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Forest
Service

Black Hills
National Forest



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Greater Rushmore and Bearlodge Mountains Tornado and Riparian Restoration Project

A Proposal for the Collaborative Forest Landscape Restoration Program



Mount Rushmore seen through the dense tree canopy of the Greater Rushmore Area

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Abstract:

The Greater Rushmore and Bearlodge Mountains Tornado and Riparian Restoration Project is tiered to *A Landscape Restoration Strategy for the Black Hills National Forest – an Island in the Plains* (May 2010) prepared under the Collaborative Forest Landscape Restoration Program. This proposal requests restoration funds (CFLRP) totaling \$711,000 in FY10 and an estimated \$2,000,000 in FY11. The Black Hills National Forest Advisory Board strongly recommended this proposal as an innovative and aggressive step toward restoring natural systems and increasing natural resiliency and cost-effectively addressing a significant mountain pine beetle epidemic and fire hazards within a wildland-urban interface. Restoration includes tree thinning, mechanical fuel treatment, prescribed fire, aspen and meadow rehabilitation, and watershed improvements.

The Black Hills is a disturbance-evolved, fire-adapted ponderosa pine ecosystem that has become overgrown with dense forest stands. Partners include (among others) Mount Rushmore National Memorial and Custer State Park (SD) in the Greater Rushmore Area, and the State of Wyoming in tornado/riparian restoration. The project will maintain up to 480 jobs and will produce nearly 60,000 CCF (30 MMBF) of sawtimber and small diameter material and 11,000 green tons of biomass.



Introduction

The Black Hills National Forest is submitting the Greater Rushmore and Bearlodge Mountains Tornado and Riparian Restoration Project for Collaborative Forest Landscape Restoration Funds. The project is based on *A Landscape Restoration Strategy for the Black Hills National Forest – an Island in the Plains*. This proposal was developed in collaboration with and recommended by the Black Hills National Forest Advisory Board as critical to meeting various resource

management and public service goals. The project has numerous Federal, State and local governmental partners and non-governmental agency supporters, including landowners adjacent to National Forest System lands.

Background

The purpose of the Collaborative Forest Landscape Restoration Program¹ is to encourage the collaborative, science-based ecosystem restoration of priority forest landscapes through a process that encourages ecologic, economic, and social sustainability; leverages local resources; reduces wildfire management costs; and demonstrates ecological restoration techniques and use of forest restoration byproducts.

Resource Setting

The Black Hills National Forest has 1.2 million acres of National Forest System (NFS) lands with 300,000 acres of intermixed private lands. Most of NFS lands are within 3 miles of one of 56 Federal Register listed at-risk communities in the Black Hills (appendix map in Strategy). Some wildfires in the last 10 years have easily covered a three-mile distance in an afternoon burning period.

- The Forest is nearly all even-aged ponderosa pine in a mixed severity fire regime (i.e., frequent low intensity ground fires with occasional moderate severity crown fires that replace old trees with young.)² The fire return interval ranges from 11 to 40 years from south to north.



¹ Public Law 111-11 Omnibus Public Land Management Act of 2009. Title IV—Forest Landscape Restoration

² Black Hills National Forest, 2005. Phase II Amendment 1 Final Environmental Impact Statement, pg. III-340 and 341.

- About $\frac{3}{4}$ of the ponderosa pine forest is rated *high* or *very high* fire hazard and susceptible to high-intensity fire. The Forest is outside the “range of natural variability”, that is, disturbance (fire) has been excluded for so long that natural diversity and other processes have been reduced or eliminated (condition class II or III).
- Watersheds are susceptible to damage from high-intensity storms following high-severity wildfire. Low-intensity fire is a component of watershed health. Generally, historic stream flows may have been more perennial and riparian growth was lusher in the open, “park-like” conditions at the time of the Custer Expedition in 1874.³

Restoration Strategy

A Landscape Restoration Strategy for the Black Hills National Forest – an Island in the Plains was completed in May 2010 (<http://www.fs.usda.gov/blackhills>). It is built upon the objectives of the 2005 Phase II Amendment of the Revised Forest Plan (<http://www.fs.usda.gov/blackhills>). The Forest is characterized by frequent and shifting ecological disturbances across the ponderosa pine and mixed grass vegetation types. There is broad public expectation for property protection, retaining aesthetic and habitat values, and use of forest resources. The 2005 Amendment called for reducing acreage of *high* and *very high* fire and insect hazards, increasing habitat diversity, and facilitating recovery following wildfire.

³ Page III-40, Final Environmental Impact Statement, 1996. Black Hills National Forest, USDA-Forest Service.

1. Proposed Treatment

This project has two parts ready to begin in FY10: 1) Greater Rushmore, and 2) Bearlodge Mountains Tornado and Riparian Restoration. Treatments are on National Forest System lands. Other management agencies or owners are partners in coordination of treatments. The project does not affect private lands unless otherwise noted.

