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Black Hills National Forest

Forest Assessments: Socioeconomics

Custer, Fall River, Lawrence, Meade, and
Pennington Counties, South Dakota

Crook and Weston Counties, Wyoming



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Introduction

The Black Hills National Forest is located within Custer, Fall River, Lawrence, Meade and Pennington counties in South Dakota and Crook and Weston counties in Wyoming. The forest provides social and economic benefits to local communities, as well as to people across the region and the nation.

The forested hills and mountains, rugged rock formations, canyons and gulches, open grassland parks, streams, and lakes, described as an “Island in the Plains,” provide timber production, grazing, hiking, camping, mountain biking, horseback riding, rock climbing, mining, wildlife viewing, and many other benefits to people. Jeff Tomac, the Forest Supervisor believes, “A healthy, sustainable Black Hills National Forest is essential to all who enjoy the area, whether for recreation, hunting, fishing, cultural connections, or jobs within the forest industry” (Heller 2021).

This socioeconomic assessment provides information on:

- Social, cultural, and economic conditions in the area of influence.
- Benefits people obtain from the Black Hills National Forest planning area (ecosystem services);
- Multiple uses and their contributions to local, regional, and national economies (36 CFR §219.6(b)).

This assessment follows direction outlined in FSH 1909.12 Land Management Planning Handbook, Chapter 10 – The Assessment; Section 13.2 – Assessing Social, Cultural and Economic Conditions (01/30/2015).

Information Sources and Gaps

Measuring the human relationship with the ecological environment requires two types of indicators: those that help to understand social and economic conditions in communities near the Black Hills National Forest, and those that measure human uses of the forest’s lands and resources.

Relevant indicators to understand social and economic conditions include population size, age, racial and ethnic composition, income, and economic diversity.

Relevant indicators to measure human uses and values of the Black Hills National Forest’s land and resources include recreation visits, timber cut and sold, mineral removal, authorized animal unit months (AUMs), payments to states and counties, and Forest Service expenditures. Information collected during public comment periods is critical to understanding how the public values the forest land.

Baseline demographic and economic data are drawn from Federal sources and presented at the county and state levels, such as the U.S. Census Bureau and the Bureau of Economic Analysis. The Forest Service collects resource use data, such as recreation visits and grazing forage authorized. The economic contribution analysis combines baseline economic data with Forest Service resource data to estimate employment and labor income associated with Forest Service programs, resources, and uses. The data presented disclose the sources.

Existing Forest Plan Direction

The management of the Black Hills National Forest is detailed in the Black Hills National Forest Land and Resource Management Plan - 1997 Revision, Phase II Amendment (2006). Under Goal 8: Promote rural development opportunities, section 801 explains the objective to “provide leadership in working

with rural people and communities to develop natural resource-based opportunities and enterprises that contribute to the economic and social vitality of rural communities.” An assessment of how the forest contributes to the local economy and social environment is described in the Forest Contributions to Social and Economic Sustainability section below.

Area of Influence

Reliable demographic and economic data are available at the county-level. Sub-county (for example, towns and cities) data are more limited and can have large margins of error, particularly in rural areas. Functional economic areas are the primary scale for the social and economic analysis. Typically, these areas are a group of counties.

Management of the plan area contributes to social, cultural, and economic conditions. The Black Hills National Forest lands are located within Custer, Fall River, Lawrence, Meade and Pennington counties in South Dakota and Crook and Weston counties in Wyoming. The majority of social, cultural, and economic contributions from the forest are expected to accrue in these seven counties. This area represents where the forest would:

- spend project funds that support local businesses (e.g., spending on fuel and materials as well as payments to local contractors);
- support businesses that benefit from project activities (e.g., harvesting, sawmills, veneer, poles, log furniture, firewood, and construction);
- contribute to communities that act as important local entry points/gateways to the forest and which therefore rely on forest visitors to sustain significant portions of the local economy (e.g., spending on food, lodging, equipment, guiding, packing and other types of businesses that support forest recreational activities);
- support ranching operations that utilize the forest for grazing.

