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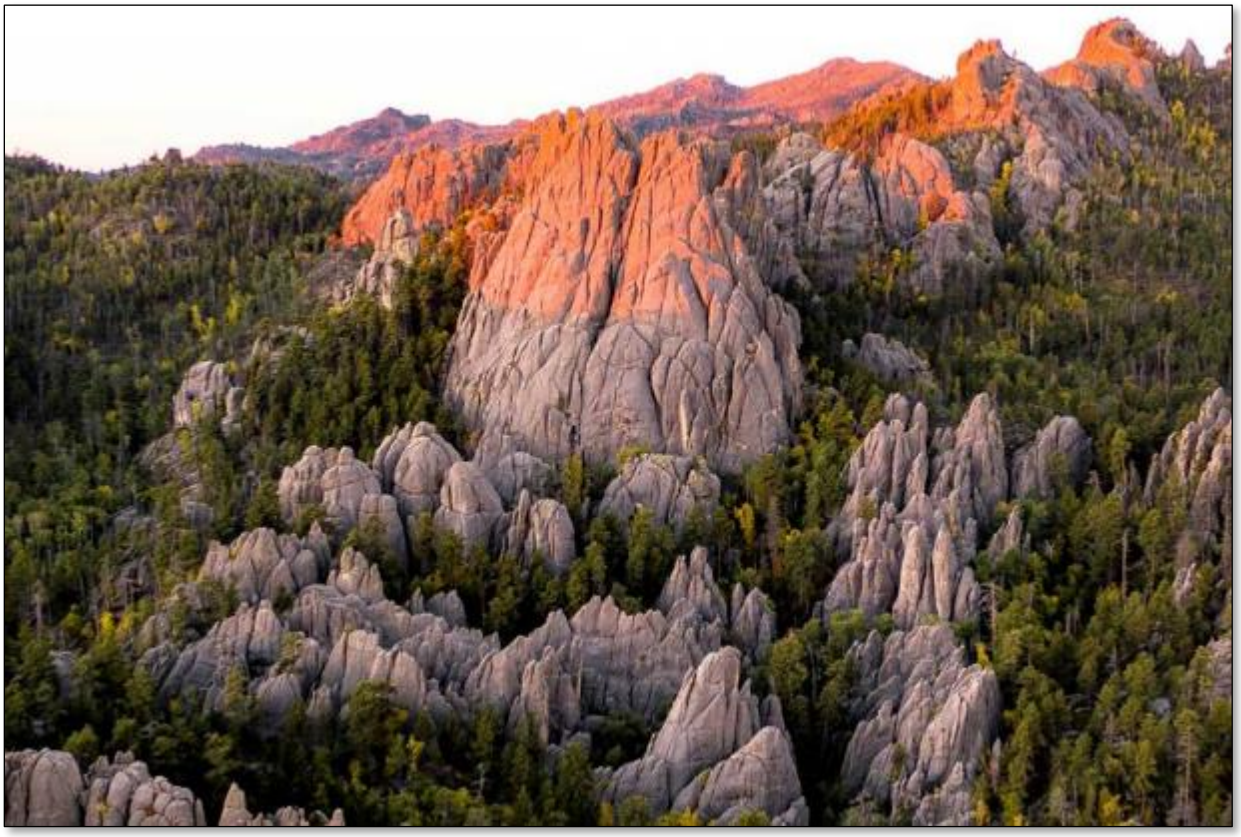
Black Hills National Forest

Final Forest Assessment:

Recreation Settings, Opportunities, and Scenic Character



Black Hills National Forest

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Contents

List of Tables

List of Figures

Chapter 1. Introduction

The Black Hills National Forest is managed by the United States Forest Service (USFS), an agency of the U.S. Department of Agriculture (USDA). The mission of the USFS is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations. The National Forest Management Act requires all National Forests to develop a land and resource management plan (forest plan) to guide management actions and decisions. The current forest plan for the Black Hills National Forest was approved in 1997 and amended in 2005. The National Forest Management Act requires that these forest plans be periodically updated in accordance with the Forest Service Manual (FSM) 2310.3. The Black Hills National Forest has identified and evaluated existing information about relevant ecological, economic, and social conditions, trends, and sustainability and how those conditions relate to management direction in the forest plan. These findings will inform the need to change the current forest plan. Identifying needs for change to the current plan is an iterative process and this draft assessment report may identify preliminary needs to change, which can be further refined during the subject matter expert, cooperating agency, and public review of these documents.

What is an Assessment Report?

This document is an assessment of the current known recreational settings, opportunities, and scenic character on the Black Hills National Forest, or the "plan area." Approximately 110 miles long and 70 miles wide, the Forest is made up of four ranger districts (RDs) and a Forest Supervisor's Office.

Resource Overview

The Black Hills National Forest, also referred to as the "island of the plains," is a 1.2-million-acre area made up of rugged rock formations, canyons and gulches, open grasslands, tumbling streams, and deep blue lakes (USDA Forest Service, n.d. b). Specialized campgrounds, roaded recreation opportunities, and a system of trails connecting communities, showcase this Forest that provides user friendly access to year-round family activities (USDA Forest Service, n.d. o). The Black Hills are the eastern-most example of a western mountainous landscape—providing a wide range of recreation opportunities.

According to the National Visitor Use Monitoring (NVUM) survey, every year, over 622,000 people visit the Black Hills National Forest (USDA Forest Service 2019), defined as visitors that are physically recreating on Forest Service-managed lands and not merely passing through, stopping to use a facility, or viewing the national forest from a non-Forest Service-managed road. Millions more visit attractions in the surrounding areas. These visitors contribute a tremendous amount to the local economy of the Black Hills National Forest. In fact, outdoor recreation alone on the National Forest System supports about 205,000 jobs nationwide, contributing about $13.6 billion to the Nation's gross domestic product each year (Wagner, Mary 2013).

The recreational opportunity within Black Hills National Forest, as well as the surrounding National Parks, State Parks, National Monuments, National Memorials, and other public land sites generate sustainable economies that will continue to provide economic opportunity for the local communities in South Dakota and Wyoming, and to the greater country.

Chapter 2. Resource Assessment

This chapter presents a discussion of the constituent elements of recreation and scenic resources of the Black Hills National Forest and an assessment of the current conditions and trends based on the best available data.

Data Gaps

Information gaps exist on the condition of most trails because they are not regularly evaluated. There is also a lack of precise spatial locations for unauthorized user-created trails and dispersed camp sites.

Unauthorized trails are not mapped, and an assessment of their impacts has not been completed. The current data available concerning visitation demographics, activities, visit duration, and other variables is limited. The NVUM survey provides a forest-wide view of recreation use, activities, and visitor satisfaction, but it is not statistically reliable at any scale less than the Forest. The aggregation of surveys across the Forest is statistically reliable at the forest-wide scale.

There is currently a lack of data concerning quantitative information about impacts of dispersed camping or other activities. New information has been gathered on dispersed camping in recent years, but that data is not available in electronic format or in a standard mapping system. Therefore, the only reliable information available includes informal observations.

According to Black Hills National Forest staff, there is a disconnect between formal records and informal knowledge of on-the-ground employees. This represents a data gap between the perceived and actual conditions and trends in the Forest, and subsequently results in skewed data. There is currently a lack of data concerning staffing levels and service needs for maintaining the system.

Current Condition and Trend

The Black Hills National Forest connects people with nature by means of its wide range of recreation offerings. These activities span across different skill levels, seasons, and recreational settings; yet, a large majority if the Black Hills National Forest is characterized by motorized settings.

Recreation Opportunity Spectrum

Per the FSM 2310.3, the recreation opportunity spectrum (ROS) is the land classification system the USFS uses to describe recreation settings and opportunities. Establishing desired ROS settings in the forest plan revisions is a requirement of the 2012 planning rule (Forest Service Handbook 1909.12 Chapter 20, Section 23.23a). The current Recreation Opportunity Spectrum (ROS) must be updated according to the contemporary national protocol to 1) map and convey the existing condition of recreation settings, opportunities, and predicted experiences and other associated benefits across the plan area; and 2) map and convey desired recreation settings and opportunities (FSM 2311). The latter step is completed during the upcoming environmental analysis.

There are three factors that are used to describe recreation settings: the physical, the social, and the managerial settings. First, the physical setting is defined by the environment. The presence of and development level of roads and motorized trails is a key determinant in ROS class for this factor. Next is the degree of modification of the environment. This modification can range from more urban/rural near towns to minor developments in the front country (these could include structures or timber harvest activities) to very little modification in the backcountry. Second is the social setting, or the number of people or groups encountered. Lastly, the managerial setting includes rules and regulations, signage, controls on activities, and the presence and style of recreational structures.

Most of the Black Hills recreation settings are motorized, and some of the settings in plan direction are outside the current range of national protocols, potentially needing to be addressed. For example, Roaded Natural Non-motorized is not a standard ROS setting and could need further definition as a subclass under current policy. The largest ROS class from the existing plan direction is 1,095,059 acres of "roaded natural" area (88 percent, table 1). This class makes up an overwhelming majority of the Forest. The second most common class is "roaded natural non-motorized" at 78,487 acres (6 percent). See Map 1 in Appendix A for a map of the Black Hills National Forest ROS.

Table 1. Recreation opportunity spectrum in the Black Hills National Forest

ROS Class	Acres	Percentage (%)
Primitive	10,984	0.9
Rural	711	0.1
Roaded Natural	1,095,060	87.7
Roaded Natural Non-Motorized	78,487	6.3
Semi-Primitive Motorized	11,763	0.9
Semi-Primitive Non-Motorized	28,202	2.3
Semi-Primitive Non-Motorized and Roaded Natural	11,393	0.9
Urban	< 1	< 0.1
Other	91	< 0.1
Private	9,971	0.8

[Source: USDA Forest Service. Acronyms: ROS: recreation opportunity spectrum.]

The three non-motorized ROS classes (roaded natural non-motorized, and semi-primitive non-motorized, and semi-primitive non-motorized roaded natural) add up to about 9 percent (118,080 acres) of the forest representing a non-motorized setting. An additional 10,984 acres are primitive, bringing the total non-motorized settings to approximately 11 percent of the overall forest lands. The remaining 89 percent of the forest, most of which is roaded natural ROS class, provides a motorized setting during the summer months.

Conditions and Trends for Recreation Settings

The Black Hills National Forest provides a wide variety of recreation activities throughout the year. The Forest has 11 reservoirs, 25 campgrounds (developed camping), two group campgrounds, three horse camps, one camping area (dispersed camping), 26 picnic areas, two scenic byways, 1,300 miles of streams, 13,000 acres of wilderness, over 700 miles of designated motorized trails, and almost 400 miles of non-motorized trails. Some of these totals may vary from the infrastructure assessment, which relied on a report generated in 2016.

The Forest is most notably known for motorized vehicle recreation, camping, and sightseeing. The Forest's existing recreation settings reflect this (Table 1). These three forms of recreation have increased dramatically in recent years. For example, according to Black Hills National Forest campsite data, since 2017 an additional 13,500 people have utilized developed campsites annually. This change, as well as the increases in other forms of recreation, have resulted in the formation of activity hot spots within the Forest. These hotspots exist throughout the Forest and are located near the urban centers, along major recreation corridors, and adjacent to popular sightseeing areas. The increased numbers of visitors are resulting in increased user density within several hotspots, changing the recreation setting of the area.

Changes to the technology and type of vehicles (both mechanized and motorized) are also affecting the recreation setting. Examples of these new technologies include bigger and more advanced Off-Highway Motor Vehicles (OHVs), larger camping vehicles, electric bicycles (e-bikes), and lighter mountain bikes. Public feedback revealed an interest in creating plan direction to address wider OHVs on trails that restrict widths, while new travel management regulations that classify e-bikes as motorized vehicles may warrant a look at some unique motorized settings. A detailed analysis with opportunities to comment will be presented as alternatives are developed to manage recreation settings during the upcoming environmental analysis.

Regarding the Forest's non-motorized settings, some areas around hiking trails (e.g., Flume Trail, Mickelson Trail, etc.) that receive a lot of use may warrant unique management considerations when forming alternatives for desired semi-primitive recreation settings. Other areas, seldom used by visitors, would be planned as primitive, perhaps with different management direction or approaches.

Developed Recreation

Developed recreation sites are popular areas for recreation in the Black Hills National Forest. Recreation sites can be organized into two categories: 1) places where individuals are recreating on-site (e.g., campgrounds, cabins, and picnic areas; and 2) places that are used as "launch points" or "staging areas" for accessing dispersed recreation opportunities (e.g., trailheads, fishing sites, day-use areas, and boat launches).