Part 1 - Greater Rushmore

Greater Rushmore encompasses 119,710 acres shown on Map 1 in the map packet. Hundreds of private homes, past wildfires, and overgrown forest, and a mountain pine beetle infestation are prominent in a geographic area rich with national landmarks. This project seeks to reduce fuels, restore natural processes, protect private property and other public lands and improve wildlife habitat. Landownership includes:

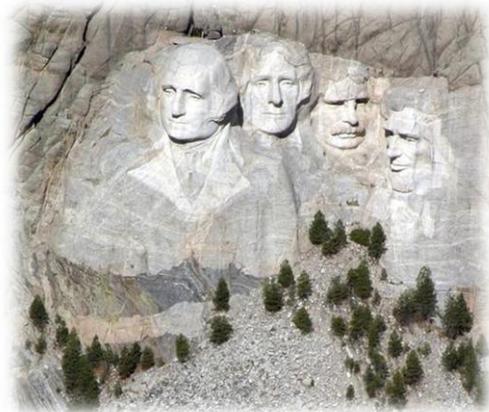
National Forest System lands	
Black Elk Wilderness	13,543
Norbeck Wildlife Preserve	12,100
Other NFS lands	<u>49,585</u>
NFS subtotal	75,228
Mount Rushmore National Memorial	1,269
Custer State Park	23,058
Private land	<u>20,155</u>
Project area total (acres)	119,710

The private land is very intermixed as shown on Map 1 – Greater Rushmore Area, or Map 3 - Wildland-Urban Interface, Greater Rushmore Area (see map packet).

The area includes these prominent landmarks:

Mount Rushmore National Memorial.

Located within the Black Hills National Forest, this “*Shrine of Democracy*” is visited by 3 million people annually and features the mountain sculpture of four presidents, museum, visitor facilities, and a rare remnant of old growth ponderosa pine. Administered by the National Park Service, the Monument is aggressively working to control a mountain pine beetle outbreak in cooperation with the Forest Service and others.⁴



⁴ <http://www.nps.gov/moru/parknews/action-plan-to-manage-pine-beetle.htm>

Custer State Park. At 71,000 acres, one of the largest state parks in the U.S., features unique granitic spires, lakes, abundant wildlife, and hosts 1.6 to 1.8 million visitors annually. The Park has treated nearly 3,700 acres, spending \$445,000 over the last 2 to 3 years to reduce bark beetle populations and fuel loads. The project included helicopter removal of timber and fuels from steep slopes.



Black Elk Wilderness.

Named after the renowned Lakota spiritual leader, this 13,500-acre wilderness area has 100,000 visitors annually, features an historic CCC lookout and old ponderosa pine, spruce and aspen. While wilderness values are featured, the public is concerned with the loss of forests caused by a mountain pine beetle epidemic.



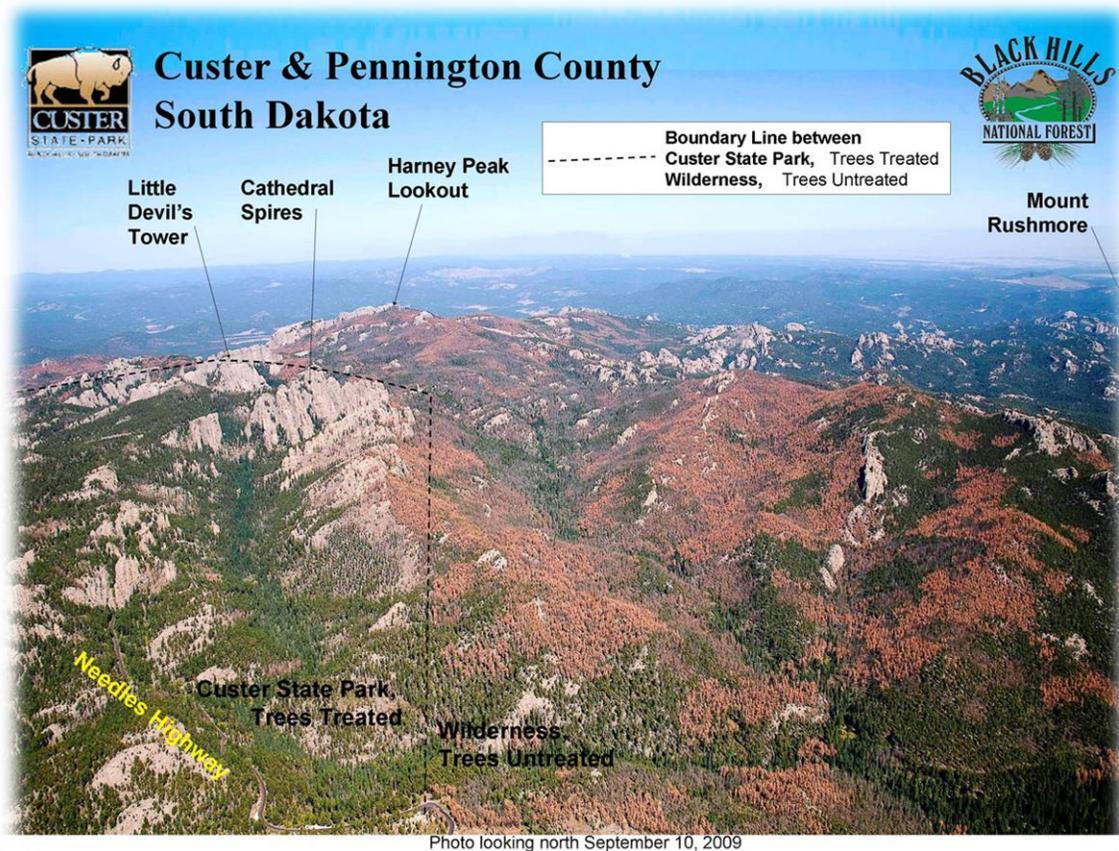
Crazy Horse Memorial. A mountain carving of the famous Lakota leader draws 1 million visitors to experience history of Lakota and Native American culture. The privately-owned memorial is a certified Tree Farm® under a forest stewardship plan to reduce fire and insect hazards while maintaining impressive vistas of the mountain.



