



**Sawbuck Forest Management Project**  
Mystic Ranger District  
Black Hills National Forest  
Pennington County, South Dakota



Proposal and Opportunity to Comment



*Figure 1: View of the Sawbuck project area near Flag Mountain.*

The Sawbuck project area consists of 134,210 acres of National Forest System (NFS) lands, in the central Black Hills of South Dakota spanning parts of Pennington, Lawrence, and Custer counties (Figure 1). The western side of the Mystic Ranger District includes Deerfield Lake, Gillette Prairie, Deerfield Road, and Ditch Creek Road, Pe'Sla Tribal Lands, and some of the most remote places on the district. This project aims to enhance long-term forest health and resilience across a broader geographic area than previous efforts, optimizing limited planning resources and accelerating the pace and scale of restoration treatments.

The project area exhibits diverse ecological characteristics: The northern area of this project features steep slopes, rocky outcrops, streams, lush biodiverse habitats, and smaller meadows nestled within rugged drainages. This area includes the North Fork Castle Creek Research Natural Area (RNA/Botanical Area) and Black Fox Botanical Area. The central area of this project is characterized by expansive meadows, steep drainages, rocky outcrops, moderately sloped forested hills, intermittent streams, and a more arid landscape than the northern area. This area includes the McIntosh Botanical Area, Historic Flag Mountain Lookout and Pe'Sla Tribal Lands. The southern portion of this project features sweeping meadows, rolling hills, both forested and open, and the driest landscape of the project area. This area includes part of the 80,000-acre Jasper Fire scar from 2000, along with the South Dakota Game Production Area at Cooper Ranch.

Pe'Sla, a sacred site for the Sioux Tribes, lies at the heart of the Sawbuck project area. In a significant step toward honoring this heritage, the USDA Forest Service, Rocky Mountain Region, Black Hill National

Forest, recently signed a Memorandum of Understanding (MOU) in 2024 with the Oceti Sakowin Great Sioux Nation Tribes. This MOU establishes a framework for co-stewardship of the Black Hills National Forest, fostering collaboration and shared responsibility.

The USDA Forest Service in collaboration with the USDA Natural Resource Conservation Service (NRCS) and an Honorable Rosebud Sioux Tribal Representative are currently working on the development of the Pe'Sla Fuels Reduction and Vegetation Management Project. This project encompasses planned treatments on both tribal and NFS lands, serving as an integral part of the broader National Environmental Policy Act (NEPA) analysis for the Sawbuck initiative. The Pe'Sla proposal has recently secured funding for the next four years, in partnership with a keystone partner, the National Baptist Convention (NBC), to support the preservation and restoration of this culturally significant area.

The Black Hills Resilient Landscapes (BHRL) project decision, signed in 2018, approved treatments to address declining forest resiliency and hazardous fuels risks across the Black Hills National Forest. While the BHRL decision authorized mechanical and non-commercial treatments across much of the Sawbuck area, some management areas were excluded.



*Figure 2. Example of tree mortality and fuel loading in the Sawbuck project area.*

The Sawbuck project area experienced some of the highest impacts from the most recent mountain pine beetle (MPB) epidemic, which ended in 2016 (Figure 2). This epidemic significantly increased fuel loads on the forest floor due to widespread tree mortality. Combined with a changing climate, this has created a high risk of severe wildfire, particularly threatening the headwaters of Rapid City's municipal water supply.

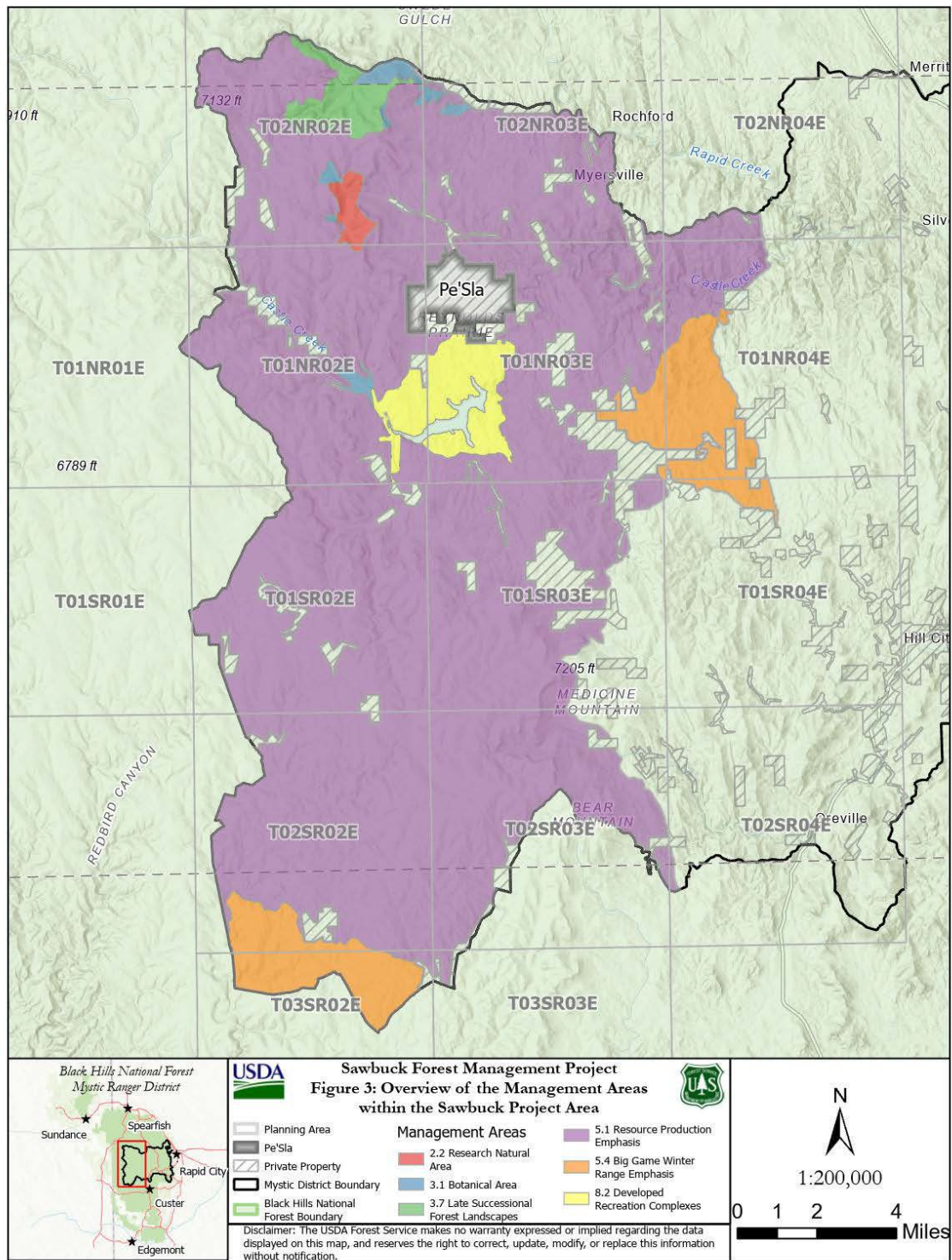
### **Management Direction/Desired Conditions**