This seven-county area of influence is used to report and discuss trends throughout the demographic and economic sections in this report, in addition to the economic contribution analysis, which estimates employment and labor income attributable to the Black Hills National Forest management.

Conditions and Trends of the Social Environment

The following sections will examine trends and current conditions related to the social environment within these seven counties, including population and demographic changes, social values, and potential environmental justice populations. Where relevant, state and national trends are presented to give context to county-level data.

Social Sustainability

Sustainability is the ability to maintain a condition over time . The 2012 Planning Rule defines social sustainability as “the capability of society to support the network of relationships, traditions, culture, and activities that connect people to the land and to one another and support vibrant communities” (36 CFR §219.19). Social sustainability can be broad and complex and often cannot be easily measured and addressed. This is in large part due to the differing sustainability desires and values people hold, how they connect to the landscape, and how they would like to see the Forest contribute to their definition of vibrant communities.

Values for social sustainability generally relate to interactions and relationships, culture, leisure, amenities, income, employment and job satisfaction, affordable housing, and health. One way of examining social sustainability is to understand the views and values held by individuals or groups and how they see the Forest contributing to social sustainability.

Population and Age

Population is an important consideration in managing natural resources. As seen in table 1, the seven-county area of influence is home to about 194,000 people. Pennington County is, by far, the most populous county in the seven-county area with about 111,000 people (U.S. DOC 2020a). Rapid City is a large city located within Pennington County.

Table 1. Population characteristics in the Black Hills National Forest area of influence (U.S. DOC 2020a; USDA ERS 2013)

County	Population 2010 ^a	Population 2019 ^b	Population Change 2010-2019	Rural-Urban Code ^c	Median Age (2019)
Custer County, SD	8,085	8,719	7.8%	3	54.8
Fall River County, SD	7,078	6,747	-4.7%	6	53.6
Lawrence County, SD	23,670	25,478	7.6%	6	42.1
Meade County, SD	25,156	27,717	10.2%	3	36.5
Pennington County, SD	97,922	110,685	13.0%	3	39.0
Crook County, WY	6,761	7,472	10.5%	9	42.7
Weston County, WY	7,066	7,049	-0.2%	7	43.1
Seven County Total	175,738	193,867	10.3%	NA	NA
South Dakota	799,462	870,638	8.9%	NA	37
Wyoming	545,579	581,024	6.5%	NA	37.7
United States	303,965,272	324,697,795	6.8%	NA	38.1

a - 2010 represents average characteristics from 2006 to 2010.

b - 2019 represents average characteristics from 2015 to 2019.

c - Rural-Urban Codes 1-3 are metropolitan counties. Codes 4-9 are nonmetropolitan counties. 1 = Counties in metro areas of 1 million population or more ; 2 = Counties in metro areas of 250,000 to 1 million population ; 3= Counties in metro areas of fewer than 250,000 population ; 4 = Urban population of 20,000 or more, adjacent to a metro area ;5 = Urban population of 20,000 or more, not adjacent to a metro area ; 6 = Urban population of 2,500 to 19,999, adjacent to a metro area; 7 = Urban population of 2,500 to 19,999, not adjacent to a metro area ; 8= Completely rural or less than 2,500 urban population, adjacent to a metro area; 9 = Completely rural or less than 2,500 urban population, not adjacent to a metro area (USDA ERS 2013).

Population growth can be an indicator of a region’s desirability to live and work. Population growth can contribute to community vibrancy, as new residents bring different customs and cultures to a local area. However, these same characteristics can also strain existing social networks and lead to conflict due to competing norms and values. The nation, and most counties in the seven-county area of influence experienced population increases between 2010 and 2019. However, some counties saw notably high population growth relative to other counties in the areas of influence. The seven-county area of influence had greater population growth (10.3 percent) than the U.S., South Dakota, and Wyoming (6.8, 8.9, and 6.5 percent, respectively). Pennington County, followed by Crook County and Meade County had the highest increases in population (13, 10.5, and 10.2 percent, respectively) (U.S. DOC 2020a).

