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First name: Beth

Last name: Burkhart

Organization:

Title:

Comments: My name is Beth Burkhart and I am a professional botanist living in the Black Hills. I am commenting on the proposed Spruce Vegetation Management Project (SPVM) proposed for Black Hills NF (BKNF). I do not believe SVMP serves the goal of managing BKNF sustainably as a resilient network of plant communities that are the foundation for plants, wildlife, people and all living things in the Black Hills interacting for survival and mutual benefit in the short and long term. SPVM should not be implemented as laid out in the SPVM Scoping.

Discussion below explains further.

After a quarter century of loss to wildfire and mountain pine beetle, and amidst continued unsustainable logging, the U.S. Forest Service is now asking the public for input about multiple projects that will reduce remaining patches of mature forest on BKNF of western South Dakota and northeastern Wyoming. One of those projects is proposed in the SPVM EA. It would harvest 30,000 acres of spruce and spruce-mixed forest on the BKNF.

The SPVM project and other current project proposals overlap two recent massive Forest-wide projects that are still being employed:

the Mountain Pine Beetle Response Project (ROD 2012 - to address dense stands)

and the Black Hills Resilient Landscapes Project (ROD 2018 - to clearcut 185,000 acres of sparse stands and bring the forest into alignment with Forest Plan Habitat Structural Stage Objectives.)

These projects also coincide with numerous current and recent Categorical Exclusions that clear the way for cutting down thousands of acres of mature trees.

This is happening on a National Forest with a long track record of inadequate follow-up treatments and little to no monitoring. In addition, the best science available shows the current rate of logging is unsustainable.

The SPVM proposal prompts me to ask the questions:

Why this? Why now?

Claims made to justify the SPVM project are not supported by fact. In the scoping information, Forest Service presents no evidence of a need to "reduce the number of acres dominated by White spruce (*Picea glauca*)" or that the acreage Forest Service claims to be spruce even exists. Exactly how many acres of spruce-dominated acres are on the forest?

Another important question: Why log spruce now? SPVM proposal doesn't address spruce areas recently affected by natural disturbances. Spruce and mixed spruce has been logged and blown over. Parts of the potential SPVM area have been affected by tornados in recent years. Also, the SPVM proposal proposes logging near previously logged areas, whose recovery status is unknown due a lack of monitoring.

Forest Service does not explain why there is a need to "increase the number of acres of Pine and Aspen forest-wide." It is questionable if aspen even exists in significant quantities in the project area, especially since much has already been "treated" in the BHRL project. Generally, aspen is not created by "seeding." How will BKNF produce aspen in the SPVM project area?

Many of the areas that are part of the SPVM project have just been cut or neighbor areas just cut in the BHRL or PBR projects. Current cuts from the Black Hills Resilient Landscapes project - BHRL (ROD 2018) and thinning from the Mountain Pine Beetle Response project - PBR (ROD 2012) have been primarily clearcuts.

Final monitoring for PBR has not been done. No monitoring has been done for the BHRL project (counter to

promises made by Forest Service in the ROD and Objection Response). Planning and implementing more projects without taking the time to determine impacts of previous ones is a major threat to BKNF's ecosystems health and services.

Cumulatively over the last 30 years, there has been much logging in the area of the proposed SPVM project. Specifically, much spruce and mixed spruce with pine and aspen has already been logged. There is abundant evidence that this has led to the destruction of diversified, moist habitats that supported rich mosses (hydro-buffering agents) and plants including wintergreens (Pyrolaceae), twinflower (*Linnaea borealis*), and grouse whortleberry (*Vaccinium scoparium*).

If BKNF truly wants to create more aspen, there are many opportunities from the BHRL project where commercial timber has already been removed. However, there has been no follow up to ensure removal of conifers. Once the commercial product is gone, young non-commercial spruce will overtake the aspen again.

Forest Service has offered no explanation or evidence of how clearcutting naturally pure spruce or spruce mixed with other species of trees and planting pine trees will make these areas "more resilient." More resilient in what ways? What is the rationale or evidence presented that this project will "increase overall forest resiliency and reduce undesirable fire behavior across the BHNF landscape?"

There is no track record of previous accomplishment to indicate that funding for, or an ability to conduct, the proposed follow-up treatments (thinning of small trees, pile burning and prescribed burning, stocking surveys, or planting) will occur. Weed mitigation isn't even mentioned and will certainly be a problem when native grasses and forbs that are accustomed to shade are killed by proposed "treatments." These things have not been accomplished to a meaningful degree with any recent projects.

At times, Forest Service has expressed difficulty in getting prescribed fires in spruce areas to light and carry fire. The area of the SPVM project area has not been prone to fire. In the proposed SPVM project area, much has already been recently done in the way of Hazardous Fuels Reduction Treatments (2012-2015), Broadcast burning was authorized in BHRL, but not performed. There is not a lot of Wildland Urban Interface in the SPVM proposal area.