Management is guided by the 1997 Revised Land and Resource Management Plan for the Black Hills National Forest, as amended (USDA Forest Service 2006a). The plan's goals include protecting basic natural resources, providing biologically diverse ecosystems, striving to reduce the occurrence of severe disturbance events, and providing sustained commodity uses, scenic quality, and recreation opportunities. The plan also divides NFS lands into management emphasis areas, where various resource and use opportunities are available to the public and where different management practices may be

carried out. The Sawbuck project area contains six management areas (Table 1 on page 4). Full details are available on the project website <https://www.fs.usda.gov/project/?project=67518>.

Revision of the Forest Plan is currently under way. The process is likely to continue for the next several years. The Sawbuck project will be guided by the existing Forest Plan (USDA Forest Service 2006a).





**Table 1. Management Areas and acres planned within the Sawbuck project area.**

Name	Management emphasis summary	Acres
2.2: Research Natural Areas	Vegetation, habitat, soil productivity, water quality, and ecological processes are generally expected to be within the range of natural variability and feature the vegetation communities for which the RNA was established.	798
3.1: Botanical areas	Conserve or enhance areas of botanical interest. Timber harvest, prescribed fire and other fuel treatments, and road construction are limited to situations where they are necessary to maintain, restore, or enhance values for which the botanical area was designated.	1,202
3.7: Late-successional Forest landscapes	Emphasize late-successional forest structure. Management actions should replicate biological processes found in the area and strive to replicate natural vegetative patterns and patch size. Timber harvest, fuel treatment, and prescribed fire may be used to move stands toward late-successional conditions. The construction of new permanent roads is limited.	2,097
5.1: Resource production emphasis	Manage tree stands to emphasize timber products, forage production, and water yield. While meeting other objectives for this management area, provide variety in stand sizes, shape, crown closure, age structure and interspersions.	114,464
5.4: Big game winter range emphasis	Provide big game winter range while maintaining healthy plant communities and recreational opportunities. Timber harvest and prescribed fire are the primary management tools used to stimulate browse production and to improve habitat. The landscape is composed of a variety of forest conditions, including openings; high- and low-density forest.	10,804
8.2: Developed recreation complexes	The forest surrounding recreation sites appears natural, tree sizes and ages vary, with pockets of large, yellow-barked ponderosa pines. Openings and meadows break up the forest, adding diversity. Timber harvesting and prescribed burning are less visible and shorter in duration here, focusing on maintaining the natural setting and ensuring safe recreation. Includes Deerfield Lake Reservoir.	4,845

The updated [National Cohesive Wildland Fire Management Strategy](#) is a nationwide effort seeking all-lands solutions to wildland fire management issues. Goals include development of landscapes regardless of ownership in accordance with management objectives. This will create landscapes that are resilient to fire, insect, disease, invasive species, and climate change disturbances. The Sawbuck project is designed to contribute to the Strategy's goals.

## Existing Conditions

### Vegetation Communities

Approximately 83 percent of the forest in the project area is dominated by ponderosa pine (Figure 4). White spruce, quaking aspen and paper birch account for six percent of the vegetation and are typically concentrated in drainages and on north-facing slopes throughout the project area. Grasslands make up 10 percent and are distributed throughout the project area. Roughly one percent consists of mines, quarries, urban land, and water.

Current conditions in the Sawbuck project boundary include large areas of dead and down ponderosa pine and a mosaic of stands ranging from dense stands of primarily trees greater than 9 inches in diameter at breast height (DBH) to stands

*Figure 4. Example of ponderosa pine dominated landscape in the Sawbuck project area.*





that are dominated by trees less than 6.9 inches DBH. This area has had some of the highest MPB impacts on the Black Hills National Forest from the most recent epidemic which ended in 2016. The mortality from the epidemic has greatly increased fuel loads on the forest floor.



*Figure 5. North facing slope dominated by white spruce within the Sawbuck project area.*

In the Black Hills, white spruce is typically found at higher elevations on north-facing slopes and in cool canyon bottoms (Figure 5). Currently these areas are characterized by extensive continuous blocks of overmature, spruce-dominated stands with escalating fuel loads and ladder fuels. Historically, steep slopes have limited management efforts in these even-aged stands resulting in high-density, closed canopy conditions with little structural diversity. Without intervention, these stands face an increased risk of insect and disease outbreaks.

Due to lack of fire and vegetation treatment, conifers have encroached upon aspen and grassland habitats. This unmanaged encroachment will cause hardwood stands

and grasslands to lose vigor and gradually disappear. Additionally, portions of aspen stands are old and decadent, needing vegetation treatments for regeneration and overall stand health.