Norbeck Wildlife Preserve and National Scenic Byway. Named after former governor and U.S. Senator Peter Norbeck, this special area is congressionally mandated to be managed for “game animals and birds, and breeding places...” These habitat values are threatened by an overgrown forest, lack of natural fire, and a bark beetle epidemic. The scenic byway encircling much of the Preserve features impressive vistas and

intimate settings among granite spires that host hundreds of climbers on nationally known climbing routes in the Harney Range.⁵

⁵ (http://fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5143485.pdf)



Project planning is completed for projects within the Greater Rushmore area as follows:

1. Mitchell Project Area EIS (Healthy Forest Restoration Act), completed 9/25/2007.
2. Norbeck Project EIS, completed March 27, 2010
(<http://www.fs.usda.gov/blackhills>).
3. Willow Creek Horse Camp Categorical Exclusion (1/28/2009)
4. Goat Timber Sale Environmental Analysis (complete)
5. Tenderfoot Bugs Categorical Exclusion (2009; bark beetle sanitation treatment)

Restoration Goals

The restoration goal is to: 1) allow for natural processes in the wilderness, 2) improve habitat for game animals and birds within the Norbeck Wildlife Preserve, 3) improve the fire regime/condition class (FRCC) from FRCC 3 to 1, and 4) improve water quality and watershed function.

Treatment Objectives

1. Reduce *high* and *very high* fire and insect hazards throughout the area, but particularly reduce fuels and protect private property per the Pennington and Custer County community wildfire protection plans
(<http://www.fs.usda.gov/blackhills>).
2. Conduct treatments within wilderness as needed to reduce risk of fire and insects to nearby private property and to values within the wilderness.

3. Protect water quality within the Willow, Spring, Lost Cabin, Grizzly Bear, and Battle Creek drainages.
4. Improve habitat for game animals and birds within the Norbeck Wildlife Preserve.

Restoration Treatment Type

The following treatments will be used across the project area as determined by the specific project-level decision. Treatments will be completed with a combination of timber sales, stewardship contracts, service contracts, force-account, cooperative agreements with the States, the Youth Natural Resources Program, and volunteers. Some treatments have started, several will in FY10 and early FY11, and the remainder will be completed over 5 to 7 years.

- Timber sales including commercial thinning will open tree crowns and provide variety in stand size, shape, crown closure, age structure and interspersed...and provide for structural stage diversity in a variety of sizes and shapes.⁶ Ponderosa pine will appear more natural in clumps and sizes of trees with interspersed openings. Average tree size will increase through "low" thinning. Trees will be more resistant to beetle attack and less likely to carry crown fire. Sanitation harvest will remove beetle infested trees when feasible and appropriate before their flight in mid-to late summer.
- "Meadow encroachment will remove ponderosa pine trees that have spread into natural meadows.
- Hardwood enhancement treatment will remove most ponderosa pine from aspen stands thereby encouraging aspen regeneration, growth and expansion towards a goal to double aspen acreage.
- Prescribed burning with surface fire and occasional torching will make crown openings, diversify crown structure, reduce ladder and surface fuels, stimulate forb and shrub growth, and improve species richness.
- Mechanical fuel reduction will be done in the wildland-urban interface areas (see Map 3 in map packet) adjacent to private land (generally 200 feet slash-free) and along roads and ingress/egress routes. Treatment includes removing "ladder" fuels that would enable a fire to spread upwards into the tree crowns.
- Noxious weed treatment will occur in project areas, particularly adjacent to non-NFS lands and plant species of concern locations.
- Realign trail and replace or install crossing structures on various creeks within and adjacent to Black Elk Wilderness to resolve long-standing drainage and trail erosion and sedimentation problems.



Restoration Status

1. Contracts have been awarded for all of the pre-commercial thinning and about half of the fuel chipping in the Norbeck Scenic Byway project. CFLRP funds are requested for the remainder of the chipping.

⁶ Forest plan direction for predominant management areas.

2. Timber sales that thinned ponderosa pine have been completed in the Goat Timber Sale. CFLRP Funds are requested for subsequent non-commercial thinning to complete the fuels reduction and insect treatment objectives.
3. The Tenderfoot Bug Timber Sale to sanitize and thin pine is progressing.
4. Part of the trail and bridge restoration project has been awarded and the remainder is awaiting CFLRP funds.
5. Mount Rushmore National Memorial funding is imminent for fuel and beetle treatments adjacent to NFS lands, including Black Elk Wilderness.

