with the WCPH and the BHNF LRMP. There is no indication that the proposed actions will maintain or improve stream patterns, geometry, and habitats toward robust stream health.1 Before any decision to authorize the Mineral timber sale is made, stream health must be assessed in accordance with the WCPH and the BHNF LRMP. The need to assess stream health in accordance with the WCPH and the BHNF LRMP is further required to ensure compliance with Section 404 of the Clean Water Act with regards to the proposed road construction and maintenance. According to Section 404, fill material from forest roads is only exempted from 404 permitting requirements if: [footnote] 1. Robust stream health is defined at FSH 2509.25-05 as: Comparable to the best situations unaltered by humans; habitat supports all regionally-expected species for the water body, including the most intolerant forms, with full array of age and sex classes; trophic structure is balanced; and numbers and biomass of organisms, or productivity, are at least 90% of long-term natural (reference) conditions.	*decrease sediment flows through road decommissioning and closures. The project would not violate the Clean Water Act.* *As indicted in the cumulative effects discussion for soil and water resources in* Section 3.2.2, *of the EA, BMP effectiveness has been demonstrated through monitoring (BHNF FY2002 Monitoring and Evaluation Report). Other literature available in the project record also supports the use of Best Management Practices. Standard 11 in the Watershed Conservation Practices Handbook (FSH 2509.25, section 13.3) requires that cross-drains be spaced "…from no more than 120 feet in highly erodible soils on steep grades, to no more than 1,000 feet in resistant soils on flat grades". On grades of 10-12% on extremely erodible soils, the handbook recommends cross-drain spacing of 150 feet. These figures are specific to the Rocky Mountain Region of the Forest Service and indicate that BMP application can prevent negative effects on soil and water from road construction.* *Section 404 of the Clean Water Act regulates discharge of dredge and fill material into waters of the United States via permits. Silviculture roads are exempt from 404 permits if mandatory BMPs listed at 33 CFR 323.4 are used. The Watershed Conservation Practices (WCP) (FSH 2509.25) standards and design criteria include these mandatory BMPs. The WCP handbook would be used in project implementation* (EA p. 13). *Application of these measures exempts these roads from 404 permit requirements.* *While stream health assessments are not needed to comply with Section 404, the Forest did conduct stream condition assessments using methods appropriate to the stream types in the project area. The EA describes the effects of the proposed activities* (p. 44). *Additional discussion of soil disturbance and cumulative effects on soils has been added to the EA from the Mineral Project Soil and Water Specialist's Report.* *Silvicultural activities, including roads, are exempt from NPDES and stormwater permit requirements per 40 CFR 122.3 and 40 CFR 122.27. The EA* (p. 40) *cites the applicable water quality standards and designated uses in the project area. The courts have ruled that implementation of State-approved BMPs constitutes adequate compliance with the Federal Clean Water Act, unless water quality monitoring reveals that the BMPs have allowed a violation of these water quality standards. Section 313 of the Clean Water Act (33 U.S.C. 1323), however, waives the sovereign immunity*

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such roads are constructed and maintained, in accordance with best management practices, to assure that flow and circulation patterns and chemical and biological characteristics of the navigable waters are not impaired, that the reach of the navigable waters is not reduced, and that any adverse effect on the aquatic environment will be otherwise minimized[.] 33 USC § 1344(f)(1)(E). This statute triggers USFS responsibility to ensure that several important requirements are met before undertaking road construction on National Forest System lands. To begin with, the statute clearly states that road construction and maintenance must be conducted in accordance with best management practices ("BMPs"). However, the statute is further clear that, if the USFS relies on BMPs, the agency must show that such measures assure that the flow, circulation, chemical, and biological characteristics of waters are not impaired. This is critical as recent BMP monitoring undertaken by the timber industry in the BHNF has failed to disclose whether BMPs are adequately protecting the flow, circulation, chemical, and biological characteristics of waters. In fact, the BMP audit undertaken by the South Dakota timber industry fails to reference or identify any efforts to assess the flow, circulation, chemical, or biological characteristics of any monitored streams in relation to assessing BMP effectiveness. This raises serious questions over whether BMPs will ensure adequate protection of watersheds and preclude 404 permitting requirements. However, regardless of the effectiveness of BMPs, Section 404 is clear that forest road construction and maintenance must not impair waters. To ensure compliance with this Section, the USFS must first assess stream health to determine whether or not streams within the Mineral timber sale are impaired. Again, this implicates the need to conduct stream health assessments using the T-WALK method or a more rigorous protocol. If the USFS does not undertake stream health assessments to determine whether or not streams are impaired within the timber sale area, then the agency has no basis to conclude Section 404 permitting is not required, regardless of whether BMPs are implemented. Section 404 further requires that, regardless of BMP implementation, the reach of waters must not be reduced and that any adverse effects to the aquatic environment will be minimized. Thus, the USFS must fully analyze and assess the impacts of the proposed road construction and maintenance to determine the impacts to stream reaches and the aquatic environment. If the USFS's analysis shows that stream reach will be reduced and/or that the aquatic environment will be adversely affected, then the USFS must obtain a Section 404 permit for the proposed road	*of the United States to the state and local requirements related to the abatement of water pollution in the same manner and to the same extent as private entities. The state of South Dakota uses voluntary BMPs to address non-point sources of pollution. The state of South Dakota has accepted the WCP Handbook as meeting its state BMPs. The WCP Handbook will be used in the Mineral project implementation* (EA p. 13). *Contrary to assertions in this comment, there are no federal, state, or local requirements that the Forest Service, or any private entity, conduct water quality sampling to ensure that state BMPs are meeting their own water quality standards.* *The Forest considered the effectiveness of BMPs and mitigation measures that will be applied to the Mineral project* (USDA Forest Service, 2002a). *These practices have been shown to be effective. Stream condition assessments appropriate to the stream types in the area were conducted and effects on water resources disclosed* (EA p. 42-48).