Developed Recreation Opportunities by Geographic Area

Northern Hills

The Northern Hills RD is in the northeast section of the Forest, near the cities and towns of Nemo, Deadwood, Belle Fourche, Piedmont, Spearfish, Whitewood, Rochford, Lead, and Sturgis. The Northern Hills is a popular recreational area because of its trail access specifically in the Spearfish area. These trailheads provide access to popular winter recreation trails, and the well-known Centennial Trail (USDA Forest Service, n.d. l).

The Northern Hills area supports a wide variety of outdoor recreation opportunities including six developed campgrounds, one camping area (designated areas with few facilities), five fishing sites, five interpretive sites, three observation sites, four picnic sites, one swimming site, and 16 trailheads. In total, developed facilities in this area can support approximately 1,488 recreation visitors at one time (table 2).

Table 2. Developed recreation sites in the Northern Hills Geographic Area

Developed Site Type	Sites	Capacity (Persons at one time)
Campground	6	590
Camping Area	1	105
Fishing Site	5	60
Interpretive Site	5	29
Observation Site	3	30
Picnic Site	6	120
Swimming Site	1	150
Trailhead	16	404
Total	**43**	**1,488**

[Source: USDA Forest Service]

Mystic

The Mystic RD represents the central portion of the Forest. It is the closest part of the Forest in relation to Rapid City, South Dakota so it is an area with a high level of accessibility. This area is known for a wide range of recreation opportunities, including dispersed recreation, as well as special recreation areas such as Pactola Reservoir and Sheridan Lake (USDA Forest Service, n.d. k). This area has by far the highest developed facility capacity of the four RDs, particularly with respect to campgrounds.

The Mystic RD includes six boating sites, nine campgrounds, two group campgrounds, one day use area, eight fishing sites, six interpretive sites, one interpretive visitor center, one observation site, eight picnic sites, three swimming sites, and 21 trailheads. In total, developed facilities in this area can support approximately 5,124 recreation visitors at one time (table 3).

Table 3. Developed recreation sites in the Mystic Geographic Area

Developed Site Type	Sites	Capacity (Persons at one time)
Boating Site	6	800
Campground	9	1,750
Group Campground	2	330
Day Use Area	1	75
Fishing Site	8	162
Interpretive Site	6	103
Interpretive Visitor Center (Minor)	1	105
Observation Site	1	105
Picnic Site	8	483
Swimming Site	3	845
Trailhead	21	366
Total	**65**	**5,124**

[Source: USDA Forest Service]

Hell Canyon

The Hell Canyon RD is in the southern third of the Black Hills National Forest. This district has an active focus on multiple uses including recreation, as well as, timber management, rangeland, fire, fuels, lands, minerals, wildlife, heritage resources, recreation, and wilderness (USDA Forest Service, n.d. g). In addition, this district contains the Norbeck Wildlife Preserve and the only wilderness on the Forest. The combination of recreation opportunities. Portions of the Peter Norbeck National Scenic Byway—which includes Custer State Park and Mount Rushmore National Memorial—in combination, provide a unique scenic experience which is extremely popular.

The developed recreation opportunities include one boating site, seven campgrounds, one fishing site, one group picnic site, two horse camps, 10 interpretive sites, two lookouts/cabins, one recreation concession site, six picnic sites, and 18 trailheads. In total, developed facilities in this area can support approximately 1,885 recreation visitors at one time (table 4).

Table 4. Developed recreation sites in the Hell Canyon Geographic Area

Developed Site Type	Sites	Capacity (Persons at one time)
Boating Site	1	21
Campground	7	692
Fishing Site	1	70
Group Picnic Site	1	21
Horse Camp	2	108
Interpretive Site	10	15
Lookout/Cabin	2	10
Observation Site	2	325
Other Recreation Concession Site	1	80
Picnic Site	6	291
Trailhead	18	190
Total	**51**	**1,885**

[Source: USDA Forest Service]

Bearlodge

Bearlodge RD is a 200,000-acre area in (USDA Forest Service, n.d a). This district provides developed recreation opportunities including three campgrounds, one horse camp, three interpretive sites, four picnic sites, one snow park, and 11 trailheads. In total, developed facilities in this area can support approximately 1,030 recreation visitors at one time (table 5).

Table 5. Developed recreation sites in the Bearlodge Geographic Area

Developed Site Type	Sites	Capacity (Persons at one time)
Campground	3	330
Horse Camp	1	40
Interpretive Site	3	50
Picnic Site	4	210
Snow Park	1	40
Trailhead	11	350
Total	**23**	**1,030**

[Source: USDA Forest Service]

Developed Recreation Incompatibilities

There are approximately 600 campsites in developed campgrounds within the Black Hills National Forest, but some visitors seek additional settings and types of experiences. Car campers, RV users, equestrians, dispersed backpacking users, and dispersed OHV users may seek different recreation settings (USDA Forest Service, n.d. e). Two identified sources of campsite use incompatibility exist within the Black Hills National Forest: 1) insufficient camping opportunities that are exclusive to equestrians, and 2) a need for additional and expanded camping opportunities for RV campers (USDA Forest Service, 2021).

There are currently approximately 25 sites that can accommodate equestrian users. While these 25 spots could technically meet the demand for most equestrian users, current site availability is not always

adequate for users over holiday weekends and during special events. Although these sites are equipped with the features needed to support equestrians, they are open to reservation and use by non-equestrian users as well. At times, this has resulted in equestrian campers competing with other users for a limited number of spots (USDA Forest Service, 2021).

RV campers are also experiencing a similar issue. Since RV vehicles are much larger than most vehicles, they are unable to use a typical campsite. RV users are therefore limited to a small number of campsites that can accommodate their needs. In addition, some RV users demand additional resources including electric, water, and sewer capabilities on site (USDA Forest Service, 2021). Considering the limited space within the Forest, and the need for additional electric, water, and sewage capabilities, additional RV camping resources are being addressed through opportunities outside the Forest including state parks and private facilities.

Dispersed Recreation

The term "dispersed recreation" is used to describe recreation activities that occur outside of developed recreation sites. Dispersed recreation includes all recreation activities other than camping in campgrounds, activities that occur at resorts and similar facilities, and downhill skiing at ski areas. The only operating ski resort in the Black Hills area is Terry Peak Ski Area, but it is not located within the Black Hills National Forest. As described in the developed recreation section, developed facilities often support dispersed recreation activities.

The Black Hills National Forest is a popular destination for both motorized and non-motorized recreationists. These activities include hunting, fishing, boating, hiking, cross-country skiing, horseback riding, mountain biking, OHV/motorcycle riding, snowmobiling, wildlife, and scenery viewing, and other activities (USDA Forest Service, n.d. o).

Spring/Summer/Fall Recreation Activities

Dispersed activities vary by season. Summer is the busiest time of year, with many local visitors using the forest on single day visits, while others visit for longer periods. Visitors from out of the area come to sightsee or hike, while some plan vacations around the forest and stay in the area for longer periods of time. Most of these visitors are participating in the traditional activities including camping, hiking, scenic viewing, and OHV use; however, newer uses such as mountain biking, utility terrain vehicles (UTVs) riding, and rock climbing are becoming increasingly popular. Rock climbing has become particularly popular at the Wrinkled Rock on State Highway 244 adjacent to the west boundary of Mount Rushmore National Memorial and Sunshine Wall in Spearfish Canyon. Water-based recreation such as boating and fishing occur on the many lakes, streams, and rivers in the Black Hills National Forest. Other water-based recreation including kayaking and paddleboarding are gaining popularity. Gathering forest products (e.g., collecting firewood, foraging for berries and mushrooms, antler sheds, etc.) and photography are popular, while some of the less common activities include recreational mineral panning, and drawing or painting, among others (USDA Forest Service, n.d. o).

In the fall trail activities remain popular, but many users also engage in hunting and aspen foliage viewing.

Summer activities generally occur in the snow-free periods on the Forest. According to the 2019 NVUM survey, the most popular activities include hiking/equestrian/bicycling followed by scenic viewing. Relaxing and driving for pleasure are the next most popular activities. Participation rates for these activities are shown in table 6.

Table 6. Participation in spring/summer/fall dispersed activities by survey respondents, with main activity and participation rates

Activity	Participation (%)
Non-motorized recreation (hiking, equestrian, bicycling)	77.4
Scenic viewing, wildlife viewing, nature study	70.3
Relaxing	58.7
Driving for pleasure (typically on main roads)	46.9
Hunting and fishing	27.1
Boating (motorized, canoe/kayak, rafting, etc.)	16.9
Motorized recreation (mostly on primitive roads and trails)	11.5
Backpacking /primitive camping	5.1
Gathering forest products	4.6

[Source: NVUM 2019]

Winter Recreation Activities

During the winter months snowmobiling, cross-county skiing, snowshoeing, ice skating, and ice fishing are traditional activities that have remained popular. (USDA Forest Service, n.d. p). Fat biking (i.e., winter biking) and ice climbing are two relatively new recreation opportunities that are becoming increasingly popular. In addition to ice climbing, sport climbing users recreate in climbing areas with higher sun exposure like the Sunshine Wall in the Spearfish Canyon.

According to the 2019 NVUM, 14.4 percent of visitors take part in cross-country skiing and other nonmotorized winter activities, while 3.2 percent of visitors take part in snowmobiling and other motorized activities (table 7).

Table 7. Participation in winter dispersed activities by survey respondents, with main activity and participation rates

Activity	Participation (%)
Cross-country skiing and other non-motorized	14.4
Snowmobile and other motorized	3.2

[Source: NVUM 2019]

Dispersed Recreation Incompatibilities

Dispersed camping is allowed in many areas within the Black Hills National Forest. Restrictions on camping locations pertain mainly to proximity to streams and riparian areas and travel routes. In most situations motor vehicles are limited to a maximum distance of 300 feet from the travel route. At other locations, a shorter travel distance is allowed while some locations prohibit any driving off road. Public compliance with these restrictions can be confusing, especially if it appears that a road exists on the ground and no obvious barricades have been placed. A route used to access a dispersed camping site must appear on the motor vehicle use maps (MVUM). Lastly, to be legal, dispersed camping cannot cause resource damage. This requirement is more difficult to define, and therefore is difficult to comply with and enforce (USDA Forest Service, n.d. j).

Areas that are used continually by foot, vehicle, etc., especially those nondurable areas where soils/vegetation are easily impacted and don't quickly recover, cause situations that are incompatible with protecting the environment and providing for sustainable recreation opportunities (USDA Forest Service, n.d. j). The Forest currently does not have Standard Operating Procedure (SOP) for the enforcement of water recreation (e.g., noise, wakes, time of operation, etc.). The Forest's Recreation Program is working to develop a SOP for emergency operations.

Trails and Travel Management

This section is dedicated to both trails and travel management as it relates to motorized recreation. The forest plan revision integrates previous travel management decisions (March 2010) into desired ROS settings in accordance with 2012 planning rule directives. However, specific proposals to add or eliminate motorized use from trails, roads, or areas would be project-level decisions subject to the Agency's travel management regulations (36 CFR 212), which is outside the scope of the plan revision process.

Non-Motorized Trails

The Black Hills National Forest is home to over 400 miles of non-motorized recreation trails. The system of recreation trails connects multiple geographic areas and communities and showcases the Forest by providing user-friendly access (USDA Forest Service, 2018) (Table 8).

Non-motorized trails feature hiking, equestrian, and mountain bike opportunities. All three use types of transportation are allowed on many trails; however, all three uses are not always compatible on the same trail. As a result, users have requested separating user types on some trails. For example, mountain bike-only trails may provide desired experiences for mountain bikers while limiting the interaction with users on foot or horseback. As more people utilize these trails in new ways, it will become more difficult to produce desired experiences for each recreation user group on the same trail (USDA Forest Service, 2021).

The total number of miles of non-motorized trails, by allowed use, is shown in table 8. Trails are normally designed and managed for a particular use, although design elements may accommodate other uses. Other uses may be allowed on the trails, even if not entirely compatible. For example, a trail designed for biking may also allow for hiking.

Table 8. Miles of non-motorized trail by allowed use

Allowed Use Type	Miles
Hiker	35
Hiker/Horse	295
Hiker/Horse/Bike	52
Total	**382**

[Source: USDA Forest Service]

Two new forms of recreation that are gaining popularity include trail running and e-biking. These activities warrant planning consideration when developing plan direction during the upcoming revision process. Three types of E-bikes are classified under the Agency's travel management regulations (36 CFR 212), which may affect motorized and motorized settings and warrant unique consideration per the Forest Service's recreation planning standards (FSM 2311).