Part 2 - Bearlodge Mountains Tornado and Riparian Restoration

This project, shown on Map 7 in the map packet, encompasses 12,995 acres (11,929 acres NFS and 1,066 acres of private land), will restore approximately 4,000 acres damaged in a tornado in July 2009, restore and protect riparian areas, and remove biomass. Much of the timber salvage and fuel treatment has been done. The project environmental analysis was completed for the Dean Project Area, FEIS 5/3/2006 as modified by a tornado damage supplemental information report July 2009.

Restoration Treatment Summary Greater Rushmore and Bearlodge Mountains	Estimated Forest Service Cost	Estimated Acres (NFS lands only)
Timber sales	\$1,151,480	11,454
Hardwood enhancement	\$1,024,000	2,048
Meadow enhancement	\$175,800	1,172
Thinning	\$2,919,360	7,798
Prescribed fire	\$1,552,000	6,208
Mechanical fuel treatment	\$403,000	510
Noxious weeds	\$1,099,300	6,175
Watershed improvement (Spring/Battle Ck Trail)	\$312,000	300
Riparian enhancement	\$620,000	20
Monitoring (proportion of Forest)	\$23,000	0
TOTAL	\$9,128,940	35,665

Restoration treatment within Mount Rushmore National Memorial and adjacent private lands through State of South Dakota supported management plans are critical to meeting restoration goals for fire-adapted ecosystems and addressing the bark beetle epidemic.

Monitoring

Success will be measured using existing target reporting systems, the vegetation and FACTS databases, and photographic records as presented internally, to cooperators, and the National Forest Advisory Board. Monitoring these projects will be done several ways:

- a. The National Forest Advisory Board will participate on field reviews and annual review of Forest-wide monitoring results of approximately 20 key items.
- b. SD and WY Best Management Practices multi-party monitoring program completed via Federal and State funds. The NFAB will be invited to participate as appropriate and the results will be reported at a regular meeting.
- c. Interdisciplinary monitoring will be done by resource specialists on a project level.

2. Ecological Context

Current Vegetation

The majority (95%) of the Greater Rushmore and Bearlodge project area has a ponderosa pine cover type. Other cover types include: meadow/grass (1%), hardwoods (2%), white spruce (<1%), shrubs (<1%), and non-vegetated areas (<1%) which are large granite rock outcrops, limestone plateau, and lakes. Riparian vegetation areas also occur, but as inclusions within other cover types. Each of these cover types and structures provide habitat for a wide array of wildlife species.

Restored Vegetation

Restored vegetation will have more aspen, birch, spruce, shrubs and forbs and less ponderosa pine cover. Ponderosa pine trees will be generally larger, and in clumps and groups, with interspersed openings. Understory trees will be present, thinned out and will occur in occasional clumps, yet will not be significantly susceptible to fire laddering to the canopy. The bark beetle epidemic in the Rushmore area is creating openings. Timber harvest will ideally thin the trees prior to attack thus saving the largest pines for their habitat value. Herbaceous vegetation will provide increased opportunities for traditional medicinal and food plant gathering.

In the Bearlodge tornado area, any remaining damaged trees will be removed, fuels will be piled or lopped and scattered, and weeds will be treated. Riparian features and springs will be protected by reconstructed fencing. Aspen will sprout in the newly created openings.



Ecological Adaptation

Silvicultural practices will generally open up ponderosa pine stands, improving their vigor and resistance to beetle attack and crown-killing wildfire. Stand conditions will move away from condition class II towards natural disturbance processes and cycles characteristic of condition class I or II. In such conditions, prescribed fire can be readily used as a frequent tool to meet management objectives.

Fish and Wildlife Habitat

There are no threatened or endangered fish or wildlife species in the Black Hills National Forest.

This restoration proposal will improve habitat for fish and other aquatic organisms by reducing the risk of catastrophic wildfire and the potential for excessive nutrient and sediment loads into streams and lakes. Excessive sediment input into Lakota Lake and Horsethief Lake would reduce the recreational fishing value at these sites and negate the aquatic habitat benefits derived from dredging these two impoundments, which is

anticipated to occur in FY2011 through 2013. Proposed riparian and hardwood restoration treatments will increase stream shading and improve aquatic ecosystems, with subsequent benefits to the fisheries.

This proposal will improve habitat for wildlife by reducing its susceptibility to wildfire and insect attacks. Commercial timber sales, stewardship contracts, pre-commercial thinning, and mechanical fuels reduction will improve understory forage for deer and elk by opening the canopy. If these activities remove small-diameter, noncommercial trees while retaining large-diameter trees, this will improve habitat for species that use large trees and large snags, such as raptors, brown creepers, and pygmy nuthatches. Activities that promote a natural disturbance pattern with irregular patch size, patch shape and tree spacing will create a mosaic of dense and open habitat of varying tree sizes that provide the diversity of habitats needed by wildlife species that occur in the Black Hills.



Prescribed fire can release nutrients into the soil, which in turn, leads to increased plant growth and vigor, promoting more vegetation sprouts, flowers, seeds and insects. This can attract herbivores such as deer and elk, insectivorous birds, and nectar-seeking animals such as bees, butterflies, and hummingbirds. A recently burned area may become a valuable food source for predators as their prey become temporarily vulnerable. Prescribed fire can kill pine that is encroaching into meadows, making more forage available to herbivores. Prescribed fire can also create standing dead trees that provide food for woodpeckers in the form of insects, and more downed wood as the trees fall. If prescribed fire mimics natural fire on the landscape, it can create a complex mosaic of burned and unburned habitat. This mosaic is likely important in maintaining the diversity of wildlife species that occur on the Black Hills.