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construction and maintenance. We also question the effectiveness of BMPs. Although the BHNF claims that these measures are effective, we have seen no information or analysis showing that BMP application actually protects water quality in the context of water quality standards and/or adequately protect aquatic habitats. Furthermore, we have seen no information or analysis showing that BMPs protect soils and waters in light of high erosion risk, steep slopes, and in light of cumulative impacts already experienced by watersheds. This is especially of concern since the USFS is proposing road construction and timber harvesting in areas of unstable soil and on steep slopes. There is no indication that BMPs have been shown to be effective on unstable soils or when building roads or timber harvesting on steep slopes. The DEA claims that cumulatively, soil disturbance would remain below 15% of any land unit within the Mineral timber sale area. The DEA fails to provide any information or analysis showing this to be true. We request the USFS disclose how much soil disturbance has occurred within the timber sale already to provide a context for the DEA's cumulative impacts assessment. The DEA also fails to analyze and assess the cumulative impacts of domestic livestock grazing, off-road vehicle use, and other activities that may cumulatively impact soils and waters within the Mineral timber sale area. We request the USFS take a hard look at how livestock grazing and off-road vehicle use have affected and will affect soils and waters within the timber sale area. We request the USFS quantitatively assess existing soil impacts from domestic livestock grazing and off-road vehicle use, as required by recent appeal decisions issued by the Rocky Mountain Regional Forester and Black Hills Forest Supervisor. The BHNF also needs to apply for a stormwater discharge permit for the proposed road construction. A storm water discharge permit is required under the Clean Water Act for any construction project that may disturb more than one acre and that leads to the unnatural runoff of pollutions, such as sediment, into waters of the United States. Given that the proposed road construction and reconstruction calls for the installation of culverts, water bars, and other unnatural features to direct storm water runoff into streams and/or wetlands, a storm water discharge permit (i.e., a National Pollutant Discharge Elimination System (or NPDES) permit) is clearly required. At the least, because proposed road construction is not being undertaken solely for silviculture purposes, silviculture exemptions do not apply and a stormwater discharge permit is necessary.	
Comment 5-13: **Other Concerns** We request the BHNF analyze and assess the impacts of the Mineral timber sale to the northern flying squirrel	*The report cited in this comment describes reasons why the authors (Center for Native Ecosystems, Biodiversity Conservation Alliance, Native Ecosystems Council, and*