From 2000 to 2020, Pennington County's average annual population increase of about 1,400 people was due to both natural change (1,525 births greater than 775 deaths) and in-migration (about 640 people moved to the County annually). For the same period, the average annual population growth for the seven-county area of influence was 1,812 people, of which 884 was from natural change and 970 people moved to the area (U.S. DOC 2021a). Growing populations and development will place greater demand on forest resources and may affect the aesthetics and uses associated with National Forest System lands.

As populations grow, conflicts between local residents and forest visitors may increase. While living close to public lands may provide residents with amenities such as convenient access to recreation and wildlife viewing, increased forest congestion causes disadvantages such as crowds, litter, and noise (Garber-Yonts 2004, Bolitzer and Netusil 2000). As residential areas and populations surrounding the forest grow, the area's need for infrastructure increases, which may place greater pressure on the forest to provide, for example, utility rights-of-way. This type of pressure may threaten the forest's role in contributing to sense of place and the quality of life in surrounding communities (Stedman 2003).

Homes located near forests (i.e., the wildland urban interface, or WUI) are at risk of wildfire-related disturbances. When populations around the forest expand, there are more homes in the WUI. There is greater risk to these growing communities from increased frequency and extent of wildfire due to climate change (Timberlake et al. 2021).

Population decline can signal lack of economic opportunity (McGranahan 1999) or aging populations, among other reasons. Fall River County and Weston County (though minimal) experienced population decline from 2010 to 2019 (U.S. DOC 2020a). From 2000 to 2020, Fall River County's population decreased by about 30 people, on average, per year, which was due to natural change (114 deaths greater than 62 births annually). People moved to the area over that 20-year period with a net positive migration of 23 individuals, on average, per year (U.S. DOC 2021a).

The USDA's Economic Research Service developed Rural-Urban Continuum Codes, a classification scheme that distinguishes metropolitan counties by the population size of their metro area, and nonmetropolitan counties by degree of urbanization and adjacency to a metro area. A '1' represents the most highly populated metropolitan areas while a '9' represents very rural areas. In the seven-county area of influence, counties range from small metropolitan areas to completely rural (table 1) (USDA ERS 2013). Rural areas may rely more heavily on the forest resources and the economic contributions they provide.

The age of the population surrounding the Black Hills National Forest is important because age affects community values, attitudes, and use of public lands. Since 2010, across the seven-county area of influence the population has grown older (see table 2), which is also true for the U.S. over this same time period. In the seven-county area of influence, age categories under 65 all decreased by small amounts from 2010 to 2019. The 65 and over category increased by 4.4 percent, which is greater than the South Dakota and Wyoming state increases (U.S. DOC 2020a).

Though many aging Americans spend their retirement years in the homes and communities where they've raised families and worked, trends indicate that a sizable share of Americans 65 years and older have been moving to amenity-rich places that are characterized as having warmer average temperatures and lower rates of crime and taxes (Clark and Davies 1990, Conway and Houtenville 1998, McGranahan 1999). A younger-than-average population can indicate the need for family-friendly activities and uses, such as a trail system with ranging degrees of difficulty, while an older-than-average population might increase the demand for easily accessible trailheads and camping. That said, the under 18 population decreased by 1.6 percent and the 18-34 category decreased slightly by 0.6 percent.

A population’s age can also help inform how to interpret population changes and economic conditions. An area with a large percentage of retirees earns income primarily from investments and transfer payments (for example, dividends and Social Security), rather than salaries and wages. Therefore, this population may be less sensitive to changes in forest management that impact jobs and salaries than other age groups. growth.

Table 2. Age distribution in Black Hills National Forest area of influence (U.S. DOC 2020a)

Age	Percentage of Total, 2010	Percentage of Total, 2019	Percent Change 2010-2019	SD Percent Change 2010-2019	WY Percent Change 2010-2019
Under 18	23.6	22.0	-1.6	-0.3	-0.6
18-34	22.3	21.7	-0.6	0.1	-0.5
35-44	11.7	11.3	-0.4	-0.4	0.1
45-64	28.3	26.5	-1.8	-1.4	-2.7
65 and over	14.2	18.5	4.4	2.0	3.6

Values, Beliefs, and Attitudes

Values, beliefs, and attitudes shape the priorities and desired outcomes people have for forest management. These are relatively enduring concepts that people hold and often share within a given society or culture about important life principles, including what is good or bad and desirable or undesirable (Allen et al. 2009). People’s values influence how they use national forests, as well as their expectations regarding how National Forest System lands should be managed. The values that people in the Black Hills hold have been passed on through generations. However, values have also been changing over time due to new knowledge, recreation and tourism growth, migration from urban areas, and demographic shifts.