Riparian and spring protection activities will improve habitat for most wildlife species because almost all wildlife uses riparian areas and streams to some degree. Species that

are closely tied to riparian habitat, such as song sparrows (Forest MIS), amphibians, and small mammals will benefit the most from riparian and spring protection activities.

Meadow restoration will improve habitat for many species that use meadows and grassland areas such as elk, deer, turkeys, and small mammals. Pine continues to encroach into these areas in the absence of fire. The shrubs and forbs stimulated by forest openings and burning will be beneficial for traditional and cultural foods and medicinal gathering.

Water Quality and Watershed Function

Project treatments will be carried out using forestry best management practices for the states of South Dakota and Wyoming, and provisions in the Watershed Conservation Practices Handbook, FSH2509.25. Regular audits determined Forest Service projects are in compliance except for several minor insignificant departures.

Invasive and Exotic Species

Generally, vegetation and fuels treatment will increase the occurrence of invasive, noxious weeds. This situation is addressed by pretreatment identification of problem areas and/or post-harvest herbicide or bio-control of invading weeds. Funding will be critical to remedy this effect of conducting restoration thinning and burning.

Insect and Disease Concerns

A Forest Health Evaluation of Mountain Pine Beetle Activity within the Norbeck area was completed in May of 2008. The report concluded that very high levels of pine-beetle-caused tree mortality were occurring within the project area, mainly in the western portion, and as a result, significant changes were occurring on the landscape. In addition, based on susceptible stand conditions and high beetle populations in this area, the current mountain pine beetle outbreak has the potential to continue to expand for several years. Planned treatment includes commercial timber sales to reduce tree basal area to approximately 80 square feet to increase tree vigor and reduce stand susceptibility to beetle attack. Given the existing outbreak, any treatments should be implemented as soon as possible.

3. Collaboration

Partners collaborating on this project include the National Forest Advisory Board, National Park Service, Custer State Park, South Dakota Departments of Agriculture, State of Wyoming, Norbeck Society, Black Hills Forest Resource Association, the Norbeck Society and others. The National Wild Turkey Federation and the Rocky Mountain Elk Foundation are interested and very active partners.



The CFLRP was considered by the Black Hills National Forest Advisory Board (NFAB) on March 7, 2010. A subcommittee of the Board developed a recommendation that the full Board approved on April 21, 2010.

Phase II Amendment to the 1997 Revised Forest Plan, the backbone of the Black Hill's restoration strategy, had significant collaboration in its development including:

- Seven counties in South Dakota and Wyoming -
- Tribal consultation ongoing with 12 tribes including the Lakota (Sioux), Cheyenne, Shoshoni, Crow, and others.
- Cooperators - South Dakota Department of Agriculture and the Division of Game, Fish & Parks and the Wyoming Departments of Game & Fish and Natural Resources.

How does the collaborative group function and represent stakeholders?

The NFAB is a 16-member Secretary-level Board that meets monthly, holds its own public meetings on occasion, and designates subcommittees on specific issues. It works with the Forest and the public to seek collaborative solutions and build public confidence in Forest planning and project implementation. The following interests are represented:

- South Dakota state-elected office or officer's appointee
- Wyoming state-elected office or officer's appointee
- South Dakota or Wyoming county or local elected office
- Tribal government-elected or appointed office
- South Dakota State natural resource agency official
- Wyoming State natural resource agency official

How long has the collaborative group been working?

- The Board has been actively engaged since April 2003 through both the Phase II amendment to the 1997 Forest Plan and the April 2010 decision on the Forest-wide travel plan.
- Our relationship with the States of South Dakota and Wyoming, from the Governor's offices to the agency specialists, are cordial and productive.
- We have annual formal consultation with tribes and more frequent meetings with groups such as the Black Hills Treaty Council meeting in May.

What has the collaborative group accomplished that would help achieve the landscape restoration goal and objectives?

- It made recommendations related to fire and insects and successful strategies that are included in the final Record of Decision and FEIS of the Phase II Amendment.
- It served as the biomass subcommittee for options and potential markets and uses.
- It was consulted on interagency habitat, insect and fuels strategies in the Greater Rushmore Area in the Norbeck Wildlife Preserve.

How will collaboration be used in multiparty monitoring?

- Annual monitoring reports of more than 16 critical items will include agency and cooperator review and Advisory Board review and recommendations.
- Direct involvement of the Advisory Board, interested agencies, and the public in inventory, monitoring, and evaluation related to project implementation, including the Greater Rushmore and Bearlodge Mountains projects.
- Forestry Best Management Practices - Multi-party monitoring every two years with the State of South Dakota Department of Environment and Natural Resources, and in alternate years with the State of Wyoming Forestry Division.