Currently, the occurrence of a late-successional pine stand exists in management area 5.1 (Figure 8). Based on published descriptions for late-successional pine forest in the Black Hills (Mehl 1992), characteristics of this stand include the presence of at least 10 live trees per acre with a diameter of at least 16 inches and age of at least 160 years, along with a component of dead, broken, or deformed trees. The project area boundary includes approximately 119 acres of forest that meets this definition. The portion of the project located within management area 3.7 does not currently exhibit the characteristics outlined above, as defined in the Forest Plan. To align with the 3.7 objectives, management efforts in this area will be assessed for the development of late-successional features.



*Figure 6. An example of wetland habitat that is encroached upon by conifers.*

The Sawbuck project area encompasses a variety of habitats including wetlands, white spruce stands, aspen stands, and scattered grasslands. Many of these habitats, such as the Black Fox and McIntosh Botanical Areas, exhibit high quality fen and wetland habitats critical for rare species like sageleaf willow, autumn willow and arrowleaf sweet coltsfoot that require constant water and specific soil conditions. These habitats are often rich in unique species and native diversity but are threatened by pine encroachment, changing climactic conditions, and non-native species (Figure 6).

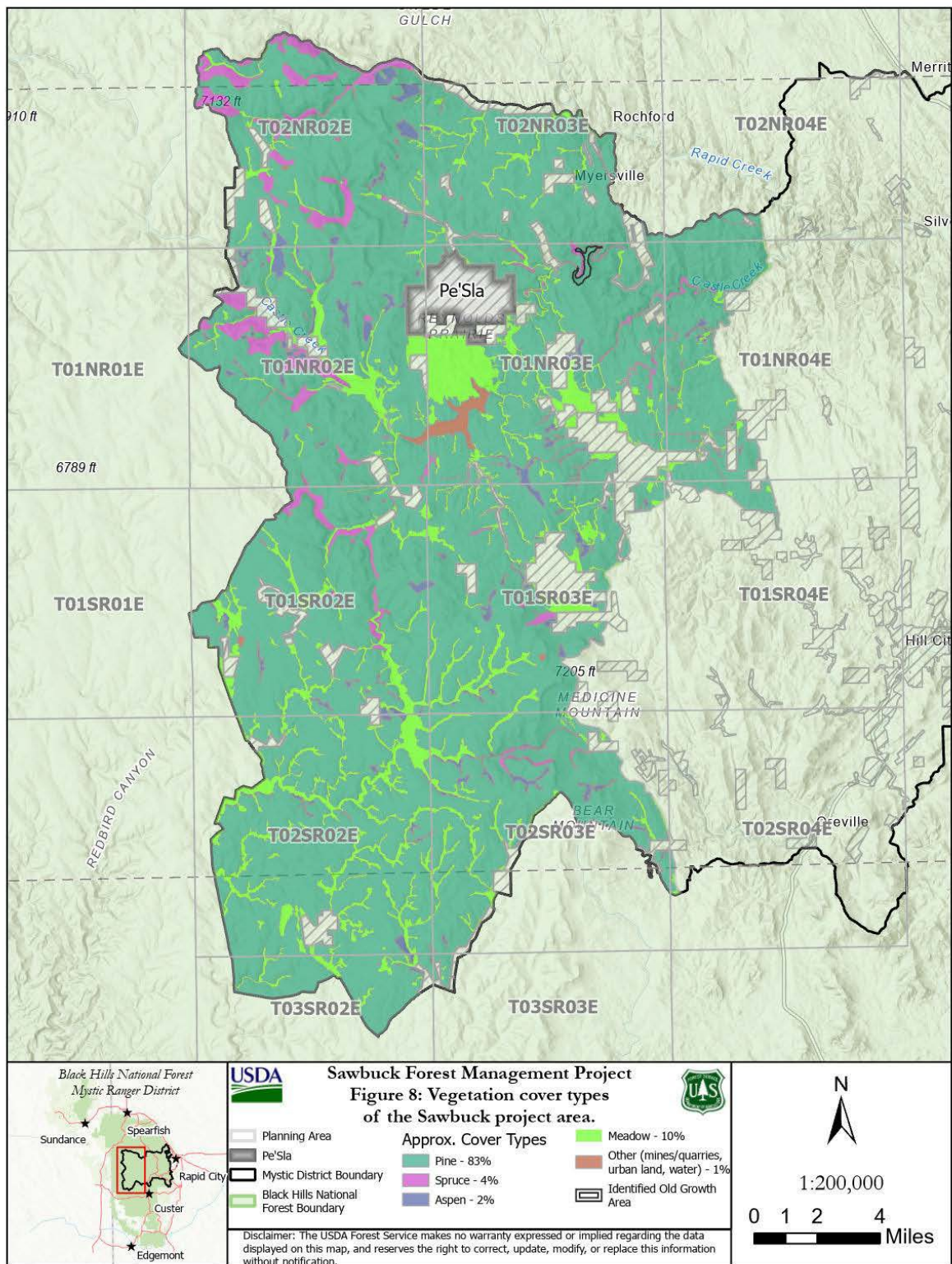
The North Fork Castle Creek Botanical and Research Natural Area, with its unique white spruce and twinflower habitat, supports rare conifer associated species like yellow lady's slipper and ground cedar. Downed spruce increases wildfire risk, potentially eradicating rare plant populations.

The project area also contains montane grasslands, a rare ecosystem largely lost due to human settlement (Figure 7). The remnants of these grasslands exhibit a high biodiversity and provide habitat for unique species like moonworts and downy gentian. These grasslands often transition into areas of ponderosa pine or quaking aspen, providing occasional shelter for these species.



*Figure 7. An example of montane grasslands in the Mystic Ranger District.*





## Fire and Fuels

There is a history of large stand replacing wildfires within the Sawbuck project area, including Redfern (1910), Rochford (1931) McVey (1939), Matt (1940), and Jasper (2000), along with about 110 smaller fires recorded between 2000 and 2024. Fire exclusion practices since the late 1800s have created dense, uniform forests with altered vegetation and limited size and age diversity, which can contribute the likelihood of catastrophic wildfires occurring.