Non-motorized users seek a wide variety of experiences in various settings and terrains. Some seek more casual, relaxed experiences, while others seek higher adrenaline or demanding experiences. Trail management seeks to provide a variety of experiences and address the qualities desired by the wide range of users (USDA Forest Service, 2018).

Motorized Trails and Primitive Roads

The Black Hills is also known for its trail opportunities for OHV users. According to the MVUM, the Forest provides over 3,700 miles of roads and trails designated for public use (table 9). These mileages may vary from similar estimates provided in the Infrastructure Assessment, which relies on a report generated from a 2016 dataset. The Infrastructure Assessment also includes categories of roads where only administrative access, or in some cases, permittee access is allowed. This assessment focuses more on publicly accessible roads and trails. OHV travel is allowed only on designated trails and roads. Approximately 700 miles of designated motorized trails are available within the Forest. Many of the trails are connected by nearly 500 miles of "Roads Open to All Vehicles," which together, provide abundant opportunities for planning OHV outings of various degrees of difficulty and lengths, including loop route options. There are currently 21 designated motorized trailheads on the Forest (USDA Forest Service, n.d. m).

Table 9. Roads and trails by motorized vehicle class

Trail/Road Type	Miles
Roads Open to All Vehicles (Seasonal)	133
Roads Open to all Vehicles (Yearlong)	392
Roads Open to Highway Vehicles Only (Seasonal)	861
Roads Open to Highway Vehicles Only (Yearlong)	1,647
Total	**3,033**
Special Designation (Seasonal)	167
Special Designation (Yearlong)	206
Trails Open to All Vehicles (Seasonal)	91
Trails Open to All Vehicles (Yearlong)	61
Trails Open to Motorcycles (Seasonal)	45
Trails Open to Motorcycles (Yearlong)	59
Trails Open to Vehicles 50" or Less in Width (Seasonal)	70
Total	**700**
Grand Total	**3,733**

[Source: USDA Forest Service]

Vehicles are allowed to travel 300 feet from a designated road for dispersed camping on specifically designated routes. These routes are specified in the MVUM. As a result of these camping opportunities, most dispersed camping in the Forest occurs off primitive roads. (USDA Forest Service, n.d. i).

In the past, four-wheel drive (4WD) and high-clearance vehicles were the most popular method of OHV travel on the forest in backcountry settings; however, in recent years, new styles of motorized vehicles have become more popular for recreation. All-terrain vehicle (ATV) use has increased and remains a popular use, but UTVs, or side-by-sides, are gaining in popularity and appear to be replacing some ATV and 4WD use. UTVs are different than ATVs in that they are generally larger, faster, and can seat more riders than ATVs. ATVs generally exhibit three features: a staddle seat position, handlebar steering, and the ability to maneuver through a variety of terrain conditions. Motorcycle use appears to be increasing,

but the Forest has not seen as dramatic an increase in this use as with ATVs and UTVs. UTVs currently require roads for travel, as they are too wide for standard trails, including standard ATV trails. ATV riding is frequently a more action-oriented pursuit, while UTVs are a more comfortable means of accessing areas of the forest (USDA Forest Service, 2021).

Roads and trails are designated as OHV routes in order to limit impacts to the landscape. OHV users are encouraged to follow the Forest's Travel Responsibly Guidelines. The public expressed concerns about trail safety during wet conditions, and the use of trails during wet condition leads to costly repairs and other resource issues. During dry times, the use of motorized vehicles can also pose a wildfire risk. Human-caused wildfires can be ignited when people are driving vehicles that haven't been properly maintained or when people drive off of paved roads.

Motorized vehicles can also be a risk to wildlife. Some wildlife, including elk and mule deer, are greatly affected by motorized roads. Elk and mule deer, and potentially other species within the Black Hills National Forest, shift population distributions depending on the distance from roads (Wisdom et al., 2005). The National Forest Advisory Board Recommendations created a report of recommendations regarding design and management of a designated system of motorized roads, trails, and areas. The recommendations cover topics such as game retrieval, firewood collecting, dispersed camping, and other topics (Blair, 2006).

Motorized users are required to obtain a permit before riding motorized vehicles on trails in the Forest. In 2019, 22,811 permits were sold, in 2020, 31,728 permits were sold, and in 2021, 38,521 permits were sold through the Black Hills National Forest Motorized Trail Permit Program (SOURCE). These permits are only for the Black Hills National Forest in the state of South Dakota. Additional permits were sold through the state of Wyoming, but permits are not specific to the Black Hills National Forest. In Wyoming the Motorized Trail System is a State System and the fees are collected by the State and the Forest is compensated for efforts on the Black Hills National Forest in Wyoming (similar to the Snowmobile System in South Dakota).

Of fees collected from the Motorized Trail Permits in South Dakota, 95 percent goes into a special fund that by law can only be spent to benefit the program. The other five percent stays with the USFS Regional Office. The fee-retention money collected under the Federal Lands Recreation Enhancement Act pays for 100 percent of salaries, vehicles, equipment, supplies, and contracts associated with the Motorized Trail Program for the purpose of selling permits, patrolling, education, maintenance, and construction.

Unauthorized Trails

In addition to system trails that are managed and maintained by the Forest Service, many user-created, unauthorized trails exist within the Forest. These trails have been created by a variety of users including mountain bike users, OHV users, motorbike users, and 4x4 vehicle users. Many times, these user-created trails are created to connect dead-end trails with other existing trails. These trails are being constructed without the authorization and management by the USFS, which has made these trails more susceptible to erosion, destructive of wildlife habitat, and prone to user group conflicts. There is currently a lack of information concerning the condition of these trails because many remain unmapped (USDA Forest Service, 2021).

Trail Incompatibilities

Since trails are used by many different types of recreationists, both motorized and nonmotorized, areas with multiple user types can become contentious. For example, many hikers prefer a relatively easy hike close to major roads, while also getting away from the impacts of motorized OHVs. Similarly, equestrians

usually prefer to experience a trail that has minimal impact from mountain bike and OHV use (USDA Forest Service, 2021). Some trail users have experienced collisions with other vehicles, people, and pets.

Another source of incompatibility on trails relates to user-created trails. Unauthorized trails have been constructed without the authorization of the USFS in order to meet user preferences (e.g., increased trail difficulty options, increased connectivity of trail systems, and increased length of trails). These trails are more susceptible to erosion, may cause soil and water damage, can affect wildlife habitat, can cause conflict among user groups due to changed settings, and may present challenges to first responders along these routes—as these routes are not listed on official maps.

Privately Provided Recreation Opportunities on the Black Hills National Forest

Private businesses provide numerous recreation opportunities on the Forest, enhancing the Black Hills National Forest's recreation programs and providing visitors experiences that may otherwise not be available. For example, there are numerous local rental companies in the Black Hills that offer motorized vehicle rental opportunities. These operations are administered by special use authorizations (permits). The Forest permits a variety of privately provided recreation opportunities, from outfitter-guide services to recreation events to resorts and shelters. The number and type of permits for 2021 is shown in table 10.

Table 10. Private recreation types by ranger district, 2021

	Northern Hills	Mystic	Hell Canyon	Bearlodge	Total
Recreation Residence*	40	64	52	0	**156**
Outfitting and Guiding Service	18	0	8	3	**29**
Snow Play	3	0	0	0	**3**
Golf Course	1	0	0	0	**1**
Cave/Cavern	1	0	0	0	**1**
Recreation Event	18	0	3	1	**22**
Non-Commercial Group Use	2	0	0	0	**2**
Privately Owned Campground	0	1	1	0	**2**
Marina	0	2	0	0	**2**
Concession Campground	0	1	0	0	**1**
Park or Playground	0	0	1	0	**1**

[Source: USDA Forest Service]

* Recreation Residences are a part of the USFS *Recreation Residence Program* (RRP) "Cabin in the Woods" program established by Congress in 1915 to facilitate family recreation experiences on our national forests (*USDA Forest Service, n.d. d*).

Outfitters and Guides

Across the Forest there has been an increase in requests for outfitter and guide permits. Outfitting and guiding occurs mostly within the Northern Hills, with some engagement in Hell Canyon and Bearlodge Districts (table 10). These opportunities include hunting, fly fishing, climbing, hiking, biking, horseback riding, helicopter tours, camping, stand up paddleboarding, OHV tours, survival skills, snowshoeing, cross-country skiing. Existing forest plan provides direction concerning outfitter/guide activities should be harmonious with activities of nonguided visitors.

Recreation Events

Recreation events bring together groups of recreationists to participate in shared activities, such as OHV rides like the Black Hills Cruiser Classic, trail running events like the Black Hills 100, or mountain biking events like the Bearlodge Mtn Classic. Generally, these events occur on existing infrastructure (roads or trails) or in areas that are designated for the event. These events are becoming increasingly popular in the Forest.

Local communities tend to support these events due to the number of participants and spectators that come to the community. Capacity has become an issue in some areas where events take place nearly every summer weekend and can conflict with non-affiliated recreationists and with outfitter-guide operations (USDA Forest Service, 2021).

Privately Operated Facilities

The Black Hills National Forest houses a variety of private operated facilities including two campgrounds, two marinas, one park, one golf course, three snow recreation facilities, a reservoir, and 156 residences. Recreation residences (privately-owned homes located on National Forest System land) are the most popular form of private recreation type within the Forest. These residences are personal property of the owner who pays an annual fee for the use of National Forest System land the cabin sits on. Renewable Special Uses Permits are issued for 20 years at a time. Recreation residences are managed under a separate decision process outside of the forest plan revision.

Recreation Opportunities on Other Federal and State or Local Lands

While the Black Hills National Forest provides a wide range of recreation opportunities within its boundaries, the broader landscape provides additional recreation opportunities. Within 100 miles of the Black Hills National Forest there are two ski resorts, two state parks, multiple state recreation areas, two national parks, two national monuments, one national memorial, two national grassland, and many different private enterprises that offer a variety of recreational opportunities.

Mount Rushmore National Memorial is one of the most popular destinations within the surrounding area. While most visitors travel to Mount Rushmore to admire the enormous, sculpted faces of George Washington, Thomas Jefferson, Theodore Roosevelt, and Abraham Lincoln, there are numerous other ways to experience this site. Other recreation opportunities include environmental and historical education programs, hiking along the Presidential Trail, horseback riding through the Black Elk Wilderness, and taking part in the Junior Ranger Program (National Park Service, n.d. c).

Crazy Horse Memorial is another popular destination located on private land within the Forest boundary. The memorial serves as a site for visitors to engage in educational and cultural programs designed to encourage harmony and reconciliation among all people and nations (Crazy Horse Memorial, n.d.).

Bear Butte State Park is located northeast of the Forest, just outside of the city of Sturgis. The park provides a variety of recreation opportunities in the area including boating, fishing, hiking and walking, horseback riding, museum/visitor center and picnicking (South Dakota Department of Game, Fish and Parks, n.d. a).

Custer State Park, the most visited State Park in all of South Dakota, is adjacent to Black Hills National Forest. There are several outdoor recreation opportunities including camping, fishing, hunting, biking (road/gravel/mountain), birdwatching, wildlife viewing, boating, historic site viewing, horseback riding, interpretive engagement, picnicking, swimming, disc golf, geocaching, paddle sports, snowshoeing, snowmobiling, and stargazing (South Dakota Game, Fish, and Parks, n.d. b).

Devils Tower National Monument is to the west of Black Hills National Forest in Wyoming. Devils Tower is a popular destination for its scenic qualities, climbing and hiking opportunities, and its cultural interpretation experiences.

Wind Cave National Park is located adjacent to Black Hills National Forest in the southwest corner of South Dakota. The area is popular for cave sightseeing, hiking, wildlife viewing (bison, elk, etc.), dispersed camping, biking (road/gravel), geology driving tour, birdwatching, picnicking, and horseback riding (National Park Service, n.d. d).

Thunder Basin National Grassland is located in Wyoming and provides opportunities for recreation, including hiking, sightseeing, hunting, fishing, and dispersed camping (USDA Forest Service, n.d. h).

Keyhole State Park is a popular Wyoming State Park that provides a wide range of recreational opportunities including boating, RV camping, cabin camping, fishing, geocaching, picnicking, hiking, horseback riding, hunting, cross-country skiing, snowshoeing, ice skating, and snowmobiling (Wyoming State Parks, n.d.).

Badlands National Park is a one-hour drive to the east of Black Hills National Forest. This popular National Park known as the "Land of Stone and Light" offers visitors the opportunity for stargazing, wildlife viewing, scenic driving, environmental/cultural interpretation, camping, dispersed camping, horseback riding, and biking (road/gravel/mountain) (National Park Service, n.d. a).