The diverse values that people hold can create complex situations for national forest land management. In addition, many communities outside a national forest’s immediate area of influence have an interest in how it is managed, whether they directly use the forests (such as, recreation and tourism) or not (such as, water demand from urban and agricultural areas, concern for endangered species).

The Forest Service engages with the public through the plan revision process, and this is the best source of qualitative data on values, beliefs, and attitudes that can shape the priorities for forest plan revision. Until these engagements occur specific to the Forest, the information presented here is the best information available.

County comprehensive plans from the area of influence emphasize the importance of sustainable economic growth that provides diverse job opportunities, while protecting the rural character and natural amenities that characterize many communities in the Black Hills National Forest area of influence (Custer County 2009, Lawrence County 2020, Meade County 2010, Pennington County 2020).

- The Custer County Comprehensive Plan (2009) lists a goal to “Promote a desirable rural atmosphere, character, and appearance in the county.” They also have a goal to “Continue efforts to provide year-round employment opportunities and enhance the tax base by encouraging compatible industrial, commercial, office and retail facilities to locate or expand in Custer County.” The Plan says that “in a 2007 survey more than 84% of the residents that responded overwhelmingly selected the Rural Life Style as the most important reason that they choose to live in Custer County.”

- The Lawrence County Comprehensive Plan (2020) shares that “residents and stakeholders emphasized the special sense of place in Lawrence County, characterized by its rich history, unique incorporated and rural communities, and the surrounding natural environment and opportunities for outdoor recreation.” It also noted that “being stewards of the land and caring for the environment are important values to Lawrence County residents.”
- The Meade County Comprehensive Plan (2010) shows a goal “To maintain a viable agricultural economy and preserve the rural quality of life.”
- The Pennington County Comprehensive Plan (2020) identifies the vision statement as “Pennington County is a unique part of South Dakota that is built on a sense of community and a frontier spirit. We pride ourselves on protecting the natural, cultural, and historic resources that help define our social identity and values. The County continues to grow in a manner that maintains water and air quality, improves career and housing opportunities, and retains our excellent schools and quality of life.”

Residents seem to agree that their communities are special because of abundant natural amenities and outdoor recreation opportunities, which contribute to sense of place and quality of life. Jim Hagen, Secretary of Tourism, feels that “We have an amazing national forest and both national and state parks that allow us to truly get into the great outdoors and experience nature and solitude. That’s what makes South Dakota so special” (Wargo 2021).

There are many people in the area of influence who value the importance of forest products to support local harvesting and processing operations. These timber resources contribute jobs and income to the local economy and support a way of life. Specifically, people value a steady and reliable timber supply (which would help maintain a skilled workforce) and a practical target for timber harvest. However, in 2021, USDA Forest Service's Rocky Mountain Research Station released a report in which “The primary finding of the report is that the current volume of standing live sawtimber does not support a long-term sustainable sawtimber supply at current harvest levels” (Graham et al. 2021). This finding, coupled with a decline in timber harvest volumes from the Black Hills National Forest, has led to a significant amount of local interest and conflict. See the Timber and Vegetation Management assessment for more information.

Across the seven-county area of influence, approximately 24 percent of the land is federally managed (USGS 2018). As a land manager in the area, Forest Service management actions have the potential to affect the future of the counties – both in terms of quality of life and economic opportunities. Timber harvesting, livestock grazing, and outdoor recreation on the Forest contribute to economic opportunities in the area. These multiple uses and ecosystem services are discussed in the Forest Contributions to Social and Economic Sustainability section.