Over the past few decades, prescribed fire has seen limited implementation across the Sawbuck project area. While BHRL authorized prescribed fire treatments in select locations, the Sawbuck project area was not included. This decision was based on the Forest and the Mystic Ranger District's focus on treating the eastern portion of the district, where many private property parcels are located on the district adjacent to NFS lands. Two prescribed fire projects that implemented outside of Mountain Pine Beetle Response (MPBR) and BHRL include the Lemming and Pole Creek burns. In 2011, the Lemming prescribed burn took place within the Jasper Fire scar, and the Pole Creek prescribed burn was conducted near Deerfield Lake.

The Sawbuck project area was heavily impacted by the MPB mortality, creating extensive hazardous fuel patches and making it the outbreak's likely epicenter. Since the epidemic, there has also been vigorous pine regeneration within stands leading to an increased risk of crown fire (Figure 10). Additionally, there has been an accumulation of surface fuels, suggesting that the actual fire hazard is significantly higher throughout the project area. These conditions increase the likelihood

of surface fuels escalating into canopy fires, leading to rapid fire spread, soil damage, heightened runoff, sediment transport, and challenges in revegetation (Figure 9 and 11).

The Jasper Fire of 2000 burned 83,511 acres, including 79,404 acres of NFS lands, and 22,958 acres



*Figure 10. Pine regeneration within the Sawbuck project area.*

within the Sawbuck area, making it the largest recorded fire in Black Hills history. Its high and moderate intensity left significant fuel loads from fallen trees, creating a unique landscape for prescribed burns that align with historical fire regimes.

The Sawbuck project area borders approximately 172 miles of private and tribal land. The Shakopee Mdewankanton Sioux Community, Crow Creek, Rosebud, and Standing Rock Sioux Tribes nations hold tribal trust land located in the project area which consists of just over 2,300 acres which is managed with the Bureau of Indian Affairs (BIA).



*Figure 9. Surface fuels within the Sawbuck project area.*



*Figure 11. Another view of surface fuels within the Sawbuck project area.*



## Wildlife

The project area is presumed to have one endangered bat species, one proposed endangered bat species, one proposed endangered bumblebee, and two proposed threatened butterfly species under the Endangered Species Act (ESA). Northern long-eared bat (endangered) and tricolored bat (proposed endangered) have largely declined nationwide due to fungal disease. The area contains nine documented hibernacula for northern-long eared bats and two for the tricolored bats but no known maternity roosts for either species.

Across the United States, Regal Fritillary and Monarch butterflies both proposed as threatened, have experienced significant population declines. These declines are primarily due to habitat loss, habitat degradation, loss of host plants, and nectar sources. Within the project area, two grasslands are known to support breeding colonies of Regal Fritillary butterflies. Additionally, four large grasslands offer suitable habitat, though no breeding observations have been recorded. Incidental sightings of Monarch butterflies have also been reported in the area.

Across the northwestern U.S. and much of Canada, the Suckley's cuckoo bumblebee has largely disappeared due to declines in its primary parasitic hosts, the western bumblebee and the yellow-banded bumblebee. These host species have also experienced significant population declines. Historical records document the presence of Suckley's cuckoo bumblebee in western South Dakota, but there have been no recent sightings, despite observations of its host species in the region.

On the western side of the project area, steep limestone cliffs rise dramatically, forming plateaus that stretch to the project's edge. Over time, these cliffs have weathered, creating soils derived from calcareous substrate. This substrate, covering 68,794 acres of the area, provides suitable habitat for sensitive land mollusks like the Cooper's Rocky Mountain Snail.

There are 25 known American goshawk territories in the project area. Nesting stands, impacted by MPB mortality, now consist of scattered mature trees and dense understory of seedlings and saplings making them unsuitable for nesting. Alternative suitable stands are limited because of beetle damage and the resulting timber harvest to reduce the spread of MPB.

Two bald eagle nests are located along the western shore of Deerfield Reservoir. One nest has been actively fledging chicks for over 10 years, while the other is an alternate nest. The large trees along the shoreline provide prime nesting habitat for bald eagles.

The project area includes 24,156 acres of Pacific marten corridors, defined by riparian zones and dense conifer stands. These corridors offer predator protection while facilitating gene flow between the Black Elk Wilderness and Northern Hills core habitats. Dense cover and coarse woody debris in conifer stands provide essential small mammal habitat in the space between the ground and snowpack. This cover offers both shelter from predators and hunting opportunities during winter. Incidental observations of the Pacific marten were made during general surveys conducted in 2023 and 2024 within the project area.

Nearly 10,775 acres of the project area are managed as big game winter range, Management Area 5.4. It provides high-quality winter and transitional habitats for deer, elk, turkeys, and other species, along with diverse uses. The area offers thermal and security cover, with varied conditions including pine forests, aspen, recently harvested stands, and the northern portion of the 2000 Jasper Fire scar. South-facing slopes provide snow-free winter forage.

## Watersheds

There are nine watersheds at the scale known as Hydrologic Unit Code (HUC-12) Watersheds within the overlapping Sawbuck project area. With all watersheds draining into Rapid Creek, except for a small section of Newton Fork. Rapid Creek is the only municipal watershed in the project area. These watersheds are currently rated as “functioning at risk,” based on eleven key factors, such as water quality, forest cover, and forest health. There are opportunities to improve watershed conditions for aquatic organisms, riparian wetland plants, and aquatic habitat, which currently vary from poor to good across the area.



*Figure 12. Example of degraded riparian area.*

Over time, stream channels and riparian wetland communities in adjacent grassland meadows and aspen stands have been degraded due to conifer encroachment and the absence of beavers on the landscape (Figure 12). This degradation has resulted in reduced fish habitat quality, lower forage productivity in aspen stands and meadows, increased erosion and sedimentation, a loss of plant species diversity, drying of wetlands and riparian areas, decreased water storage across the landscape and stream channel incision.

## Past Management

Timber harvest and other forest management activities have occurred in most of the project area over time. In the past 10 years, sixteen timber sales have been implemented (Table 2). Depending on site conditions and the harvest prescription, harvested stands now consist of pine saplings, open-canopy mature pine over pine seedlings, pine saplings with few mature trees, or moderately dense mature pine. In the 1970s-2013, timber harvest occurred throughout the project area mainly consisting of Shelterwood Systems.