Jewel Cave National Monument is encompassed by the Black Hills National Forest, and it allows visitors to experience the third longest cave in the world. Guided cave tours, hiking trails, historic sites, wildflower fields, and wildlife viewing areas make this a popular area for visitors throughout all seasons of the year (National Park Service, n.d. b).

Fort Meade Recreation Area is a Bureau of Land Management (BLM) managed area located adjacent to the northeast corner of Black Hills National Forest in South Dakota. The mixture of grasslands and forests provides cultural, historic, recreational, and wildlife values. Opportunities for recreation include historic interpretive sites, hiking, camping, picnicking, fishing, horseback riding, and horse camping (BLM, n.d.).

Buffalo Gap National Grassland is located in South Dakota, south of the Black Hills National Forest. This area is popular for OHV riding, mountain biking, camping, dispersed camping, hiking, horseback riding, hunting, nature viewing, outdoor learning, and rockhounding (USDA Forest Service, n.d. c).

National Recreation Demand and Preferences

National Participation Trends

In 2020, 53 percent of Americans aged 6 and over participated in outdoor recreation at least once. This is the highest participation rate on record (Outdoor Industry Association, 2021). A general trend within the past two decades has been a shift towards nature-based recreation. Nature-based recreation is broadly defined as outdoor activities in natural settings or otherwise involving elements of nature. This general trend is resulting in Americans choosing to participate in a different mix of activities compared to other options based around human-built environments. In the US, the most popular outdoor activities by participation rate are running (63.8 million participants), hiking (57.8 participants), fishing (54.7 million participants), biking (52.7 million participants, and camping (47.9 million participants) (Outdoor Industry Association, 2021).

Emerging Trends in Recreation

Advancements in technology and transportation are leading Americans to expand their outdoor experiences—allowing them to go further and faster than ever before. For example, the expanding technology related to snowmobiles has advanced their capabilities and extended their range.

COVID-19 altered recreation trends in 2020, and some of these trends may continue long-term. For example, some recreation activities, like camping at developed sites, became very popular. With a rise in demand for these developed sites, visitors have been planning and reserving campgrounds much earlier than in the past. In this way, COVID-19 has created a need for reserving recreation opportunities in advance.

The internet, and more specifically social media, has increased access to information about recreation opportunities. The growth of social media is influencing recreation in the Black Hills National Forest because it highlights specific campgrounds and trails. Subsequently, some of these sites experience exponential increases in visitation, resulting in both positive and negative impacts on the forest (USDA Forest Service, 2021). On one hand it has created a more inclusive forest that has brought new visitors to experience the Black Hills National Forest. On the other hand, social media has created an influx of visitors that has increased demands on resources and resulted in overcrowding and increased vandalism, graffiti, human waste, excessive noise, and litter at some locations. These impacts may continue to occur before the Forest can properly respond and adjust management practices to achieve sustainable use. While certain sites and trails have experienced large increases in visitor numbers, many other recreational opportunities throughout the Forest remain relatively unaffected by social media.

The internet has also changed the way in which visitors are recreating. For example, geo-caching is a newer high-tech adventure game that is increasing in popularity. Geo-caching merges outdoor recreation with internet use—creating opportunities for people to use their mobile devices to adventure across the landscape (USDA Forest Service, 2021).

Other emerging trends include mountain biking, fat biking e-biking, UTV use, climbing, ice climbing, and recreational drone usage. The growing widths, weight, and power of UTVs were predominate issues of public concern expressed while seeking feedback for the recreation and infrastructure assessments.

Black Hills National Forest Recreation Demand and Preferences

Visitation

The Black Hills National Forest is a popular place to travel and recreate. According to the latest NVUM survey, the Black Hills National Forest experienced approximately 622,000 visitors in 2019. This number excludes the other visitors traveling to other attractions in the region. The Forest has seen increased in motorized-related visitation. According to Forest Service motorized trail permit sales, motorized recreation has increased by approximately 79 percent between 2011 and 2021 (USDA Forest Service, 2021).

Observations and written reports indicate an extraordinary increase in visitation in 2020 in part due to the COVID-19 pandemic (

table 11. annual site visits in the black hills national forest by year). These recent trends are not yet evaluated within the NVUM survey as the survey is only conducted every five years. Beyond the visitation trends associated with the COVID-19 pandemic, the Forest will likely continue to see an increase in local visitation as the cities surrounding the Forest continue to grow. According to the US Census Bureau, Rapid City, South Dakota is the fastest-growing metro area in the Midwest. From 2020 to 2021 Rapid City grew by 1.90 percent— triple the national average of 0.35 percent (U.S. Census Bureau, 2022).

Table 11. Annual site visits in the Black Hills National Forest by year

Year	Annual Site Visits
2009	664,000
2014	690,000
2019	622,000

[Source: USDA Forest Service, 2019, 2014, 2009.]

Visitor Satisfaction

Visitor satisfaction results in the 2019 NVUM surveys showed that more than 80 percent of the people who visited the Black Hills National Forest were "very satisfied" with the overall quality of their recreation experience (table 12). Less than 2 percent of visitors expressed any level of dissatisfaction. NVUM results for any single year may under- or over-represent some groups of visitors. Unusual weather patterns, major fire closures, or unanticipated pulses or lapses in visitation are not incorporated into the sampling framework (USDA Forest Service, 2019).

Table 12. Percentage of national forest visits by overall satisfaction rating

Level of Satisfaction	Percentage of Visitors (%)
Very Satisfied	82.7
Somewhat Satisfied	15.6
Neither Satisfied nor Dissatisfied	1.3
Somewhat Dissatisfied	0.4
Very Dissatisfied	0.0

[Source: USDA Forest Service]

From 2014 to 2019, the satisfaction survey revealed a 0.55 percent increase in satisfaction for developed sites (table 13). Despite the public's perception showing that developed sites are in good condition, Forest Service officials admit that developed recreation sites are not receiving enough upkeep to maintain satisfactory conditions. Forest Service officials believe that this is happening because the public perception of the condition of these sites is being based off the select few highly used recreation sites. Popular sites are also the sites where the Black Hills National Forest can funnel most of its time and resources to maintain satisfactory conditions. While these areas may be in good condition, and may be producing satisfied visitors, this subset of recreation sites is not an accurate representative sample for the Forest as a whole.

Table 13. National forest visitor satisfaction – developed sites

Year	Satisfaction Element	Satisfied Survey Respondents (%)
2019	Developed Facilities	93.2
2019	Access	91.4
2019	Service	80.0
2019	Feeling of Safety	100.0
	Average	**91.2**
2014	Developed Facilities	92.4
2014	Access	94.0

Year	Satisfaction Element	Satisfied Survey Respondents (%)
2014	Service	79.2
2014	Feeling of Safety	98.0
	Average	**90.9**

[Source: USDA Forest Service]

From 2014 to 2019, the satisfaction survey revealed a 2.07 percent decrease in satisfaction for undeveloped areas (table 14). This drop in satisfaction reveals that the undeveloped areas may not be managed in a sustainable way. Forest management may need to focus more heavily on increasing the visitor satisfaction.

Table 14. National forest visitor satisfaction – undeveloped areas

Year	Satisfaction Element	Satisfied Survey Respondents (%)
2019	Developed Facilities	85.0
2019	Access	81.1
2019	Service	68.6
2019	Feeling of Safety	97.4
	Average	**83.0**
2014	Developed Facilities	81.0
2014	Access	84.4
2014	Service	78.4
2014	Feeling of Safety	96.6
	Average	**85.1**

[Source: USDA Forest Service]

From 2014 to 2019, the satisfaction survey revealed a 2.13 percent decrease in satisfaction for designated wilderness areas (table 15).

Table 15. National forest visitor satisfaction – designated wilderness

Year	Satisfaction Element	Satisfied Survey Respondents (%)
2019	Developed Facilities	94.4
2019	Access	92.3
2019	Service	93.0
2019	Feeling of Safety	97.7
	Average	**94.4**
2014	Developed Facilities	100.0
2014	Access	98.8
2014	Service	87.1
2014	Feeling of Safety	100.0
	Average	**96.5**

[Source: USDA Forest Service]

Preferences By Activity

RV Camping

The Black Hills National Forest is continuing to see an increasing number of visitors that are accessing the Forest with larger recreational vehicles (RVs). There are several private and state campgrounds that have sites for larger RVs within the Black Hills region. An increase in RV camping opportunities would increase capacity for this user group, but it also may detract from the more primitive experience that other campers demand. For example, increased light sources from RVs with electricity access, increased noise from power generators, and other common impacts of RVs may diminish other camp users' experiences.

Equestrian Camping

The equestrian community is also demanding more camping opportunities that fit their needs. Expressed needs include camping areas that are exclusive to equestrian users, including more corrals that provide enough space to comfortably accommodate multiple horses on the site (USDA Forest Service, 2021).

Mountain Biking

The mountain biking community is demanding more mountain biking trails and resources to help maintain the quality of trails. Increased collaboration between USFS employees and the mountain biking community could help establish a clear inventory of mountain biking routes and support effective management (USDA Forest Service, 2021).

E-Biking

E-bikes are quickly gaining popularity, and the Agency regulates e-bikes as a specific form of motorized transportation under travel management regulations (36 CFR 212). There are three different classes of e-

bikes that range depending on speed and level of pedal assistance. Given the recent rise in the popularity of e-bikes, the public is demanding more opportunities. The USFS currently allows e-bikes on all roads that are already open to motorized vehicles, as well as on motorized trails. E-bikes may warrant unique consideration while developing plan direction and desired ROS settings.

Motorized Vehicles

The current width restrictions in the Forest are 50 inches in Wyoming and 62 inches in South Dakota. The motorized vehicle community is continuing to demand trails that allow for wider vehicles. Even in South Dakota where many trails have been designed to a 62-inch trail width, the average OHV is now exceeding the expanded width class on the MVUM. Motorized users are also demanding that trails better accommodate all types of motorized use. These include higher density or stacked motorized routes, challenge routes, and looped routes (USDA Forest Service, 2021).

Dispersed Campers

While many groups continue to demand more development and resources to meet their needs, there remains a community of users that demands more primitive uses. These groups are demanding more dispersed camping opportunities and areas with less facility development. Historically, demands for more primitive uses have been met by the Black Elk Wilderness, but some users have expressed a need for this type of experience in other areas of the forest as well (USDA Forest Service, 2021). Unlike many other National Forests, open fires are not allowed outside of developed recreation sites in the Black Hills National Forest. This regulation helps mitigate wildfire risk, but it also poses limitations on dispersed camping users.

Concerns have been identified by users that dispersed camping locations on the Forest are poorly identified and that much of the area open to dispersed camping is not actually accessible or usable for camping. Users have stated that some additional sites or areas may have to be designated and mapped so that those users can find and use suitable sites.

Interpretation and Visitor Education Opportunities

The public is demanding greater engagement with the forest through interpretive opportunities and information centers. This demand is originating from local, regional, and national visitors. Educational opportunities include educational signage, visitor center opportunities, ranger talks and hikes, engaging visitors via social media, and other engagement activities. COVID-19 has limited the amount of public engagement since 2020, so the Black Hills National Forest will need to reconsider the public's needs and preferences when these restrictions have diminished (USDA Forest Service 2021).

Seasonal Changes

During the winter season, new trail conflicts form between user groups. For example, snowshoe hikers and cross-county skiers have conflicting interests on groomed trails because snowshoes impact the smooth trail surface skiers prefer. Current management direction includes providing interpretation, information, and environmental education as an important part of outdoor recreation (USDA Forest Service, 2006). This direction attempts to improve the shared use between user groups snowshoe hikers and cross-country skiers.

Snowmobiling adds another layer of seasonal complexity. The Black Hills National Forest is the most popular snowmobiling destination in the entire state of South Dakota (USDA Forest Service, 2021). Snowshoers and cross-country skiers have similar conflicts with snowmobilers as nonmotorized users have with motorized users during the warmer months of the year. One of the main conflicts involved in

snowmobile use is attributed to technological advances in snowmobiles. Machines are now being made that can travel further and into steeper terrain—giving snowmobilers access to areas where nonmotorized users once predominated. Where there are conflicts between users in areas that are designated as open to motorized over-snow vehicles, the Forest Service maps existing and desired winter ROS settings during development of plan direction and environmental analysis (FSM 2311)

Fat biking is another new activity, gaining in popularity. This new activity provides additional need to balance winter recreation settings. Fat bikers utilize cross-country ski trails, so there can be conflict in certain circumstances. Currently, fat bike routes are authorized on select trails within the Northern Hills District and the Bearlodge District with a special use permit. These trails include Iron Creek/Red Lake Trail, Higgins Gulch, and Big Hill in the Northern Hills District, and Bearlodge Trail and Fish Canyon Trail in the Bearlodge District (USDA Forest Service, 2022).