Environmental Justice

Executive Order 12898 (Environmental Justice) issued in 1994 requires federal agencies to identify and address any adverse human health and environmental effects of agency programs that disproportionately impact minority and low-income populations.

U.S. Census Bureau data is used to determine whether the populations residing in the area constitute an environmental justice population through meeting any of the following criteria:

- At least one-half of the population is of minority or low-income status; or
- The percentage of population that is of minority or low-income status that are meaningfully greater is at least five (5) percentage points higher than for a comparable geographic area.

Additionally, it is important to note that Forest Service management actions may affect minority populations, low-income populations, or Tribes even if they do not reside in the immediate planning area. This may be especially true for Tribes that may not reside in the planning area but have a cultural connection to the area.

Minority and low-income populations were evaluated at the county level and compared to state-level data. Given the geographic scale and the lack of site specificity of management actions at the forest plan level, focusing the examination at the county level is appropriate. The results from this county-level approach are discussed below.

The area analyzed includes the seven counties that make up the Black Hills National Forest area of influence. Minority populations were identified using 2019 data from the U.S. Census American Community Survey program, which provides estimates for the resident population by race and Hispanic origin at the national, state and county scales. Five-year estimates were used so 2019 represents average characteristics from 2015 to 2019. Data for the identification of low-income populations are from the U.S. Census Bureau, Small Area Income and Poverty Estimates (SAIPE) 2020 estimates, which are the latest available at the time of writing. The SAIPE program annually produces single year poverty estimates for states, counties, and school districts. The U.S. Census Bureau suggests using SAIPE data for poverty estimates for counties or school districts, especially for areas with populations of 65,000 or less.

Table 3 provides the percent of population by minority categories and the percent in poverty for the seven counties of the Black Hills National Forest area of influence and Wyoming and South Dakota. None of these seven counties have minority or low-income populations that meet the criteria to be identified as environmental justice populations. Pennington County is the most diverse. Fall River, Meade, and Pennington counties had higher proportions of Hispanics than the South Dakota average, though not greater than five percentage points higher. All counties had a lower share of people identifying as American Indians than their respective statewide average, though they were all greater than the U.S. average except for Weston County (U.S. DOC 2020a). Fall River, Pennington, and Weston counties had higher shares of people living in poverty than their respective statewide average, though not greater than five percentage points higher (U.S. DOC 2020b).

There are several Tribes affiliated with the Black Hills National Forest area of influence due to the historical and traditional cultural connections to the resources and landscape of this area. Tribes that may have concerns about potential Forest Service management practices and decisions and their effects on resources, uses, or areas of cultural importance would be considered as environmental justice populations as well. See the Cultural and Heritage Resources and the Areas of Tribal Importance assessments for more information.

Table 3. Percentages of minority populations and of people in poverty (U.S. DOC 2020a; U.S. DOC 2020b)

Area	Percentage White	Percentage Black or African American	Percentage American Indian	Percentage Asian	Percentage Native Hawaiian and Other Pacific Islander	Percentage Some other race	Percentage Two or more races	Percentage Hispanic or Latino (of any race)	Percentage of People in Poverty, all ages
Custer County, SD	89.8	0.3	3.8	0.3	0.0	0.0	1.9	3.9	9.7
Fall River County, SD	84.6	0.0	5.7	1.6	0.0	0.0	4.1	4.0	15.4
Lawrence County, SD	90.9	0.9	2.2	0.9	0.1	0.0	1.7	3.3	11.5
Meade County, SD	87.6	1.9	2.5	1.2	0.0	0.0	2.5	4.2	8.7
Pennington County, SD	79.9	1.2	8.2	1.3	0.2	0.2	4.0	5.2	12.1
Crook County, WY	94.3	0.1	1.3	0.7	0.0	0.0	2.2	1.4	7.3
Weston County, WY	96.4	0.2	0.2	0.8	0.1	0.0	1.3	1.1	10.6
South Dakota	82.0	2.0	8.4	1.4	0.1	0.1	2.3	3.8	11.6
Wyoming	84.1	0.9	2.2	0.8	0.1	0.0	2.1	9.9	9.2
United States	60.7	12.3	0.7	5.5	0.2	0.2	2.4	18.0	11.9

Conditions and Trends of the Economic Environment

This section highlights economic conditions and trends in the seven-county area of influence. Income and employment are two important measures to understand local economic conditions and how Federal land management could impact local economies.