**Table 2. Recent Timber Sales within the Sawbuck project area.**

Sale name	Acres	Year sold	Year completed
Dutch	108	2014	2014
Rowpen Settlement	881	2014	2015
Teckla Osage Settlement	251	2016	2016
Cameron Stewardship	1,007	2017	2021
Hay Draw	1,586	2017	2021
Penguin POL	399	2017	2017
Lyons Stewardship	3,921	2018	2024
Pole Creek	1,116	2018	2021



Whitetail	1,611	2018	2022
Frink Draw	1,373	2019	2022
Marble	1,657	2019	2021
Thrush Stewardship	136	2019	2023
Solomon	1,110	2020	2021
Woohoo	825	2020	2023
Alvin Stewardship	255	2021	2024
Simon Stewardship	1,243	2021	2024
	<b>17,479</b>		

## Needs and Opportunities

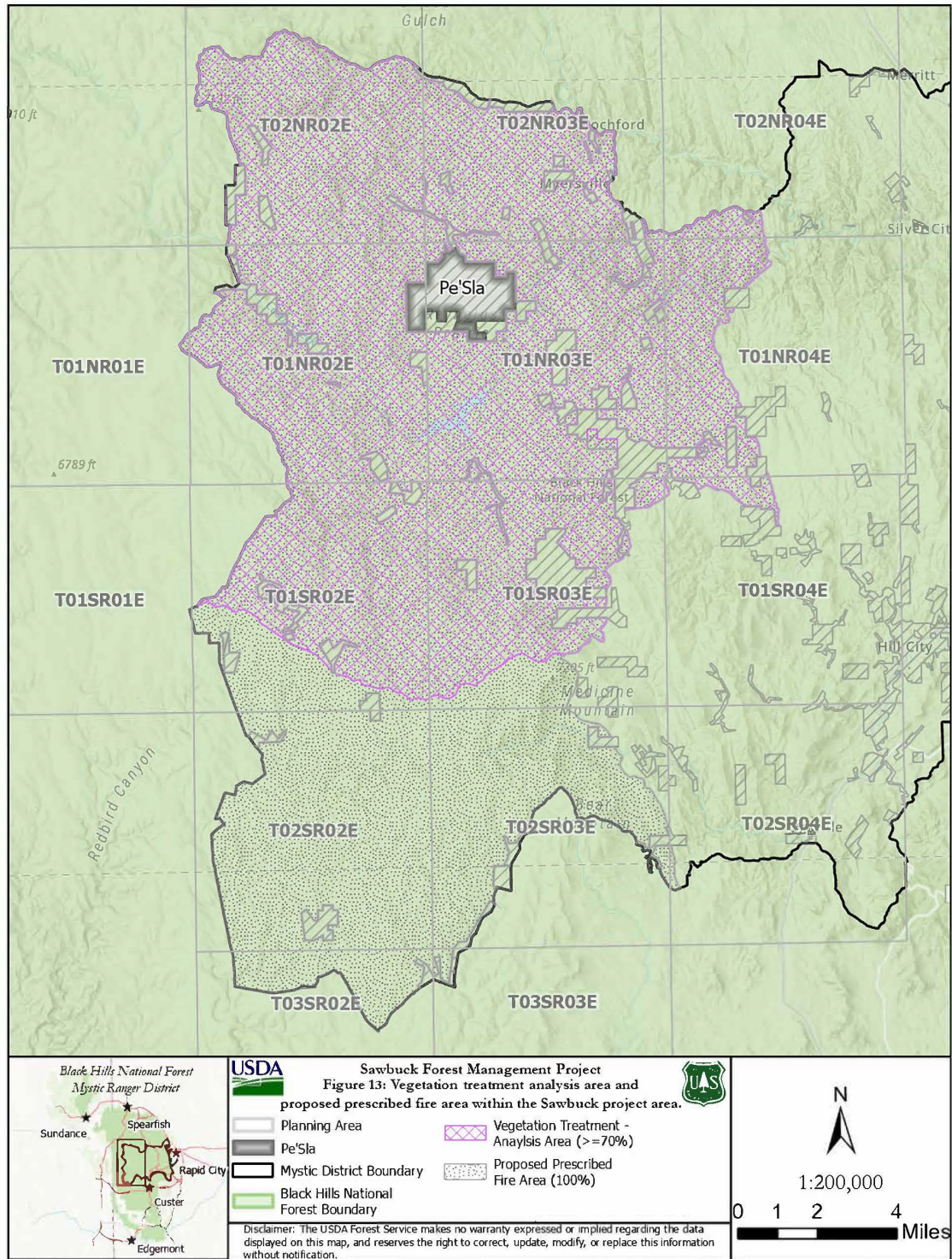
A comparison of desired and existing conditions shows that there is a need to:

- Reduce moderate and high fire hazard from surface and ladder fuels through prescribed fire and other methods to protect private property, public safety, municipal water sources and other valued resources.
- Expand growing space for conifer trees across various size classes to improve forest health, enhance resilience to insects and disease, and support diverse wildlife habitats.
- Restore stream and wetland habitat through removal of pine, the addition of native plantings, and the construction of low-tech features to replicate log jams and beaver dams.
- General watershed improvements.
- Maintain and enhance wildlife habitats by restoring native conifer stands, hardwoods stands, and meadows.
- Promote the regeneration of native pine stands within the Jasper Fire scar through strategic prescribed burning and targeted planting efforts.

There are opportunities to address these needs through commercial and non-commercial timber harvest and thinning, mastication, prescribed fire, other fuel reduction activities, planting and riparian restoration methods.

## Proposed Action

To address the identified needs and opportunities, we are proposing the following activities on NFS lands in the Sawbuck project area. Silviculture reconnaissance is currently underway, with stands being evaluated for the treatments detailed below. It's important to note that the vegetation treatment proposals are limited to a portion of the Sawbuck project area, totaling 93,233 acres, while the entire area is being assessed for prescribed burning (Figure 13). A detailed map of these treatments will be available on the project website by the release of the preliminary Environmental Assessment.