Multiuse Forest Management

There is concern about the interaction of recreation use and interactions with other activities on the Black Hills National Forest such as grazing, timber harvest, and mineral extraction activities. There may need to be increased levels of communication between use groups to promote coordination and collaboration. According to the Black Hills Stakeholder Assessment report (2021), most participants in the survey report identified timber harvest as a priority issue. Depending on their personal stance, they either identified a trend of harvesting too much timber, not harvesting enough timber, or needing to reevaluate timber harvest to find a more suitable compromise (USDA Forest Service, 2021). Vegetation management is a tool that affects physical recreation settings by actively managing scenery, wildlife, and forest related recreational opportunities.

Sacred Site Access

The Black Hills National Forest is on sacred grounds to the Cheyenne, Arapaho, Mandan, Hidatsa, Arikara, and Eastern Shoshone people. The Crow, Kiowa, Kiowa-Apache, Comanche, and Ute peoples also consider the Black Hills culturally important. Areas including Black Elk Peak (formerly Harney Peak) and Inyan Kara are two of the many Indigenous scared sites. These areas are also hotspots for visitors looking for hiking, climbing, and scenic recreation opportunities.

Balancing recreational opportunities with sacred site ceremonies is a point of contention. According to the Black Hills Stakeholder Assessment Report (2021), tribal members are very concerned about access to sacred sites for ceremonies, and for cultural reasons (e.g., collecting of medicinal plants). This is both positive (allowing some tribal members to have motorized access) and negative (allowing non-tribal members to access sites or disrupt ceremonies). More information concerning sacred sites can be found in the *Cultural and Historic Resources Planning Assessment*. Through the Section 106 consultation process, management tools will be explored for preventing impacts to cultural resource sites during the forthcoming environmental analysis.

Connecting People with Nature

The Forest is a valuable place for facilitating a connection between visitors and nature. When visitors come to the Black Hills, there is a natural connection to this place because of its unique beauty and recreation opportunities.

The Black Hills National Forest utilizes several different tools to help further engage visitors with nature. Resources, including environmental education, interpretation, stewardship, volunteering, and partnership programs, are used to help to facilitate more frequent, deeper connections to nature. The Black Hills National Forest has a long history of providing education and interpretation opportunities related to

natural and cultural resources. One of the unique natural and cultural education opportunities the Black Hills National Forest offers are "Moon Walks." Moon Walks are interpretive walks/hikes that take place during the summer months. These tours are led by local specialists and cover a variety of seasonally appropriate natural resource topics and related cultural resource topics (USDA Forest Service, 2021). The Black Hills National Forest also utilizes outdoor displays and interpretive signage to help guide, educate, and inspire visitors during their time in the Forest.

Currently the Black Hills National Forest does not have the fiscal capability of meeting the rising number of Forest visitors and providing the necessary level of amenities and resources. One example of a failure to meet the rising demand for Black Hills National Forest visitors is the closure of the Pactola Visitor Center (USDA Forest Service, 2021). The Pactola Visitors Center was closed during the COVID-19 pandemic, from the 2019 season to the summer of 2022. (USDA Forest Service, 2021). The Pactola Visitor Center formerly acted as a hub for the one million vehicles that pass by the center each year. The center acted as a resource for gaining information about the Forest, how to maximize the visitor's experience, and how to interact with the resources respectively and responsibly. The Visitor Center has since been reopened and will continue to be opened as limited funding allows.

In the future, there also needs to be more opportunities for visitors to access and connect with more remote areas of the Forest. This will help spread usage more evenly throughout the region. This can be facilitated through modern methods of visitor connection (e.g., via social media) that attract visitors and provide the necessary resources to connect them to new areas.

Inclusivity and Diversity

Social sustainability is a key component of future recreation in the Black Hills National Forest. To promote more inclusive Forest recreation opportunities, future management needs to be adjusted to help engage minority groups and low-income families.

Minorities

The 2019 NVUM shows a wide disparity in the use of the Forest by different racial and ethnic groups. According to the 2019 NVUM survey, 94.8 percent of visitors to the forest are white. The next most frequent visitor race/ethnicity was marked as American Indian/Alaskan Native with 3.6 percent visitation. Hispanic/Latino visitation is 3.0 percent and Asian visitors make up 2.4 percent. Black /African American visitors are especially underrepresented in the Black Hills National Forest as the survey concluded that they only represented 0.1 percent of visitors (table 16).

Table 16. Percentage of national forest visits by race

Race / Ethnicity[1]	Survey Respondents[2]	National Forest* Visits (%)[3, 4]
American Indian / Alaskan Native	20	3.6
Asian	8	2.4
Black / African American	2	0.1
Hawaiian / Pacific Islander	1	0.0
White	684	94.8
Hispanic / Latino	26	3.0
Total	**715**	**100.9**

[Source: USDA Forest Service]

1 – Race and ethnicity were asked as two separate questions.

2 – Non-respondents to race/ethnicity questions were excluded from analysis.

3 – Respondents could choose more than one racial group, so the total may be more than 100 percent.

4 – Calculations are computed using weights that expand the sample of individuals to the population of national forest visits.

*A national forest visit is defined as the entry of one person upon a national forest to participate in recreation activities for an unspecified period. A national forest visit can be composed of multiple site visits.

There are a variety of actions the forest can take to create a more inclusive community that allows minority groups to feel comfortable in the Black Hills National Forest. These steps, which include administrative decisions that are not all guided specifically by the forest plan, involve hiring more racially diverse staff that hold positions of power, basing recreation programs on topics that are relevant to the environments and cultures of minority groups, building relationships with communities of interest, partnering with diverse community organizations regarding inclusion and diversity, providing recreation opportunities that suit the needs of different cultural preferences (e.g., providing areas of communal shared experiences for Latino users), providing transportation arrangements from surrounding communities, and engaging communities via media communications (Sharik et al., 2015; Roberts, 2015; Brehem, 2007; Burnes and Graefe, 2007).

The United States is on track to become a majority-minority country by 2044. In addition, there is a disproportionate utilization of recreation resources on USFS lands that is leading to a large inequity gap (approximately -23.8 percent) (Flores et al., 2018). It is becoming increasingly important to incorporate and engage minority communities in the use of these lands. Not acting on these needs would alienate these recreation users, and would subsequently result in a loss to visitors, potential visitors, and to the USFS.

Low Income Families

According to the 2019 NVUM, nearly 60 percent of visitors have an income between $25,000 to $74,999. Approximately 20 percent of visitors have an income above this amount and 1.2 percent of visitors have an income below that amount.

Parks and public lands like the Black Hills National Forest are open to everyone, but opportunities to use the Forest are not currently equitable for all. National studies have determined that lower-income households feel more constrained due to financial stress, health concerns, inadequate transportation, lacking activity partners, fear of being in forests, pollution, outdoor pests, feelings of being unwelcome or uncomfortable, can’t understand the language, physically limiting health conditions, and/or a lack of accommodations for household members with disabilities (Cordell, 2012).

Native American Tribes

The Black Hills have been inhabited by Indigenous peoples for more than 15,000 years and possibly longer. The Lakota and Dakota currently hold treaty rights to the area of the Black Hills National Forest, but many other tribes have developed sacred connections to the land.

Today, these tribes still have a connection to the Black Hills region, but few Native Americans visit Black Hills National Forest. According to the 2019 NVUM, American Indian/Alaskan Native visitors only make up 3.6 percent of visitors to the Forest.

Non-native researchers are beginning to put in more effort to include a variety of Native American perspectives when developing policy that is intended to uphold sustainability. Given the connection these tribes have developed with the Black Hills, engaging these communities and integrating Indigenous knowledge into the management of the Forest is necessary for achieving sustainability goals.

Barriers to Participation

As the Black Hills National Forest seeks to improve inclusivity and diversity, the Forest will need to recognize the current barriers to participation. Constraints to outdoor recreation within South Dakota are summarized in table 17. This information is provided by South Dakota's Statewide Comprehensive Outdoor Recreation Plan (SCORP) (South Dakota Game, Fish and Parks, 2018).

More than 7 percent of survey respondents do not feel welcome, while more than 10 percent of survey respondents report that they are deterred by lack of information. More than 10 percent of survey respondents feel that the facility they want doesn't exist in parks, 30 percent of survey respondents say that parks and recreation areas are too crowded, and almost 4 percent of survey respondents say that parks are dirty or poorly maintained. Additionally, approximately 1 percent of survey respondents say that there is a lack of transportation to parks.

Table 17. Summary of constraints in outdoor recreation

Constraint	Entirely Disagree	Disagree	Neutral	Agree	Entirely Agree	Participants that Agree with the Constraint
Don't feel welcome	44.13%	32.69%	15.90%	5.62%	1.66%	**6.92 %**
Lack of information	32.72%	32.76%	23.94%	9.67%	0.89%	**10.56%**
The facility I want doesn't exist in parks	24.91%	34.81%	30.10%	6.99%	3.19%	**10.18%**
Parks and recreation areas are too crowded	12.57%	25.92%	31.49%	23.47%	6.55%	**27.1%**
Nearby parks are dirty or poorly maintained	36.43%	41.66%	18.28%	2.77%	0.86%	**3.63%**
Lack of transportation to parks	48.56%	38.18%	12.25%	0.77%	0.24%	**1.01%**

[Source: USDA Forest Service]

The development and increasing use of ATVs, UTVs, and motorcycles on the available routes has exacerbated the impact of noise pollution on the landscape. While developing plan direction, the Forest will allocate desired recreation settings across its landscapes to provide a balance between motorized settings and non-motorized settings. These settings consider the effects of sight and sound on visitors' opportunities.

As motorized and non-motorized recreation become more popular, there is contention about the optimum allocation or extent of motorized and non-motorized recreational opportunities in the Black Hills National Forest. Opponents of OHVs (including ATV, UTV, 4WD, and snowmobile) assert that motorized vehicles damage the environment and cultural artifacts, pose safety concerns, and conflict with other forms of recreation. They also contend that staffing levels and recreation budgets are insufficient to adequately monitor motorized use and its impacts on natural resources. Among environmental concerns raised by OHV critics are potential damage to wildlife habitat and land and water ecosystems; the impact of dust on winter snow melt and water supply; noise, air, and water pollution; and a diminished experience for recreationists seeking quiet and solitude and/or hunting and fishing opportunities. Critics also point to the beneficial economic impact of non-motorized recreation on local communities. According to the Black Hills Stakeholder Assessment Report (USDA Forest Service, 2021), there is a trend of survey responses that note a "proliferation of OHV use."

OHV and snowmobile supporters contend that using motorized vehicles allows visitors to access hard-to-reach natural areas; brings economic benefits to communities serving riders; and provides outdoor recreation opportunities for the disabled, senior citizens, and others with mobility limitations.

Snowmobiles also allow increased access to sites during the winter. Recreation technology is developing to decrease noise and air pollution nuisances.

One key issue for integrating motorized and non-motorized opportunity settings is the large amount of land needed to separate uses for sound barrier creation. For example, the distance between an OHV trail and a hiking trail needs to be far enough that hikers cannot hear motorized engines. To strike a balance between uses, recreation opportunities may need to be altered to allow more intense motorized use in one area or more non-motorized use in another. Alternatively, motorized and nonmotorized recreation can be incorporated in closer proximity and users can decide whether to use the site or not. For a visual representation of motorized and nonmotorized opportunity settings reference Map 1 (Appendix A).

To address trail conflicts between different user groups, trail strategies similar to the Shanks Quarry Multiple Use Trail System offer opportunities to decrease trail conflicts by designing trail systems that simultaneously meet the needs of non-motorized and motorized trail users. Opportunities to replicate similar trail design exist across the Forest.

The interaction between motorized vehicle users and private homeowners is one of the main points of contention with motorized recreation. Many private homeowners have been vocal about their distaste for the noise, dust, and speed of motorized vehicle use near their homes. Different management techniques could be reviewed for motorized trails versus roads.

Snowmobiling adds another layer of complexity within this area of management. The Black Hills National Forest is the most popular snowmobiling destination in the entire state of South Dakota (USDA Forest Service, 2021). Snowshoers and cross-country skiers have similar conflicts with snowmobilers as nonmotorized users have with motorized users during the warmer months of the year. One of the main conflicts involved in snowmobile use is attributed to technological advances in snowmobiles. Machines are now being made that can travel further and into steeper terrain—giving snowmobilers access to areas where nonmotorized users once predominated. Management must evolve alongside snowmobile technology to maintain an appropriate balance between winter motorized and non-motorized uses.