Economic Sustainability

The 2012 Planning Rule defines sustainability as “the capability to meet the needs of the present generation without compromising the ability of future generations to meet their needs” (36 CFR §219.19). The concepts of economic diversity and efficiency should be considered in order to describe the Forest’s contribution to economic sustainability.

Resilience is related to the concept of diversification. For example, an economy or labor force that over-relies on specialization in a single industry lacks diversity and resilience, thus diminishing its ability to recover from periodic disturbances such as economic downturns. On the other hand, efficiency is related to productivity and specialization. When economies specialize, total output increases, potentially allowing for greater level of enjoyment and consumption, increasing standards of living. An economy that lacks efficiency and productivity risks being stagnant, and productivity growth is a crucial determinant of the living standard for future generations.

With the concepts of resilience and efficiency in mind, this section focuses on indicators that can provide important insight on economic sustainability in the Forest’s area of influence. As seen in table 4, measures of productivity and economic diversity include creative class employment (USDA ERS 2014), Gross Domestic Product (GDP) per worker (IMPLAN 2019), and the Shannon-Weaver Diversity Index (IMPLAN 2019).

Table 4. Factors of economic sustainability in the Black Hills National Forest area of influence

County	Percentage Creative Class Employment	GDP per worker	Shannon-Weaver Diversity Index
Custer County, SD	24	\$59,757	0.69
Fall River County, SD	15	\$74,369	0.65
Lawrence County, SD	23	\$72,366	0.71
Meade County, SD	18	\$60,550	0.69
Pennington County, SD	24	\$83,255	0.73
Crook County, WY	15	\$71,597	0.66
Weston County, WY	15	\$83,218	0.66
Seven-county area	22	\$77,811	0.74
South Dakota	21	\$90,457	0.77
Wyoming	21	\$99,415	0.75
United States	NA	\$105,509	0.79

Creative Class Employment

The creative class notion – that towns need to attract engineers, architects, artists, and people in other creative occupations to compete in today's economy—may be particularly relevant to rural communities,

which tend to lose much of their talent when young adults leave. The U.S. Department of Agriculture's Economic Research Service (ERS) creative class codes indicate a county's share of population employed in occupations that require "thinking creatively." Variables used to construct the ERS creative class measure include number and percent employed in creative class occupations. Occupation titles belonging to the creative class represent skill elements defined as: developing, designing, or creating new applications, ideas, relationships, systems, or products, including artistic contributions. These job titles range from advertising, marketing, promotions, public relations, and sales managers; architects, surveyors, cartographers; to artist, entertainers and performers, sports, and media related workers. The creative class employment in table 4 is pooled from 2007 to 2011 data, which is the latest data available (USDA ERS 2014). Activities on the Black Hills National Forest contribute jobs to the local economy in some of these sectors, notably in the arts, entertainment, and recreation sectors.

About 22 percent of all employments within the Black Hills National Forest area of influence belong in the creative class. Custer and Pennington counties (both 24 percent) had the highest proportions of employment in the creative class. The South Dakota and Wyoming averages are both about 21 percent and the average for the U.S. is 18 percent (USDA ERS 2014). Given that the area of influence is slightly above average for creative class employment, this indicates that they are slightly better positioned to compete in the economy.

Productivity

While Gross Domestic Product (GDP) measures value added at a point in time, GDP per worker is a measure of productivity. GDP per worker data is presented for counties within the area of influence in table 4. Pennington County has the highest GDP per worker (\$83,255) and Custer County has the lowest GDP per worker (\$59,757) in the area of influence. Overall, counties in the area of influence are all below the South Dakota (\$90,457), Wyoming (\$99,415), and national average GDP per worker (\$105,509) (IMPLAN 2019). Low productivity ranking across the area of influence is a source of concern because productivity growth is a crucial determinant of the living standard for future generations.