Congresswoman Stephanie Herseth Sandlin describes her efforts to address bark beetles with Forest Supervisor Craig Bobzien (left) and Superintendent Gerard Baker (right). Photo: Frank Carroll

4. Wildfire

Fire has played a significant role in the ecology of the Black Hills.⁷ Dendrochronology studies show mean fire-return intervals ranging from 10 to 30 years. If fires had been allowed to burn instead of pursuing an aggressive fire suppression program over the last 75 to 120 years, significantly more acres would have burned at a more frequent interval and a lower intensity. Today's conditions favor wildfires of increased fire intensity. Treatments within the Greater Rushmore Area would reduce stand density and canopy closure bringing the forest back to a more historical open-grown condition. Fire behavior characteristics would be mixed severity as opposed to those areas not treated which would experience more high severity to stand replacement fire behavior. The chances for successful initial attack would increase and the potential damage to identified values at risk would decrease. In addition, FRCC will improve from CC3 to CC1, in which the threat of losing key ecosystem components in a severe wildfire is minimal. Projects on adjacent lands combined with the treatments proposed in this area would decrease the hazardous fuels much more efficiently for longer periods of time, thus allowing more opportunity for a natural fire regime to occur and be sustained.



Very few of the natural fuel breaks and past harvest units within the project area are large enough to moderate a rapidly spreading high-intensity fire. Therefore, it is likely that a large-scale high-intensity fire is more probable if no additional treatments are implemented. A fire start in the Greater Rushmore Area (under the right conditions) would not only threaten, damage or destroy improvements in the immediate area, but also

⁷ Shepperd, W.D. and M. Battaglia, 2002. Ecology, Silviculture and Management of Black Hills Ponderosa Pine. Rocky Mtn. Res. Sta. GTR-97, pg. 36-41. Fort Collins, CO.

has the potential to burn into or affect communities such as Keystone, Hill City, Custer, and Hayward within one burning period (12 hours).

Wildfire has burned 186,000 acres in the Black Hills in the last decade, the largest being the Jasper Fire that consumed 83,000 acres in 4 days. The explosive fire runs made in the largest fires consumed private homes and structures and caused the evacuation of Deadwood, SD, a significant tourist destination. Emergency suppression costs in the 6 hottest fire seasons averaged about \$6 million annually. It is estimated that proper restoration treatments will reduce that amount by an estimated \$3 million annually, by creating a fuel profile and fuel breaks conducive to ground fire. A large-scale, high-intensity wildfire in the Greater Rushmore Area puts many more structures and significant national landmarks at great risk (see WUI Map 3). Other important values at risk include: firefighter and public health and safety, national monuments, fish and wildlife habitat, soil productivity, clean air, and functional fire-adapted ecosystems. Some of these values, including area resorts, are also threatened by the secondary effects, such as landslides, soil erosion, and the spread of exotic species. Due to the projected high level of surface fuel loading (40-60 tons/acre) as a result of the current mountain pine beetle outbreaks, these fires could be quite severe.

The treatments in this project would meet Forest Plan Goal 10 for establishing and maintaining a mosaic of vegetative conditions to reduce occurrences of catastrophic fire, insect, and disease events, and facilitate insect and disease management and firefighting capabilities. In addition, Standard 4103, utilizing prescribed fire to achieve management objectives, would be met. In addition, standard 1.1A-4101 would be met by managing fire and fuels to promote the fire regime ecosystem within the Black Elk Wilderness. The Greater Rushmore Area encompasses two community wildfire protection plans: Custer County CWPP and Pennington County CWPP (see Map 3 in map packet). In addition to Forest-wide goals and standards, design considerations of both plans were fully incorporated into all design elements within the project area.

The majority of the benefits from this project would be long term. They are difficult to value in terms of dollars. Substantial non-monetary benefits include: increased firefighter and public health and safety, reduced risk of fire on critical infrastructure, critical fish and wildlife habitat, soil productivity, clean air, and functional fire-adapted ecosystems.



5. Utilization

These projects will produce 48,000 ccf of sawtimber that will be shipped to large sawmills in Hill City or Spearfish (SD), or Hulet (WY) or several other smaller sawmills. Byproducts from those mills are used for heating pellets (Spearfish Forest Products), are hauled to Dakota Panel (OSB/particle board) in Rapid City, or are shipped via train to Longview, WA for pulp.

These projects will also produce 11,800 ccf of small-diameter material (products-other-than-logs; POL) available for a growing post/pole market in the Black Hills. The estimated value of sawtimber and POL for this project using a decade average stumpage value (since 2009 and 2010 are not representative years) is \$5 million.

An estimated 190,000 green tons of biomass is produced annually from timber sales on the Black Hills National Forest. Most of this biomass is burned on-site in the winter. The Greater Rushmore and Bearlodge projects will produce an estimated 11,000 green tons of biomass (top wood or slash) that is yarded to the landing. A small amount is anticipated to be used by the above facilities. However, given current lack of market, it will cost an estimated \$70,000 to dispose and rehabilitate these piles on the Greater Rushmore area⁸.

Various proposals have and are being considered in the Black Hills including: 1) a pilot ethanol plant currently operating in Upton, WY, 2) a cogeneration facility in Hill City and/or Spearfish, SD, 3) on-site steam heating at the State Veteran's Home in Hot Springs, SD, and 4) additional on-site heating proposals and pellet manufacturing facilities. Off-site disposal would save an estimated \$570,000/year⁹ that are currently deposited by timber purchasers to be utilized by the Forest Service for pile burning and rehabilitation. Purchasers prefer to use the material to recoup these costs, but marketing options are very limited to nonexistent. One of the most significant actions to be done in a restoration program on the Black Hills would be mechanical removal of an estimated 1,600 piles annually. Producers would reduce their costs and the environmental effects of pile burning and rehabilitation would be considerably reduced.