As emerging trends in recreation continue to develop, new conflicts will arise between Forest visitors. These evolving issues will continue to challenge the Black Hills National Forest and require new management responses.

Spatial Layout and Popularity

According to the Recreation Program Manager of Black Hills National Forest, “the current level of recreation is sustainable if recreation is diversified across the forest (SOURCE).” Since most recreation is currently located in a few hotspots around the Forest, much of the human impact is magnified in these areas. As illustrated by Map 3 (Appendix A), the red areas represent heavily used “hotspots” within the Forest, primarily located in the northeastern portion. They are clustered along major travel routes, near urban centers, and near popular developed multi-use recreation areas like the Pactola Reservoir and Sheridan Lake. There are several other areas that are considered “hot spots” for recreation, but much of the Forest is marked as “low recreation use.” For example, much of its southern end has little usage except for the Blue Bird and Martin trailheads. This area (commonly referred to as the Martin Trail System) is popular with ATV users for its 50-mile scenic loop, but there is not much diversity in activity in that region beyond the scenic loop.

If the Forest is to sustain long term use that upholds its health, diversity, and productivity, several goals need to be met. Recreation usage within the Forest needs to be diversified in three different ways: 1) the type of recreation; 2) the geospatial location of these activities; and 3) their seasonality. If the forest managers can diversify these three aspects, they may be able to shift the negative stressors of intense recreation usage for certain activities concentrated in specific areas and times of the year. Setting year-

round, desired ROS settings across the Black Hills National Forest may help satisfy these conditions by setting thresholds related to capacity, location, and type of recreation.

Multiuse Management

Public comments expressed interest in plan direction that addresses conflicts between recreation, cattle, and range permittees. In subsequent steps to develop plan direction, the Forest may consider actions needed to help minimize negative impacts between increasing recreation users and grazing permittees.

Developed Recreation

Horse Camping

The equestrian community is requesting more camping opportunities that fit their needs, including camping areas that are exclusive to equestrian users. For more information concerning these needs, reference the Equestrian Camping section under Preferences By Activity.

RV Camping

The Black Hills National Forest continues to see an increasing number of visitors recreating with larger RVs. There are currently insufficient camping sites that can accommodate these larger vehicles (USDA Forest Service, 2021). These changes could be reflected in a change to ROS to provide more opportunities specific to RV users. Adding more RV camping opportunities may require reconstructing existing road access, road maintenance, and additional electricity and sewage resources. While these additional resources would help accommodate the growing number of RV camping users, these additions could also lead to user conflicts. An increase in generator noise and light pollution could impede the experience for non-RV camping users who are seeking out more rustic experiences.

Dispersed Recreation

Dispersed Camping

There is currently a lack of accessible quantitative data concerning impacts of dispersed camping. New information has been gathered on dispersed camping in recent years, but it is not available in electronic format or in a standard mapping system. Therefore, the only reliable information available includes observations from written reports.

There is also a lack of information available to Forest visitors regarding areas open/closed to dispersed camping, requiring a need for better identification of potential dispersed camping areas. Currently, the only areas identified as open to dispersed camping on the MVUM are along designated open roads, even though much of the open area is not accessible or usable for camping. Plan direction related to dispersed camping management could be developed as a proposed action is developed for a revised plan.

Trail Conflicts

The Forest currently has many unauthorized trails. There is currently a lack of information concerning the condition of these trails because they are not system routes and are unmapped by the USFS. There may be a need to develop plan direction for management of unauthorized routes.

There are also areas where trail conflicts between user groups occur due to poor trail design, such as blind corners and very narrow trails with cliffs. These areas pose a hazard to equestrian users and hikers when encountering mountain bikes. Some of these trails may need different or additional management direction to provide safety for all users. For example, some trails may require a separation of different use types for visitor safety, as is the case for a section of the Centennial Trail from Pilot Knob to Dalton Lake which has both motorized and non-motorized use. If applicable at the forest plan level, direction may be considered to manage trails with heavy uses.

E-Bikes

The USFS classifies e-bikes as motorized transportation. The increasing use of e-bikes may require new management direction to help mitigate the impacts from this new user group. Additionally, e-bikes may need to be identified and managed by different equipment types because e-bikes have wide-ranging differences (i.e., speed and level of pedal assistance). These differences may warrant designating equipment types for desired recreation settings.

Climbing

Rock climbing has become particularly popular in various areas of the Forest including Wrinkled Rock, located on State Highway 244 adjacent to the west boundary of Mount Rushmore National Memorial, and Sunshine Wall in Spearfish Canyon. Ice climbing has also increased in popularity in areas like Spearfish Canyon. There are many climbs within the Forest with easy access and no avalanche danger while offering challenges on vertical ice formed by springs and waterfalls (Black Hills and Badlands SD, 2022).

While there are many opportunities for ice climbing, there are currently no guiding services authorized for ice climbing in Black Hills National Forest (Black Hills and Badlands SD, 2022). This is problematic considering that ice climbing is inherently dangerous, and the gear and the knowledge needed to participate in a responsible manner poses a significant barrier to entry. The Black Hills National Forest could help increase winter visitation, diversify recreation hotspots, and improve future safety if managers engaged with the ice climbing community. Existing plan direction that presents barriers to issuing outfitter guide permits should be considered during revision to align with contemporary policy and special uses modernization goals.

Winter Recreation Opportunity Spectrum

Forest Service Manual direction (FSM 2311) requires development of desired winter ROS settings where relevant, or in other words, in administrative units that are required to designate routes or areas as open to motorized over-snow travel. It is likely that not all areas of the Black Hills National Forest are subject to this requirement, but areas of the Forest that allow snowmobiles would need to:

- Map and convey the existing condition of recreation settings, opportunities, and predicted experiences and other associated benefits across the plan area. (Reference, FSH 1909.12, sec. 23.23a, ex. 01; sec. 23.23a 1d and 2a). The characteristics of each ROS setting (class) are displayed in exhibit 01.
    - Use the latest National ROS inventory protocols to map existing ROS classes for summer, and where relevant, winter settings: http://fsweb.datamgt.fs.fed.us/current_data_dictionary/index.shtml.
    - Review decisions from Subpart B (for example, Motor Vehicle Use Maps) and Subpart C (for example, Over-Snow Vehicle Use Maps) of the Travel Management Rule to inform existing summer and winter ROS settings. (FSH 1909.12, sec. 23.23l, 2 and 23.23l, 3a & c)
- Map and convey desired recreation settings and opportunities. Desired ROS classes must be …Reflective of seasonal changes by describing and mapping desired winter ROS classes where relevant (for example, for those units subject to 36 CFR 212.81 – Over-snow Vehicle Use.)

Special Events

Additional management direction may be considered to help facilitate shared resources between special use events and other non-affiliated recreationists and outfitter-guide operations.

Scenic Character

Scenic integrity is the degree to which a landscape is visually perceived to be complete. Higher scenic integrity ratings are generally applied to areas with less visual evidence of human activities, but human alterations may not reduce scenic integrity if they have become accepted over time as positive landscape character values (USDA Forest Service, 2017).

Existing Condition of Scenic Character

Consisting of 1.2 million acres of forested hills and mountains, the Black Hills rise from the adjacent grasslands into a ponderosa pine forest (i.e., the “Island in the Plains) (USDA Forest Service, n.d. b). This scenery is what brings many visitors to the area. In fact, according to the 2019 NVUM, other than non-motorized recreation, scenic viewing is the most popular form of recreation in the Forest.

Since the last forest plan, the Black Hills National Forest has become less densely forested, but it has become more densely forested historically. This trend is attributed to fire impacts and the mountain pine beetle epidemic. The current mountain pine beetle epidemic has affected more than 430.000 acres in the

Black Hills National Forest area of South Dakota and Wyoming since 1996 (USDA Forest Service, 2013). The epidemic affected a large portion of the Forest on the South Dakota side (figure 1). The vegetation killed by pine beetles also fuels the opportunity for forest fires. Between the beetle kill and forest fires, much of the pine forest in this area now has an open canopy, with fewer live, mature trees (USDA Forest Service, 2018). Doghair forest and slash piles block the viewshed in the Forest, contributing to a low scenic integrity in these areas. For more information regarding the impact of the mountain pine beetle, reference the *Forest Ecosystems and Insects Diseases* and *Invasive Species* assessments.

Management practices have also contributed to the change in the landscape as the USFS seeks to maintain resilient forests by mitigating the impacts of wildfires and insect epidemics and maintaining the scenic character of the Forest. Many residents and landowners around Black Hills National Forest are concerned with management of National Forest System (NFS) lands. Much of the project area is wildland-urban interface due to interspersion of NFS and private lands. Since NFS lands are visible from many homes within the project area boundary and from adjacent communities, the public is very engaged in this topic (USDA Forest Service, 2017).

Scenic integrity objectives (SIO) represent desired conditions for the visual landscape. SIO is defined as a combination of the physical, biological, and cultural images that gives an area its scenic identity and contributes to its sense of place (Brunswick, 2018). See Map 2 in Appendix A.

Approximately 43 percent of the Black Hills National Forest is made up of “low” scenic value, while approximately 14 percent is considered to have “high” scenic value. A large portion of the forest (approximately 41 percent) is considered to have “moderate” scenic integrity. Less than 2 percent of the Forest is identified as having either “very high” or “very low” scenic integrity (table 18).

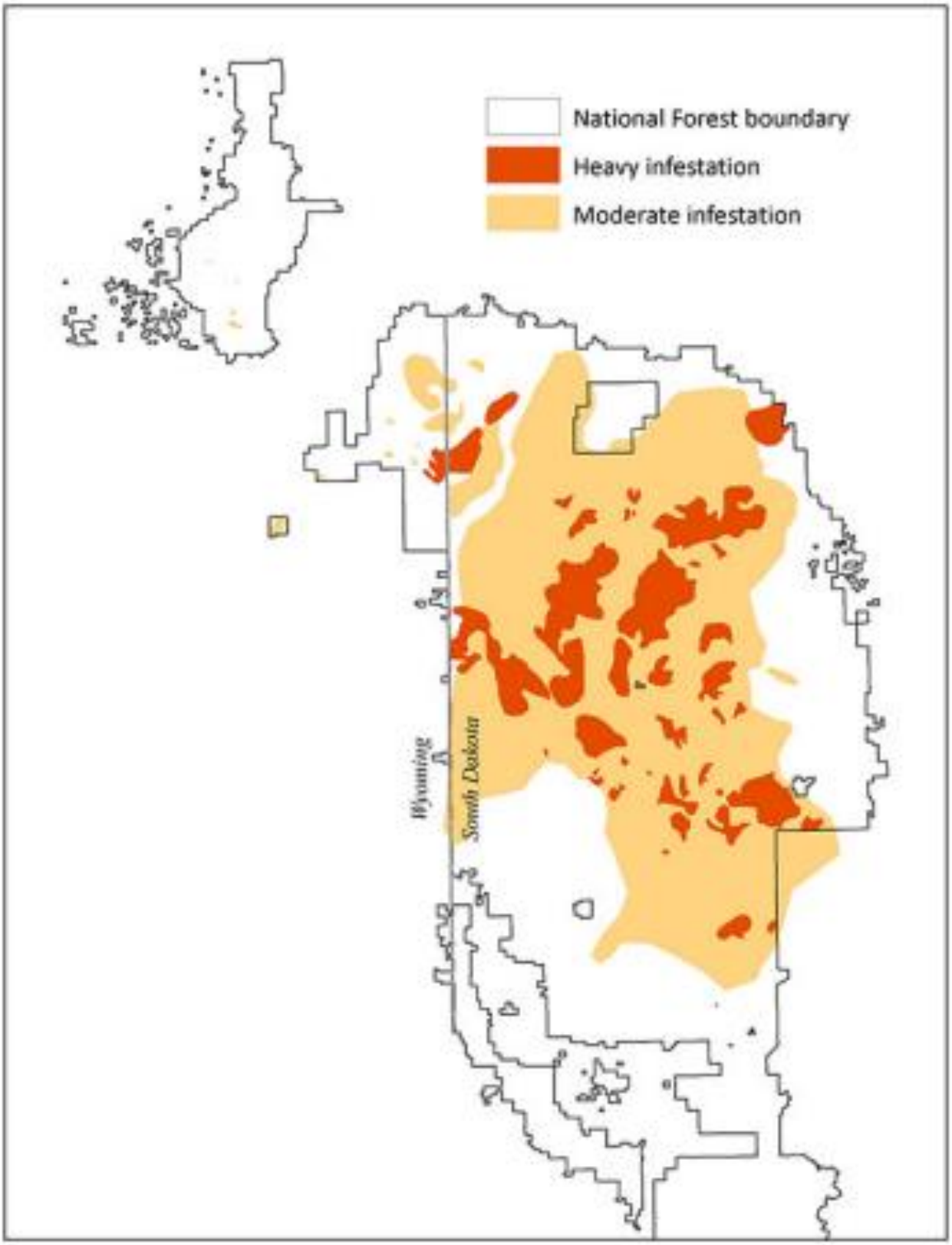
Table 18. Scenic integrity objective, by acres

Scenic Integrity Objective Level	Total (Acres)*	Percent of Total Acreage (%)
High	172,732	14
Low	539,854	43
Moderate	508,005	41
Very High	14,834	1
Very Low	4,484	<1
Total	**1,248,539**	**100**

[Source: USDA Forest Service]

*8,628.62 acres of land (0.69% of the total acreage) are not represented in this table because they are not Forest land.