## **Proposed Activities**

### ***Conifer thinning***

The Sawbuck project area consists of 134,210 acres, of which approximately 4,000 acres of commercial treatments would be implemented. Harvest would be based on current stand conditions. Thinning is a forest management technique that reduces stand density to promote healthier growth, lower fire risks, and enhance overall forest health. Treatment specifications are carefully tailored to factors such as tree size, spacing, stand structure, species composition, and site-specific management objectives. Depending on the characteristics of the stand, either even-aged or uneven-aged thinning methods will be applied to achieve the desired outcomes. Proposed types of commercial treatments include the following:

#### ***Commercial Thin***

Thinning would be based either on tree spacing or the desired number of residual trees per acre with a specified ratio of trees to remove and retain in any given area. Spacing prescriptions would result in stands of evenly spaced trees across a range of diameters and heights. The best formed trees will be retained. This is the first step in an even-aged regeneration system.

#### ***Aspen Enhancement and Meadow Restoration***

Conifers with commercial value would be cut where they are encroaching into aspen stands and meadows. Smaller conifer trees may be cut later to prevent them from competing with desirable species again.

#### ***Single-tree Selection***

Uneven-aged single tree selection would be applied where several age and size classes already exist in a stand. Trees would be removed from all size classes as necessary to maintain or produce an uneven age and size distribution.

#### ***Overstory Removal/Shelterwood Final Removal***

The cutting of trees comprising an upper canopy layer to release seedling/sapling sized trees or other vegetation in the understory. This is the last step in an even-aged regeneration system.

#### ***Patch Clearcuts***

An even-aged regeneration method that involves cutting down most of the trees in small defined patches within a larger stand. These openings create sunny, open conditions that help new trees grow. The work happens in stages, with additional patches cleared over time.

#### ***Seed Tree Cut/Shelterwood Establishment***

An even-aged regeneration method in which a new age class develops from seeds that germinate in fully exposed soils or micro-environments after removal of part of the overstory.

#### ***Group Selection***

A method of regenerating uneven-aged stands in which trees are removed, and new age classes are established, in small groups. The maximum width of groups is approximately twice the height of the mature trees, with small openings providing micro-environments suitable for tolerant regeneration and the larger openings providing conditions suitable for more intolerant regeneration. With group selection, the landscape contains an aggregation of groups with different age and size classes.

### ***Timber Stand Improvements (TSI)***

Thinning of small conifers (less than 8.9 inches in diameter) is proposed on up to 50,000 acres (Figure 14). Cut material may be sold if new markets are available or otherwise modified to reduce fire hazards. Thinning would reduce competition among trees, increase vigor and crown spacing while decreasing wildfire potential by removing ladder fuels.



*Figure 14. TSI opportunities within the Sawbuck project area.*

### ***Tribal Ecological Knowledge (TEK)***

Collaboration with tribal communities offers the opportunity to apply TEK to enhance vegetation improvements through practices like native species restoration, controlled burns, and invasive plant management, promoting biodiversity and ecological resilience.

### ***Mechanical treatment methods***

Thinning will primarily utilize mechanical mastication where feasible, given the terrain. In some instances, manual thinning may be necessary due to resource constraints or inaccessible areas. Where larger dead and down material exists, mechanical piling/chipping may be required.

Removal of merchantable timber will primarily use the standard methods of ground-based equipment, accessed via existing roads where possible. In some cases, temporary roads will be necessary to reach specific locations.

Steep slopes necessitate specialized harvest methods. Winch-assisted or tethered logging, a technique new to the Black Hills, may be suitable for these areas. This method can be costly, particularly combined with post-harvest treatments. While currently unfunded, we are including this option in the proposal as funding may become available in the future. Skyline logging, a traditional and cost-effective method for steep slopes, has been used on limited acres within the project area. It remains an option for a small percentage of the area and would complement operations on less steep terrain.

### ***Planting***

Black Hills National Forest sourced ponderosa pine seedlings would be manually planted within the Jasper Fire scar where conditions require. Planting would result in a density of approximately 436 seedlings per acre, or an average spacing of about 10 feet by 10 feet. Mesh tubing may be placed over every other seedling for protection from wildlife and livestock.

### ***Coppice Cut (with or without reserves)***

A method of regenerating aspen stands in which all or most of the trees in the previous stand are cut and most of the regeneration is from sprouts or root suckers.





*Figure 15. Example of prescribed fire treatment.*

### ***Prescribed fire***

We propose implementing prescribed burning within nationally designated Potential Operational Delineations (PODs) in the Sawbuck project area. The goal is to apply prescribed fire appropriately throughout the project area over the next 20 years contingent upon weather, funding, and resources available. These burns would follow specific prescriptions designated to achieve fuel reduction, establish fuel breaks, and enhance natural resource benefits across the landscape. Additionally, we also plan to use prescribed burning techniques while building collaborative partnerships with stakeholders, such as the BIA and local landowners. The size and objectives of these treatment units will be determined based on containment lines that maximize the probability of success and align with the treatment goals (Figure 15).

A comprehensive burn plan would be prepared prior to burning activities. The operation would require qualified burn bosses, ignition teams, holding crews, and any additional resources deemed necessary by the burn boss. Contingency measures would include heavy equipment, supplementary firefighting personnel, and support from cooperating agencies. Burned areas would be closely monitored until the fire is fully extinguished.



*Figure 16. Example of mechanical machine piling before and after treatment.*

Fuels reductions treatments, including mechanical and manual piling, aim to protect key values at risk—such as communities, infrastructure, and cultural resources—while enhancing the landscape’s ecological resilience (Figure 16).

### ***Riparian and Wetland Vegetation Improvements***

Thinning or complete removal of encroaching conifer and non-native, undesirable species within the Aquatic Management Zone (AMZ) is proposed to improve riparian and wetland vegetation conditions.