Most fires in the Black Hills area are started by humans, so investments should be made in educating humans. Compared to the alleged need for the SPVM project to alleviate fire risk, there is a far greater need to address the 200,000 + acres of small pines already released by recent excessive logging and the mountain pine beetle epidemic. This is just one of the "lost opportunity costs" of an un-needed SPVM project. It is also an indicator of the low likelihood of items other than logging getting done in the SPVM project.

One of my greatest concerns is that some of our most iconic, diverse, and resilient landscapes will be negatively affected by the proposed project. The Black Hills is the westernmost occurrence of white spruce (*Picea glauca*). Black Hills spruce is a variant found only here; unique Black Hills spruce plant communities exist nowhere else on the planet. They, by their nature, hold moisture. Of all plant communities found on the BKNF, these are the most species-rich and hold the greatest number of species proportionate to their area. Spruce communities are found at higher elevations, on north-facing slopes, and in canyon bottoms. The idea that breaking up these areas and replanting them with pines will make them or the larger Forest more resilient is scientifically unfounded and frankly ridiculous.

The SPVM project has great potential to negatively impact important species of plants and wildlife: Lady's slipper orchid (*Cypripedium parviflorum*), Red and Flying squirrels, American marten, Northern goshawk, Black-backed and Three-toed woodpecker, Oreohelix snails and the Northern myotis to name a few. Many species need dense, continuous, and moist forests to survive.

The condition of the Forest has changed markedly since the current Forest Plan was developed and forest cover

on the BKNF has been reduced significantly in the past 20 years including the SPVM project area. Recent Forest Service analysis concluded that 90% of the BKNF has been affected by fire, insects and logging.

BKNF Forest Land and Resource Management Plan Goal 3 states: "Provide for sustained commodity uses in an environmentally acceptable manner." The Forest is currently in violation of the Multiple Use Sustained Yields clause of the National Forest Management Act. Will the SPVM project contribute to ongoing unsustainable logging on the BKNF? This is the case with the past two large landscape-level projects (PBR and BHRL) despite Objections from the public through a local environmental advocacy group, the Norbeck Society.

BKNF must disclose to the public that the SPVM project will potentially contribute to an ongoing depletion trend in forest inventories and, counter to Goal 3 of the Forest Plan, increase the risk of losing more industry infrastructure and consequently render the Forest incapable of "providing sustained commodity uses..."

At the recent Black Hills Area Botany/Ecology Workshop (March 17-18, 2022), Forest Service personnel summarized climate change vulnerability briefs developed recently to support forest plan revision for BKNF. The document "Climate Change Vulnerability Report for Black Hills National Forest" is expected to be released to the public soon. It was reported at the Workshop that the conclusion for white spruce on BKNF is that it is especially vulnerable to drought conditions and wildfire, which will be increasing with modeled climate change impacts. Commercial harvest of spruce in SPVM which dries and thins spruce stands can only contribute to greater negative impacts of climate change on white spruce stands and communities on BKNF.

Regarding CO2 emissions, climate change, and resiliency, contrary to claims made in scoping documents, SPVM will produce substantial negative consequences of wind, drying, CO2 emissions, and susceptibility of the treated areas to fire risk, insect outbreaks, weeds, and loss of adjacent forest to windfall and other cascading damages. SPVM will destabilize ecosystems that are currently the most intact on the forest and will impoverish species diversity and complexity - both known as factors in resiliency. Spruce is doing well here. This variation of white spruce unique to the Black Hills has obviously made adaptations to succeed and all indications are that it is quite resilient. How does SPVM improve on that?

The vast areas of spruce around major headwaters at high elevation and along canyon bottoms, streams and north facing slopes are critical for keeping entire hillsides, springs, and watercourses cool. These forests provide shade, and their complexes of nonvascular plants and rotten logs hold water, and create humidity within the microenvironment. Typical BKNF buffers between bodies of water and clearcuts are likely insufficient and cutting on steep slopes or near springs or creeks would likely inflict warming of waters affecting aquatic life even farther down the water course.

Conclusion:

The fact is that "Forest Health" as has been shaped by the logging industry is incapable of solving the major problems which their operations have given rise to on BKNF: the resiliency problem and the wildfire problem. If the Forest Service is to achieve a truly resilient BKNF, it will have to follow the science in earnest. It is going to take a lot of actions that have not been done in the past or present - especially small tree thinning, prescribed burning and greatly reduced logging.

The logging proposed in SPVM proposal does nothing to further the basic mission of the Forest Service, and indeed, if carried through, will do much damage to so many aspects of BKNF including significant negative impacts to wildlife and plant diversity and habitat, scenic integrity and tourism, recreation, spiritual experience, and even the timber industry.

Overall, BKNF would be better off doing follow-up treatments in already logged areas and conserving the biodiversity of species and complexity of the areas covered by SPVM. Please follow the science and do not proceed with the SPVM. And for goodness sake, please start implementing monitoring, analyzing results and communicating to the public - so as to shape BKNF decisions, as repeatedly promised in the past and never

consistently accomplished at project or Forest-wide scales.