A large portion of the Forest has experienced the mountain pine beetle infestation between 1997 and 2015 (figure 1). Considering the significant overlap between pine beetle infestation (figure 1) and areas with potential timber to be infested (i.e., areas with high levels of scenic integrity before infestation) (Appendix A, Map 2), the Forest has subsequently experienced a change in scenic character during this period.



[Source: USDA Forest Service 2017]

Figure 1. General areas of mountain pine beetle infestation, 1997-2015

Current Forest Plan and its Context within the Broader Landscape

The current forest plan states that human activities should not be “visually evident” in areas with high scenic integrity. Due to the long history of mining, timber harvest, and other actions on the Black Hills National Forest, as well as development of private lands within the Black Hills National Forest, the existing landscape character in many areas includes visual evidence of human activities. The degree to which proposed activities may alter scenic integrity should be interpreted in this context (USDA Forest Service, 2017).

The Black Hills National Forest strives to maintain the integrity of the scenic character of the Forest by managing the forest in a way that mimics natural patterns in the landscape. This is accomplished by avoiding straight edges to timber cutting boundaries, avoiding cutting boundaries that run straight up the nose of a ridge, avoiding cutting units that are geometrically shaped, and avoiding earthmoving activities that leave ‘raw’ un-vegetated landforms (i.e. – material sources, etc.) in the landscape (USDA Forest Service, 2006; USDA Forest Service, 2021).

Management is also geared to avoid placing above ground utilities (powerlines, cell towers, etc.) in scenic corridors (USDA Forest Service, 2021). When incorporating human-built features into the landscape, management focuses on designing structures that blend in with the landscape by strategically placing these features in areas where landforms reduce their visibility. The USFS accomplishes this goal by following the Architectural Guidelines for the Rocky Mountain Province (see USDA-FS, FS-701, “The Built Environment Image Guide for The National Forests and Grasslands”, December 2001) (USDA Forest Service, 2021).

When possible, management seeks to maintain, or improve, the ecological conditions within the viewshed. This involves restoring degraded areas in a way that supports the natural ecological diversity within these ecosystems (USDA Forest Service, 2021). The Black Hills National Forest uses four priorities for rehabilitating areas that do not meet SIO: 1) Relative importance of the area and the amount of deviation from the scenic integrity objectives (“foreground” of high public use areas has highest priority); 2) length of time it will take natural processes to reduce the visual impacts so that they meet the scenic integrity objective(s); 3) length of time it will take for rehabilitation measures to meet the scenic integrity objective; and 4) benefits to other resource management objectives to accomplish rehabilitation (USDA Forest Service, 2006).

Since the 1997 forest plan was implemented, scenic character in the Forest has changed considerably mainly due to fire impacts and insect epidemics, and the corresponding vegetation treatments to respond to these events. Heading into the future, several factors may affect conditions in the Forest: 1) more people will be visiting the Forest and recreating in new ways, 2) the Forest could potentially experience further resource development, 3) neighboring private land could be further developed, 4) seismic activity, and 5) climate change. Each of these factors are discussed below.

Visitor Number Increase

As stated previously, the number of people visiting the Black Hills National Forest is continuing to increase. As the human population continues to increase around the Black Hills and beyond, more people will be demanding recreational opportunities on the Forest and impacts will increase. According to the Census Bureau, South Dakota has experienced an 8.9 percent increase in population since 2010 and Wyoming has experienced a 6.1 percent increase during that same time (United States Census Bureau, 2020). This population growth will supply an increasing number of local visitors. Another notable trend is the population increase throughout the American west in general. As the west continues to become more populated, more and more visitors will turn to the Black Hills as a recreation hotspot. There are several reasons for this likely visitation growth: 1) I Black Hills is less crowded than the well-known National Parks and other public lands in the west and more recreationists are in search of less crowded lands; the

Black Hills National Forest is a hub of recreation opportunity that is close to several other popular public land destinations including Devils Tower National Monument, Mt. Rushmore National Memorial, and Wind Cave National Park; 3) Rapid City (the largest city on the periphery of the Forest) is the fastest-growing metro area in the Midwest (U.S. Census Bureau, 2022a), and 4) traveling to Black Hills National Forest is a short drive from booming urban centers like Denver, Colorado. Denver and its surrounding suburbs are experiencing a population boom with some counties growing by over 30 percent within the past decade (World Population Review, 2021). As Denver and the surrounding Colorado Front Range continue to grow, the new influx of people will continue to support growing visitation levels in the Black Hills National Forest.

With a growing number of visitors, the Black Hills National Forest will need to recognize the increased impacts on the Forest. The spike in visitation levels observed in 2020 provides a potential glimpse of the future. The increase in visitation from 2020 put more pressure on the Forest's resources, especially on campsites. This higher level of use has carried into 2021. (USDA Forest Service, 2021). If this trend continues, more visitors will result in the crowding of existing popular sites, as well as the increased use of some of the less popular sites. This means that recreation management on the Black Hills National Forest not only needs to focus management towards the well-known sites that are receiving the most visitation, but that they need to increase management of the lesser-known areas that will continue to experience more visitor use. As depicted in Map 3 (Appendix A), the Forest is currently experiencing the most visitation in the areas marked in red. These areas are clustered along major travel routes and popular developed recreation areas like the Pactola Reservoir and Sheridan Lake. Over time, these areas will continue to expand, and the Forest will continue to experience more usage throughout the entire landscape.

Human Development

Since National Forests have a multiple-use management mandate that balances conservation and resource extraction, there is potential for human activity to further alter the Forest. For example, the Black Hills National Forest already has high kilovolt powerlines and open pit mines that affect the visual appearance and ecological integrity of the landscape. In the future, these human developments could expand, or new developments could be initiated in new areas (USDA Forest Service, 2021).

Private Land Development

The Black Hills National Forest is surrounded by and intermingled with parcels of private land. The forest plan does not regulate private lands, but private land development affects the settings that can be provided on adjacent NFS lands. As these lands continue to be developed in the future, the character of the Forest will continue to change (USDA Forest Service, 2021).

Hazardous Geological Conditions

The most prominent hazards in the Black Hills National Forest are subsidence associated with karst collapse and mining and mass wasting events including landslides. The Cook Lake area is an example of an area with hazardous geologic conditions. The bluff next to Cook Lake Campground is experiencing seismic movement, which has resulted in the closure of the section of the campground closest to the bluff. The campground will continue to be monitored because landslide activity could potentially cause injury or death (USDA Forest Service, 2021). Future seismic activity will continue to alter the natural and human-built landscape. More information can be found in the *Draft Renewable and Nonrenewable Energy Planning Assessment*.

Current and future mining efforts may potentially alter the character of the Forest as well.

Climate Change

Over the last century, the average temperature in the Black Hills region has risen around 2°F (Timberlake et al., 2021). Some of these impacts are already noticeable to the public. According to the Black Hills Stakeholder Assessment report (2021), "impacts of drought and climate change on water resources was a common concern raised by multiple participants." The impacts associated with climate change are comprehensive because they affect nearly every aspect of the Forest including the lengths of the seasons, the influence of insects and diseases, wildfire risk, change to plants and wildlife, and changes to freshwater availability.

Length of Summer/Winter Recreation Seasons

In general, the length of the summer recreation season will increase as climate change continues (Timberlake et al., 2021). This change in season lengths will result in increased demand in both the spring and fall for certain activities. Prolonged summer recreation seasons will also lead to an increased demand on keeping developed recreation sites and facilities open for longer than their traditional seasons. A longer field season may lead to more operations and maintenance expenses for the Black Hills National Forest that will challenge the hiring capabilities and budgetary restrictions of the Forest. This seasonal shift will also result in a shorter winter recreation season. This will impact snow-based activities including snowshoeing, cross country skiing, fat biking, snowmobiling, and ice fishing. Many winter-based recreation areas are recognizing these future impacts and are pursuing an expansion of warm weather recreation offerings.

Insects and Disease

A changing climate results in expanded opportunities for invasive insects and diseases to enter the ecosystem and allows native insects and diseases to spread in new ways. For example, the mountain pine beetle (native to the Black Hills National Forest) has changed the character and ecological balance of the Forest since the 1890s. The first, and largest, recorded epidemic in the Black Hills occurred from the late 1890's through the early 1900s. This epidemic killed an estimated 90 percent of merchantable timber within the Forest. Epidemics have occurred in 8–20-year increments since that time, with the current epidemic beginning in 1996 and returning to endemic status in 2016 (Schotzko et al., 2016). These patterns of insect and disease events have and will continue to require corresponding vegetation management responses. More information can be found in the *Draft Insects, Disease, and Invasive Species Planning Assessment*.

Wildfire

Climate change is leading to larger and longer-burning wildfires, resulting in substantial effects to the quality and sustainability of recreation settings and opportunities in both the short- and long-term, directly (e.g., higher temperature) and indirectly (e.g., increased wildfire frequency) (Timberlake et al., 2021).

Wildfire can close businesses, destroy Forest infrastructure (i.e., campgrounds, roads, trails, and trailheads), result in temporary fire bans in high-risk areas, and reduce the appeal of recreation and tourism for the public. Recreationists and local communities are often concerned about the effects of smoke on health and safety. Visitors may avoid areas that have been burned, as scenic integrity and fewer visitor services make the landscape less attractive for recreation (USDA Forest Service, 2017). Through prudent management practices, an active timber industry could help reduce the threat of wildfires.

Plants and Wildlife

Many of the plant and wildlife species on the Forest are impacted by climate change. Climate change is likely to continue to include warmer water temperatures, earlier snowmelt-driven runoff, increased flooding, and more variable summer flows, as well as indirect changes caused by shifts in disturbance regimes (Timberlake et al., 2021).

Wildflowers and other plant species that attract visitors are also impacted. An earlier onset and prolonged warm season will result in phenological changes for some plant species. Decreasing water availability has a negative impact on most plant life. Aspens, which attract large amounts of visitors each autumn, require consistent water supply to produce their well-known golden colors each fall. Decreases in water supply result in poor aspen colors and could potentially eliminate a substantial number of visitors during the fall season. Lastly, changes in climate opens the opportunity for invasive species to fill new niches in the ecosystem (Timberlake et al., 2021).

Freshwater Recreation

With higher air temperatures, lakes, streams, rivers, and reservoirs in the Black Hills National Forest has been experiencing ecological change in water quantity and quality. These waters are at higher risk for drought conditions that may result in lower reservoir levels and negative impacts on reservoir-based activities. River-based activities such as trout fishing are also vulnerable to the changes in runoff and lower water levels (USDA Forest Service, 2017). Climate change has also led to a decrease in water quality. Increased sedimentation associated with forest fires decreases water quality and lakes and reservoirs may be subject to harmful algal blooms as water temperature increases, creating hazardous conditions for humans and pets. Algal blooms have been previously observed in Stockade Lake, Custer State Park. (Timberlake et al., 2021).

Management

Travel Management

Standards for the management of motorized travel in the Black Hills National Forest are specified in the forest plan (USDA Forest Service, 2006). Designated NFS roads are open all year to appropriate motorized vehicle use, unless closed for one or more of the following:

- Motorized use conflicts with forest plan objectives.
- Motorized use is incompatible with the ROS class.
- Motorized use creates user conflicts that result in unsafe conditions.
- Physical characteristics of travelway(s) preclude any form of motorized use.
- Travelways do not serve an existing or identified future public need.
- Financing is not available for maintenance necessary to protect resources.
- Seasonal travel restrictions are required.