*Figure 17. Visible conifer encroachment in AMZ's within the Sawbuck project area.*

Treatments may consist of thinning and vegetation removal in valley-bottom, riparian corridors and around wetland edges to promote riparian and wetland vegetation species (Figure 17). Vegetation thinning and removal activities would utilize a combination of mechanized equipment and hand labor methods. Activities would be coordinated with the district hydrologist and comply with best management practices (BMPs). Planting of native species (willow, sedges, forbs etc.) is also proposed to restore riparian and wetland ecosystems. Temporary or permanent fencing of planted areas may be used for protection from livestock and wildlife browse.

sensitive areas. Riparian and vegetation improvements will enhance water quality, prevent soil erosion, and support biodiversity, creating a healthier ecosystem that complements the rerouted trail and enriches the overall experience for users by showcasing natural habitats.

Trail reroutes are planned for targeted sections of the Deerfield Lake Loop Trail in riparian or

### ***Stream and Wetland Restoration and Enhancement***

Stream and wetland restoration activities would utilize a combination of mechanized equipment and hand labor methods. Proposed restoration activities may include reshaping select areas of existing stream channels to restore habitat

*Figure 19. Example of natural beaver dam.*



*Figure 18. Example of a beaver dam analog.*

features and installation of low-tech process-based techniques such as beaver dam analogs (BDAs) and post assisted log structures (PALS) to: (1) increase water and organic matter storage; (2) encourage reconnection and spreading of water across the floodplain; (3) create off-channel and refuge habitat that is available during a range of stream flows; (4) raise the water table; (5) improve the amount of accessible fish habitat for spawning and other life stages; (6) improve stream temperatures by restoring cooler,



flowing water; and (7) increase vigor and diversity of riparian and wetland vegetation.

Stream enhancement aims to also maintain or improve water availability for in-stream flows. Additions of large woody debris to select perennial and intermittent stream segments is proposed to improve stream channel habitat for aquatic species. Woody debris generated by adjacent vegetation thinning and removal within the AMZ, along with commercially sourced wood posts, may be used. Activities would be coordinated with the district hydrologist as well as stream specialists within South Dakota Game Fish and Parks and comply with BMPs. Temporary or permanent fencing of stream and wetland restoration areas may occur for protection from livestock and wildlife until fully recovered. Natural objects such as felled conifers may also be used as a barrier instead of or in addition to fencing. Both proposed riparian efforts and wetland improvements, including restoration and enhancements, would take place where conditions warrant with a focus on the Rochford Cemetery Fen and both the McIntosh and Black Fox Botanical Areas.

### ***Road-Stream Crossings***

Road-stream crossing replacement or upgrade for aquatic organism passage and stream simulation to mimic natural patterns is proposed where needed at existing crossings on NFS roads across the project area. Proposed road-stream crossing activities would improve existing roads to better withstand flows from increased storm severity and frequency, restoring stream channel habitat for aquatic organisms. Road-stream crossing improvement activities would include removal of existing stream crossing structures and installation of new low-water crossings, culverts, or bridge structures designed to meet Forest Service Handbook 7709.56b; for stream simulation, aquatic organism passage, and passage of 100-year flood flows subject to available funding.

### ***Road Improvement***

The management of NFS road 416, also known as Flag Mountain Road, prioritizes maintaining and improving road conditions to ensure safe, reliable access. Planned actions include grading and reshaping the road prism, improving drainage systems, clearing a 6-foot-wide area on each side of the road prism, and conducting surface repairs. The planned improvements are designed to reduce erosion, improve the road's durability and accommodate both recreational and administrative activities. These efforts are part of the Pe'Sla Fuels Reduction and Vegetation Management Project.

## **Proposed Activities in Special Areas and Habitat**

No mechanical or ground-disturbing activities are proposed in vegetation communities identified as providing suitable habitat for rare plants across the project area.

There are 25 known American goshawk territories in the project area. A total of 4,821 acres of nest area stands (Forest Plan standard 3108) have been identified. Activities within one-half mile of goshawk nests would occur outside the breeding season if territories are active (Forest Plan standard 3111).

In **Management Area 3.1 (Botanical Areas)** we propose to use prescribed fire, hand-thinning, and restoration to protect unique features. This includes building BDAs and PALS, planting native wetland species, enhancing fen habitats, expanding rare plant habitats, and removing encroaching conifers and fire-prone trees (Forest Plan objective 216 and 235). Whenever possible, manage undesirable, nonnative species that threaten high-quality habitats and rare plants (Forest Plan guideline 4303).

In **Management Area 2.2 (Research Natural Areas)** we propose to use prescribed fire, hand-thinning, and riparian restoration to protect its unique characteristics. This includes decreasing fuel loads, reducing excessive overstory, expanding high quality rare plant habitats, and whenever possible manage undesirable, nonnative species that threaten their persistence (Forest Plan guideline 2.2-1002, 4303, standard 2.2-1001 and objective 231).

In **Management Area 3.7 (Late-successional Landscapes)** a total of 2,097 acres is being evaluated for a range of vegetation treatments, including both commercial and non-commercial options. These treatments are designed to support the development of late-successional characteristics. Prescribed burning is also proposed across the area to achieve multiple objectives: reducing immediate fire hazards, reintroducing fire as natural process, and enhancing conditions for late-successional development. These efforts will promote the growth of mature stands while allowing them to continue evolving toward late-successional conditions.

## **Connected Activities**

Road maintenance and reconstruction would be required for standard ground-based timber harvest. Moving roads to new alignments is not anticipated. Construction of new permanent NFS roads and changes to travel management are not proposed. The project may require an undetermined amount of temporary road construction to support implementation efforts, with the exact mileage to be determined as planning progresses. These could be new, or on old road templates.

Logging slash would be piled, chipped, burned, or otherwise decreased to levels required by the Forest Plan.

Post-treatment surveys would be conducted to assess treatment effectiveness and presence of conifer regeneration as required.

Noxious weed prevention and control measures, including implementation conditions and the availability of weed-related funding, would be applied to minimize the establishment and spread of non-native invasive plants and any infestations following proposed activities. A native seed mix, which may include pollinator-friendly species, would be utilized for restoration efforts.