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and Bear Lodge meadow jumping mouse. There is much concern over these species because of the loss of old growth and riparian habitats in the BHNF. There is no existing information or analysis showing that current management direction adequately protects these rare species and their habitats. Information on the status of the Bear Lodge meadow jumping mouse and its habitat can be found on our website at http://www.voiceforthewild.org/wildspecies/pubs/Preble s_Conservation_Status_Report.PDF. We request the USFS utilize this information in order to adequately analyze and assess impacts to this species.	*Forest Guardians) believe the Bear Lodge meadow jumping mouse should be listed as an endangered species. Northern flying squirrel and Bear Lodge meadow jumping mouse are not at this time federally listed as threatened or endangered, proposed for federal listing, USFS Region 2 sensitive, or Black Hills National Forest management indicator species. These species are thought to be associated with late-succession/mature forest and riparian meadows, respectively. Effects on other species associated with late-succession and mature forest are discussed on page* 57. E*ffects on riparian meadows are described on page* 43, a*nd effects on other species associated with this habitat are discussed on* page 56. *In all cases, proposed activities are not expected to substantially affect habitat or negatively affect viability of Forest-wide populations. Preferred habitat would not be substantially affected by this project, indicating that concern levels for these species relative to this project are not elevated.*
Comment 5-14: We are also concerned about the BHNF's contentions that road closures effectively mitigate negative environmental impacts associated with roads. According to officials, road closures do not even become effective until a closure order is signed. When does the Forestintend to get closure orders signed for roads? Additionally, most road closure and decommissioning seems to occur only when funding is available. Will funding be available to effectively close and decommission all roads proposed for such actions? Finally, how effective are road closures? We have visited the Black Hills many times and have seen gates torn down and/or destroyed by forest users, have seen people in vehicles and ATVs simply drive around gates, and have generally observed a widespread disregard toward any and all forest road closures. Given this situation, how will the BHNF ensure that a closed road will actually be closed and effectively protect natural resources as it claims in the DEA?	*Implementation of proposed road closures and decommissioning would take place during and after any timber sales associated with this project. Despite the uncertainties of funding, implementation monitoring shows that road closures and decommissioning do take place (USDA Forest Service 2004d). Violations of closures by some members of the public can certainly present management problems. There are, however, many examples of successful closures, and continued monitoring and enforcement have been shown to improve compliance. Closure orders would generally be issued as soon as roads are physically closed and signs placed at boundaries of closed areas.*
Comment 5-15: **Forest Plan Compliance** The USFS must ensure compliance with any and all applicable LRMP Standards and Guidelines before authorizing the Mineral timber sale.	*Forest plan compliance is discussed in the EA on page 3.*
Comment 5-16: **Need for an Environmental Impact Statement** An EIS is required to be completed for all major federal actions that significantly affect the quality of the human environment. See, 40 CFR § 1502.3. As to the question of whether significant impacts will in fact occur and thus require an EIS, it is enough to raise "substantial questions whether a project may have a significant effect" on the environment. See, Blue Mountains Biodiversity Project v. Blackwood, 161 F.3d at 1212 (9th Cir.(Or.)1998), citing Idaho Sporting Congress v.	*Issues of significance will be addressed in the Decision Notice and Finding of No Significant Impact for this project.*

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Thomas, 137 F.3d at 1149 (9th Cir. 1998). An EIS must therefore be prepared if "substantial questions are raised as to whether a project... may cause significant degradation of some human environmental factor." Id. Significance is defined at 40 CFR § 1508.27. In particular, to determine whether a major federal action will significantly impact the environment, the USFS must evaluate the impacts of a proposed action in terms of the "context" and the "intensity" of the impacts. 40 CFR § 1502.27(a) and (b). With regards to intensity, the USFS must fully consider "the degree to which the effects on the quality of the human environment are likely to be highly controversial," and "the degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks." 40 C.F.R. § 1508.27(b)(4) and (b)(5) (emphasis added). The Mineral timber sale is significant in both context and intensity. In terms of context, the timber sale will continue to adversely impact (directly, indirectly, and cumulatively) dense mature and late successional habitat. This habitat is already scarce on the BHNF and as a result, species dependent upon this habitat are suffering. In the context of these declines, the impacts of the timber sale will be significant. The impacts of the timber sale will also be significant in terms of the high level of controversy that exists over the environmental impacts of the proposed actions. There exists a high level of controversy over the impacts of timber harvesting to dense mature and late successional habitat and species dependent upon such habitat, as well as to snags and snag-dependent species of wildlife. Additionally, there exists considerable controversy over the agency's proposed fuels reduction treatments. While the agency claims that treatments are necessary to reduce fire risk, there is no evidence that the USFS can influence fire behavior through silviculture treatments. In fact, the larger fires that have burned on the BHNF in the lastfew years have burned in areas that had been intensively thinned and logged. Furthermore, fire is a natural part of the BHNF ecosystem and provides innumerable benefits to a diversity of species. Stand replacing fires in particular, which are a natural component of the Black Hills ecosystem, are important to sensitive woodpecker species. The impacts of fuels reduction projects on the BHNF are highly controversial and further indicate the need for an EIS. Therefore, we request the USFS prepare a full EIS and initiate the process by publishing a notice of intent to prepare an EIS in the federal register as soon as possible if the agency chooses to move forward with the Mineral timber sale.	

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