Travel management standards for each Forest Management Area, as identified in the forest plan, are shown in table 19 (USDA Forest Service, 2007). More information regarding land ownership can be found within the *Draft Land Status and Ownership Planning Assessment.*

Table 19. Travel management standards for the Black Hills National Forest management areas

Management Areas	Motorized Road Travel	Motorized Off-Road Travel	Snowmobile Travel
Black Elk Wilderness	Prohibited	Prohibited	Prohibited
Botanical Areas	Restricted*	Prohibited	Restricted*
Inyan Kara Mountain	Prohibited	Prohibited	Prohibited
Backcountry Motorized Vehicle Recreation Emphasis	Allowed	Restricted**	Allowed
Backcountry Non-motorized Recreation Emphasis	Prohibited	Prohibited	Restricted*
Late Successional Forest Landscape	Restricted*	Prohibited	Restricted*
Limited Motorized Use and Forest Product Emphasis	Restricted*	Prohibited	Restricted*
Spearfish Canyon	Restricted*	Prohibited	Restricted*
Peter Norbeck Scenic Byway (Section within the Norbeck Wildlife Preserve)	Restricted*	Prohibited	Restricted*
Resource Production Emphasis	Allowed	Allowed	Allowed
Southern Hills Forest and Grassland Areas	Allowed	Allowed	Allowed
Fort Meade VA Hospital Watershed	Restricted*	Prohibited	Restricted*
Black Hills Experimental Forest	Allowed	Allowed	Allowed
Sturgis Experimental Watershed	Restricted*	Prohibited	Restricted*
Big Game Winter Range Emphasis (Formerly Low-Elevation Wildlife Habitat)	Restricted***	Restricted***	Restricted*
Norbeck Wildlife Preserve	Restricted*		Restricted*
Big Game and Resource Production	Restricted*	Prohibited	Restricted*
Forest Products, Recreation and Big Game Emphasis	Allowed	Allowed	Allowed
Developed Recreation Complexes	Restricted*	Prohibited	Restricted*

[Source: USDA Forest Service]

* Restricted to Designated Routes.

** Restricted to Designated Trails.

*** Seasonal or yearlong restrictions may apply.

Based upon management area designations and their associated travel standards, nearly 60 percent of the Forest routes allow for all motorized travel yearlong. The remaining approximate 40 percent of the Forest has travel restrictions based on method of travel and season.

Motorized travel is restricted to protect sensitive areas. These areas may provide high quality winter and transitional habitat for deer and elk, high-quality turkey habitat, habitat for other species, and a variety of multiple uses. Seasonal restrictions are set to protect wildlife within the Big Game Winter Range Emphasis Area (Management Area 5.4). More information regarding motorized travel restrictions is presented in table 20.

Table 20. Travel opportunity objectives

Category	Percentage of Forest (%)
All Motorized Travel Allowed Yearlong	59.1
Seasonal Restrictions Apply	22.8
Seasonal Restrictions – No Off-Road Travel	3.2
Backcountry Motorized Recreation on Designated Trails	1.0
Only OHV Travel Prohibited	11.4
Motorized Travel Prohibited Except Snowmobiles	1.2
All Motorized Travel Prohibited	1.3

[Source: USDA Forest Service (2007). Acronyms: OHV: Off-highway vehicle]

Motorized Recreation Communications

Considering the approximate 79 percent increase in motorized trail permits sold in the Black Hills National Forest (South Dakota only) between 2011 and 2021, motorized recreation continues to expand in the Black Hills National Forest. With expanding motorized recreation, one of the highest priorities for the Black Hills National Forest is to promote increased levels of communication between the USFS, the motorized recreation community, and the public. To do this, Black Hills National Forest will be employing an "OHV Engagement Specialist." This person will provide education and transparency through news releases, interpretive videos, and other communication tools to promote the sustainability of the OHV use within the Black Hills National Forest (USDA Forest Service, 2021).

Recreation Area Infrastructure

Many trailheads are in average, subaverage, or poor condition. Many have not been maintained in years—trail markers/fences are not replaced and there is not enough staff to achieve the necessary tasks for management goals. Many of the existing trailheads are not large enough to accommodate an increasing number of visitors. Also, trailheads at equestrian trails are not large enough to accommodate horse trailers. Current management direction is adequate to achieve desired goals, but action is limited by budget and staffing. Despite these challenges, the Black Hills National Forest is coordinating between the RDs to move improvements forward (USDA Forest Service, 2021).

Actions of Others

State and Local Plans

Consistency between the forest plan and state/local plans is difficult to achieve because the Black Hills National Forest extends across Wyoming and South Dakota. Both states address recreation and tourism respectively in their SCORPs, and the forest plan requires coordinated effort with these plans. The USFS can help achieve many of the strategies/goals/priorities identified in the SCORP within its mission.

Consistency with County-level plans is important. Common themes among county wide plans include: a desire to work with federal agencies on planning processes and resource management activities; the maintenance of historic travel routes for economic benefit, public use and safety; the inclusion of efficient land management boundaries (e.g., land exchanges).

The Black Hills National Forest also works closely with Native American tribes, many of which have legal rights within Black Hills National Forest. To include the Native American community in a sustainable management strategy, the Black Hills National Forest may need to work collectively with the

tribes and expand their collaboration. For more information concerning Native American tribes, refer to the *Draft Areas of Tribal Importance Planning Assessment*.

Adjacent Federal Land Use Plans

The Black Hills National Forest is adjacent to BLM lands that are managed via two different resource management plans (RMPs). These RMPs include the South Dakota RMP and the Newcastle RMP in Wyoming. Review and coordination with those plans is needed for consistent management.

Local Recreation Groups

There are multiple regional groups working on related recreation projects and campaigns. These planning efforts should be considered in future planning efforts.

Volunteers, Partnerships and Other Methods for Managing the Recreation Program

Strategic direction to find alternative means of managing the recreation opportunities in the Black Hills National Forest may be needed. The current volunteer/partnership program and the recent expansions of these efforts have proven to be beneficial. Developing strategies to continue these efforts and create new ways of managing the Forest and maintaining recreation amenities are needed. One opportunity to help resolve data gaps related to recreation management includes appointing a representative from each district to have access to input Forest Service's Infrastructure Application data.

As the Forest experiences increased recreational impacts to county emergency services, the Forest may find law enforcement and emergency services partnerships to be increasingly important. Currently, the Forest has law enforcement agreements and/or emergency services with the following counties: Custer, Fall River, Lawrence, and Pennington in South Dakota and Crook County in Wyoming. The Forest also has a Search and Rescue Memorandum of Understanding with Pennington and Custer counties.

Barriers to Recreation Opportunities for Minority and Under-Represented Groups

Forest management should consider strategic direction to enhance the connections of people to nature and for opportunities to better serve minorities and under-represented groups.

Also, public comments suggest concerns related to dispersed camping opportunities. Closing dispersed camping options may eventually lead to reservation systems, which ultimately give advantage to upper-class users since marginalized groups often do not have the ability to make advanced reservations. Users who make reservations but do not show up is another related concern. In these cases, the campsite will likely be unoccupied, and the opportunity for others to claim the site is limited. Forest managers may need to analyze reservation system implementation data to determine effects on user groups and equity before implementing their own.

Public comments suggest concerns related to access for individuals with mobility impairment-related disabilities, especially for Indigenous people with impairment disabilities Integration of the 2022 Department of Interior's Equity Action Plan may be necessary.

Chapter 3. Need for Change

Recreation Plan Direction

Recreation Settings

The key public concerns about recreation settings pertain to motorized, mechanized, and non-motorized settings opportunities. The Forest Service manages these settings in a forest plan by creating plan components, including standards or guidelines that move the National Forest System landscape towards desired ROS settings through implementation (FSH 1909.12, Ch. 20 and FSM 2300). Settings could range from primitive areas to urban areas, providing a wide range of recreational opportunities.

The Recreation Opportunity Spectrum in the existing Black Hills forest plan needs to be updated in several ways to meet 2012 Planning Rule requirements, associated regulations, policy, and public concerns. The following are identified as a need for change to update ROS in a revised plan:

1. **Model existing ROS condition for summer and winter per national ROS inventory protocols.** Winter settings only need to be mapped in areas of the Black Hills National Forest that are subject to 36 CFR 212.81, areas that allow motorized over-snow travel. The existing condition is step one of two in the ROS process as outline by FSM 2311. Step 2 entails mapping and conveying desired recreation settings and opportunities, detailed in a subsequent heading. Completing the inventory process described in Step 1 will serve as the existing condition in the affected environment section of the NEPA document. In the analysis, it is essential to compare this existing condition to the existing ROS management direction in order to determine the gaps between existing management direction, the existing condition, the 2012 Planning Rule requirements, and public concerns.
    - Personnel needs to accomplish task:
        - GIS/Data Specialist to verify condition of road, trail, infrastructure and other data according to national standards as required by FSM 2311, p. 19. The data and requirements "*must be used to… Use the latest National ROS inventory protocols to map existing ROS classes for summer, and where relevant, winter settings*": http://fsweb.datamgt.fs.fed.us/current_data_dictionary/index.shtml .
            - Staff requirements:
                1. GIS/Data specialist – The first step is data preparation to run the national mapping protocols for summer and winter ROS. The time requirement for this is dependent on the quality and availability of the existing data.
                2. Recreation Planner
                3. After developing the draft existing condition map, the zones should be checked for accuracy by Forest/District specialists.
            - Also need to model the Winter ROS inventory in areas that have seasonal variation and winter sports.
2. **Draft ROS Plan components, including standards or guidelines that comply with the 2012 Planning Rule.**
    - **Keep or modify existing Black Hills National Forest forest-wide direction and ROS subclasses**:

- Staff should discuss plan components and decide whether modifications are necessary to allocations, plan components, or in this case, the actual ROS subclasses. The subclasses do not meet current standards, and the Forest should consider adjusting the zones' definitions *before* mapping desired ROS settings in a Draft plan and subsequent alternatives. The following forest-wide direction should be updated with staff:

Goal #4: Provide for scenic quality, a range of recreational opportunities, and protection of heritage resources in response to the needs of the Black Hills National Forest visitors and local communities.

Objectives p. I-18:

407. Provide the following Recreation Opportunity Spectrum (ROS):

RECREATION OPPORTUNITY SPECTRUM (ROS)	(Thousands of Acres)
Primitive	15
Semi-Primitive Non-Motorized	38
Semi-Primitive Motorized	12
Roaded Natural	1102
Roaded Natural Non-Motorized	78
Rural	1

408. Manage recreation use to stay within the capacity for the ROS class:

ROS CLASS CAPACITY RANGE RECREATION VISITOR DAYS (RVDs/ACRE)	Low	Moderate	High
Primitive	0.25	0.5	0.75
Semi-Primitive Non-Motorized	1.00	2.0	3.00
Semi-Primitive Motorized	1.50	3.0	4.50
Roaded Natural Non-Motorized	1.50	3.0	4.50
Roaded Natural	3.00	6.0	9.00
Rural	<<<< Design Capacity >>>>>		

(See glossary for ROS capacity classes)

Guidelines:

- 2415. Regulate logging activities in campgrounds so they do not conflict with the managed use season, the ROS class, or the adopted SIO.
- 5201. Construct, reconstruct and maintain developed sites in accordance with the Recreation Opportunity Spectrum (ROS) classification established for the immediate area. See Appendix F for a list of existing facilities and their ROS classification.
- 5212. Emphasize signing for recreational purposes that comply with site development scale and Recreation Opportunity Spectrum (ROS).
- 5303. If use exceeds the area capacity or limit of acceptable change for a given recreation opportunity spectrum (ROS) class, the following management actions, in order of priority, should be employed to address the impacts or effects to the recreation setting:
    a. Inform the public and restore or rehabilitate the site;
    b. Reroute use or focus use elsewhere;
    c. Regulate use;

d. Restrict the number of users; and

e. Close the site.

3. **Map desired ROS settings for areas for proposed draft plan** using information from public, existing settings, gaps in existing plan direction.

Identified Need for Change With Other Recreation Plan Components

Other recreation plan components in the existing plan needs to be updated in several ways in order to meet 2012 Planning Rule requirements, associated regulations, policy, and public concerns. Examples include:

- Existing Recreation Special Uses direction should be reviewed and updated to align with Leadership's intent of modernization of special uses.
- Clarify and integrate the development scale with the recreation opportunity spectrum. Existing direction is unclear.

Scenic Integrity Objectives

In addition to recreation settings and plan components, the plan must include components including standards or guidelines to provide for scenic character (FSM 1909.12, Ch. 20) Logging and natural influences (e.g., mountain pine beetle infestation and fire influence) have impacted the scenic integrity of the Forest. Additional management direction may be necessary for the relationship between SIO and these influences.

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Appendix A. Maps

The following maps are provided as separate PDF documents on the forest plan revision assessment webpage for the Black Hills National Forest.

Map 1. Recreation Opportunity Spectrum

Map 2. Science Integrity Objective

Map 3. Heat Map of Developed Recreation Usage