## **Environmental Protection Measures**

Proposed activities are designed to comply with environmental protection requirements set forth by the Forest Plan and other applicable direction (USDA Forest Service 2003, 2006b, 2012). Examples of such measures include:

- Restricting ground-disturbing activities near water bodies to prevent sedimentation.
- Ensuring revegetation of bare soil.
- Prohibiting timber harvest operations during American goshawk nesting season within one-half mile of active nests.
- Prohibiting disturbance during nesting season within 1 mile of Bald Eagle nests.
- Protecting nests of other raptor species.
- Protecting hibernacula for bat species.
- Maintaining 50% canopy cover in Pacific marten corridors.
- Managing sensitive snail colonies by maintaining microclimate and limiting disturbance when snails are active.
- Broadcast burning no more than 60% of a contiguous grassland at a time and evaluating needs for pollinators when designing burn plans.
- Preventing damage to high quality rare plant habitat.
- Avoiding and protecting Historic Properties.
- Avoiding and protecting traditional cultural use areas.

## **Cooperators and Partners**

The project encompasses privately owned lands, South Dakota trust lands, Tribal trust lands, and Bureau of Reclamation (USBR). The Forest Service is also partnering with the South Dakota Department of Agriculture and Natural Resources (DANR), a Keystone Agreement with NBC and NRCS to support

landowners interested in exploring fire hazard assessments and treatment opportunities on private lands and tribal trust lands, ensuring a coordinated approach across all the ownerships.

## **Public Comment Opportunity**

We welcome your comments on this proposal. Contact Jim Gubbels, Mystic District Ranger, or Thawney Stottler, Mystic Ranger District resource planner, at (605) 343-1567. You may comment via the project website at <https://www.fs.usda.gov/project/blackhills/?project=67518>, via telephone (above) or fax (605-343-7134), or through the U.S. mail:

Attn: Sawbuck Forest Management Project  
Mystic Ranger District  
8221 South Hwy 16,  
Rapid City, SD, 57702

Pursuant to 36 CFR 218.25, comments on this proposed action will be accepted for 30 days beginning on the first day after the date of publication of a legal notice of the opportunity to comment in the Rapid City Journal, the newspaper of record. If the comment period ends on a Saturday, Sunday, or Federal holiday, comments will be accepted until the end of the next Federal working day. The notice is expected to be published on or about January 21, 2025. A timely submission will be determined as outlined in 36 CFR 218.25(a)(4). It is the responsibility of the sender to ensure timely receipt of any comments submitted.

The Forest Service will consider all written comments received. However, in order for your comments to be most useful to the agency's preparation of the environmental assessment, and to retain your opportunity to be considered for possible eligibility to object to the draft decision later in the process, it is important that you provide your comments prior to the close of the scoping comment period and that you clearly articulate your concerns and contentions. Only individuals or entities (as defined by 36 CFR 218.2) who submit timely, specific written comments (as specified in 36 CFR 218.2) about this proposed action during this comment period will be eligible to file an objection. A second 30-day comment period will occur following analysis providing interested parties an opportunity to review the preliminary EA. Other eligibility requirements are specified in 36 CFR 218.25(a)(3) and include, among other requirements, the commenter's name, postal address, title of the proposed action, and signature or other verification of identity upon request and identification of the individual or entity who authored the comment(s). All written comments, including names and addresses of commenters, will be placed in the project file and will become a matter of public record for this proposed action. Comments submitted anonymously will be accepted and considered; however, anonymous comments will not provide the Forest Service with the ability to provide the commenter with subsequent environmental documents. Comments should be within the scope of the proposed action, have a direct relationship to the proposed action, and must include supporting reasons for the responsible official to consider (36 CFR 218.2). Project status and other information will be available on the project website.

## **Planning Process and Next Steps**

Extensive field reconnaissance occurred in the project area in 2024 and is ongoing into the spring of 2025. Data review and proposal development will be under way this spring. Following this public comment period, we will assess the need for modification of the proposal and development of potential alternative actions. An interdisciplinary team of resource specialists will analyze effects of the proposed action and any alternatives on resources such as water, wildlife, cultural resources, and recreation. Effects will be disclosed in an environmental assessment (40 CFR 1501.5) and, if applicable, a finding of no significant impact (40 CFR 1501.6). The preliminary environmental assessment is expected to be available in summer 2025. If the analysis finds that impacts may be significant, the project may be modified, or an environmental impact statement (40 CFR 1502) may be prepared.



Required consultation with other federal, state, and tribal entities, such as the U.S. Fish and Wildlife Service, South Dakota State Historic Preservation Office, and Tribal Historic Preservation Offices, will occur prior to a decision on whether and how to implement this project.

## References

**USDA Forest Service. 2003.** Black Hills National Forest noxious weed management plan. Custer, SD: U.S. Department of Agriculture. 72 p.

**USDA Forest Service. 2006a.** 1997 revised land and resource management plan for the Black Hills National Forest, as amended. Custer, SD: Black Hills National Forest.  
<https://www.fs.usda.gov/detail/blackhills/landmanagement/planning/?cid=STELPRDB5112303>.

**USDA Forest Service. 2006b.** Forest Service Handbook. FSH 2509.25 – Watershed Conservation Practices Handbook. Denver, CO: USDA Forest Service. <https://www.fs.usda.gov/im/directives/>

**USDA Forest Service. 2012.** National best management practices for water quality management on National Forest System lands. Volume 1: National core BMP technical guide. FS-990a. Washington, DC: U.S. Department of Agriculture. 165 p.  
[https://www.fs.usda.gov/sites/default/files/FS\\_National\\_Core\\_BMPs\\_April2012\\_sb.pdf](https://www.fs.usda.gov/sites/default/files/FS_National_Core_BMPs_April2012_sb.pdf).

**Joe Wheaton, Adrea Wheaton, Dominique Shore, Nick Bouwes, Philip Bailey, Mike Clawson, & Matt Reimer. 2022.** Riverscapes/PBR: 1.0.0. In Low Tech Process Based Restoration of Riverscapes Design Manual (1.0.0, p. 298). <https://doi.org/10.5281/zenodo.7233916>