Forest products are an important commodity in the area (Photo: Karen Wattenmaker)

⁸ Annual brush disposal (BD) expenditures are approximately \$250,000. This project is about 26% of the total annual sawtimber program. $\$250,000 \times 26\% = \text{approx. } \$70,000$.

⁹ Annual brush disposal deposits (collections) between 1999 and 2009 ranged from \$538,510 to \$695,253.

6. Investments

Federal investments within the landscape:

Forest Service	\$9,128,940
National Park Service	\$1,600,000

Non-Federal investments anticipated within the landscape:

Custer State Park	\$445,500
SD Department of Agriculture (fire and forestry)	\$355,000
Private landowners	\$ 61,000

State of South Dakota supported 18 private landowners in treating 388 acres in the wildland-urban interface under management plans prepared or guided by foresters or fuel managers with the State of South Dakota. Another 7 landowners spent \$61,000 to treat an additional 153 acres.

Non-federal investments outside of the landscape that may affect the successful restoration of the landscape:

Non-federal investments could include additional thinning and fuel reduction on private lands, although none is defined at this time.

Infrastructure improvements are likely to be made in small-diameter post-pole production facilities. Significant investment in biomass processing (steam heating, wood pellets, cogeneration and/or ethanol) is being considered and is anticipated, but federal policy, market and economic issues are being evaluated before significant additional private investment occurs.

Restoration capacity is anticipated to increase by continued investment in field production capacity (woods to mill), energy or product infrastructure, and emerging technologies (ecological and economic).

Restoration unit costs are likely to decrease with development of biomass facilities or markets that reduce pile disposal and rehabilitation cost, and also continued investment in improved woods processing capability.

Employment and jobs retained by the Greater Rushmore/Bearlodge project are estimated between 325 and 480 (direct and indirect) jobs, at a rate of 11 to 16 jobs per million board feet of sawtimber production. An estimated 62 direct and indirect jobs could be created by the emerging small-diameter market.¹⁰ The jobs maintained or created are typically full-time year-round and permanent, some with employment benefits. Even during recent lumber market declines, local producers have retained most employees reflecting interest and dedication to their workforce.

¹⁰ 11,800 ccf (5.6 mbf) @11 jobs/mbf = 62 jobs.

Total forest industry employment in the Black Hills is approximately 1,500 jobs. Given our “island in the plains” setting, all forest industry jobs are interconnected, and the volume from the Greater Rushmore project will help to sustain the entire forest industry employment in the Black Hills. Job losses from reductions in volume in one project are more likely to be stair stepped down in big chunks with closure of a mill(s) or reduction of a shift instead of a smooth line



Loading a log truck (Photo: Karen Wattenmaker)

Employment or training opportunities is provided for these jobs. Local producers provide training under the Central Rockies Sustainable Forestry Education Program. Training has been provided to workers employed or contracted in emerging small-diameter timber markets.

Youth employment and training (15-20 enrollees) is provided through the Youth Natural Resources Program (Youth Conservation Corp authority) in cooperation with the National Park Service (Devil's Tower and Mt. Rushmore National Memorials), Boxelder Job Corps, and the Standing Rock, Cheyenne River, Yankton and Oglala Sioux Tribes.

Small businesses - All contractors or wood-processing facilities in the Black Hills are qualified small businesses under various authorities within the Small Business Administration. Several are women or minority (8a) owned. It is anticipated these trends will continue.

7. Funding Estimate

Fiscal Year 2010

Funding Need for Ecological Restoration Treatments and Monitoring – Collaborative Forest Landscape Restoration Fund	
Fiscal Year 2010 Fund Type	Dollars/Value Planned
FY 2010 Funding for Implementation	\$2,014,000
FY 2010 Funding for Monitoring	23,000
1. USFS Appropriated Funds	2,037,000
2. USFS Permanent & Trust Funds	145,000
3. Partnership Funds (co-op fire agreements)	60,000
4. Partnership In-Kind Services Value (co-op fire agreements)	50,000
5. Estimated Forest Product Value	(sell in FY11) \$720,000
6. Other (specify)	0
FY 2010 Total (total of 1-6 above for matching CFLRP request)	\$2,292,000
FY 2010 CFLRP request (Forest is capable of obligating funding in FY10)	\$711,000*
Funding off NFS lands associated with proposal in FY 2010 (does not count toward funding match from the Collaborative Forested Landscape Restoration Fund)	
Fiscal Year 2010 Funding Type	Dollars Planned
USDI BLM Funds	NA
USDI National Park Service Funds	\$1,600,000
Other Public Funding State of SD (WFS and RC&F) and State of WY (forestry and corrections)	\$800,500
Private Funding	\$61,000

*Includes: Goat fuels/TSI \$198,000; Scenic Byway chipping \$373,000; Mitchell Px burning \$60,000; tornado biomass/riparian \$30,000; Spring/Battle Ck watershed \$50,000.



Small-diameter logs feed an emerging post and pole market (Photo: Karen Wattenmaker)

Fiscal Year 2011

Funding Need for Ecological Restoration Treatments and Monitoring – Collaborative Forest Landscape Restoration Fund	
Fiscal Year 2011 Fund Type	Dollars/Value Planned
FY 2011 Funding for Implementation	\$2,542,000
FY 2011 Funding for Monitoring	30,000
1. USFS Appropriated Funds	2,572,000
2. USFS Permanent & Trust Funds	(collections not available)
3. Partnership Funds	50,000
4. Partnership In-Kind Services Value	50,000
5. Estimated Forest Product Value (Mitchell and Roosevelt IRSCs)	\$1,000,000
6. Other (specify)	0
FY 2011 Total (total of 1-6 above for matching CFLRP request)	\$3,672,000
FY 2011 CFLRP request (IRSC preparation and award and service work)	\$2,000,000
Funding off NFS lands associated with proposal in FY 2011 (does not count toward funding match from the Collaborative Forested Landscape Restoration Fund)	
Fiscal Year 2011 Funding Type	Dollars Planned
USDI BLM Funds	NA
USDI National Park Service Funds (thinning, slash removal, hardwood planning and protection)	\$450,000
Other Public Funding State of SD (WFS and RC&F) and State of WY (forestry and corrections)	\$300,000
Private Funding	Not Available

8. Funding Plan

The Black Hills National Forest, with Regional Forester support, gets regular appropriations for this type of forest restoration work. The Forest is committed to use regular appropriated funds, trust funds, and others for the matching requirements under CFLRP for implementation and monitoring of restoration treatments on NFS lands. These regular appropriations, or Trusts/Perms, will be specifically allocated to match CFLR Funds approved for the project for expenditure in FY2010 and 2011 (the year allocated). The Regional Forester and Forest Supervisor will commit sufficient funding to assure multiparty monitoring of ecologic, social and economic effects for at least 15 years after project implementation.

9. USDI Funding

No USDI funding is specifically proposed for inclusion in this project. The National Park Service is undertaking fuel and insect treatments in the Mount Rushmore National

Memorial in FY10 and 11 under separate USDI funds. NPS treatment coincides with CFLRP treatments on adjacent NFS lands.

10. State of South Dakota and Wyoming Funding and USDA “All Lands” Approach

The State of South Dakota in Custer State Park with cooperation with divisions of Resource Conservation and Forestry and Wildland Fire Suppression have invested \$445,500 in treating a mountain pine beetle infestation and resultant fuel loading on 3,765 acres. Such treatments are continuing in federal FY10 and likely into FY11.

The State of Wyoming through the Division of Forestry and Department of Corrections partner with the Forest Service in doing important natural resources work, including fire, tornado recovery and riparian restoration. Wyoming’s Honor Program provides in-kind labor support.

The States and Forest Service continue to seek funding for these projects under various federal and state budget authorities and appropriations. The Regional Forester has committed various funds in past FYs to the State of South Dakota and State of Wyoming for wildland fire and fuel treatment assistance.

USDA Secretary Vilsack promotes an “All Lands” approach to natural resources management. Funding presented here reflects Congressional intent that limits CFLRP funds to Federal lands. Future projects have potential under various Federal appropriations for application to all lands consistent with Congressional requirements.

11. Maps

Maps 1-7 are provided in the map packet. They include:

Map 1 - Greater Rushmore Area and Vicinity Map

Map 2 – Mountain Pine Beetle Infestation Areas in Greater Rushmore Area

Map 3 – Wildland-urban Interface in Greater Rushmore Area

Map 4 – Map 3 of Norbeck Wildlife Project Map – Habitat Objectives

Map 5 – Map 2 of Mitchell Project Area – Selected Action

Map 6 – DN MAP 4 of Goat Project Area

Map 7 – Bearlodge Mountains Tornado and Riparian Restoration Area

12. Landscape Strategy

A Landscape Restoration Strategy for the Black Hills National Forest – an Island in the Plains was completed May 2010 and is available on <http://www.fs.usda.gov/blackhills>.



*Bug Town Gulch in foreground, Vestal project in background – Greater Rushmore Area
(Photo: Beth Steinhauer)*

14. Supporting Documentation

The following documents or letters received to date are included regarding public interest in the specific proposal or recent land management issues:

1. Black Hills Forest Resource Association, May 5, 2010
2. Custer County , May 3, 2010
3. Norbeck Society
4. Pennington County Fire Administrator, May 6, 2010
5. Captain Terry Mayes, South Dakota Highway Patrol (retired), April 22, 2010
6. Rapid City Chamber of Commerce, May 7, 2010
7. State of South Dakota Legislative Assembly, 2010. House Concurrent Resolution No. 1006.

Map Packet

for

Greater Rushmore and Bearlodge Mountains Tornado and Riparian Restoration Project Proposal

Map 1 - Greater Rushmore Area and Vicinity Map

Map 2 – Mountain Pine Beetle Infestation Areas in Greater Rushmore Area

Map 3 – Wildland-urban Interface in Greater Rushmore Area

Map 4 – Map 3 of Norbeck Wildlife Project – Record of Decision, Habitat Objectives

Map 5 – Mitchell Project Area Selected Action (Map 2)

Map 6 – Goat Timber Sale Treatment Area Map

Map 7 – Bearlodge Mountains Tornado and Riparian Restoration Area