Economic Diversity

Economic diversity increases as the types of job opportunities in the area increases. With more types of jobs available across different sectors, an economic shock to one industry will not have as great of an effect on the economy. In turn, land management actions that support a diversity of jobs in the area, as opposed to providing jobs in a single sector, are expected to increase community resilience. For example, management with the objective of improving forest health can result in jobs in real estate, recreation, construction, and manufacturing from people moving to and visiting the area for the natural amenities.

An economic diversity index based on the Shannon-Weaver entropy function (Shannon and Weaver, 1949) is calculated for counties within the area of influence using 2019 IMPLAN data (table 4). The entropy method, such as the Shannon-Weaver Diversity Index, measures diversity of a region against a uniform distribution of employment, which measures how a region's employment is distributed amongst its industries. It ranges from 0 (perfect inequality or no diversity) to 1 (perfect equality or diversity). Since the Shannon-Weaver Diversity Index accounts for both numbers of industries and the spread of employment across them, it is a valuable indicator that can provide insights into the economic sustainability of an area.

The Shannon-Weaver Diversity Index for the Black Hills National Forest area of influence is 0.74, whereas the Index for the U.S. is 0.79. Lawrence and Pennington counties are relatively diverse (above 0.70), but still less than South Dakota and Wyoming (IMPLAN 2019). In order to promote economic

sustainability in the area, the forest plan should consider ways to improve this index and overall economic diversity. For example, managing for sustainability of a range of multiple uses and ecosystem services could improve the economic diversity in the area.

Employment by Industry

The distribution of jobs across industries can tell us about the type of economy that exists and where specialization occurs. Many jobs surrounding National Forests are in services-related sectors, such as jobs in restaurants, hotels, healthcare, and other accommodations. These services jobs are often related to the recreational opportunities provided by the forest. In many small rural communities, government employment represents an important component of the economy. In others, there have been important changes in employment in mining (which includes fossil fuel energy development), manufacturing (which includes lumber and wood products), and construction. Since economic diversity generally promotes stability and offers greater employment opportunities, assessing employment by industry helps identify those that are important to the local economy surrounding the Black Hills National Forest.

The seven-county area employment counts by industry, as well as the share of employment by industry, are displayed below in table 5. Out of the approximately 130,000 total jobs in the seven-county area of influence, more than half of all employment in the area of influence belong in the following five industry groups: government, health and social services, accommodation and food services, retail trade, and other services. This is comparable to South Dakota's top five industries, with the exception that the state has a higher share of employment in the manufacturing industry. Wyoming has a higher share of employment in the construction sectors (IMPLAN 2019).

Percentages in bold in table 5 are sectors that the seven-county area specialize in because they have higher proportions of employment in those sectors compared to employment for both Wyoming and South Dakota. The Black Hills area of influence specializes in health and social services, accommodation and food services, retail trade, arts, entertainment, and recreation, and other services sectors (IMPLAN 2019).

Table 5. Employment and share of employment in seven-county area, South Dakota, and Wyoming per sector grouping (IMPLAN 2019)

NAICS Industry Sectors	Employment in seven-county area	Percentage employment in seven-county area	Percentage employment in South Dakota	Percentage employment in Wyoming
Government	19,831	15.2	13.2	17.1
Health & social services	15,332	11.8	11.7	7.5
Accommodation & food services	13,251	10.2	8.0	8.6
Retail trade	12,944	10.0	9.4	8.3
Other services	9,866	7.6	6.0	5.2
Construction	9,746	7.5	6.2	8.3
Real estate & rental	7,321	5.6	4.5	6.0
Professional-scientific & tech services	6,590	5.1	4.7	5.1
Finance & insurance	5,758	4.4	6.3	4.6
Manufacturing	4,313	3.3	7.7	3.2
Administrative & waste services	4,282	3.3	3.2	3.4
Ag, Forestry, Fish & Hunting	4,157	3.2	6.1	4.4
Transportation & Warehousing	4,073	3.1	3.5	4.4

NAICS Industry Sectors	Employment in seven-county area	Percentage employment in seven-county area	Percentage employment in South Dakota	Percentage employment in Wyoming
Arts, entertainment & recreation	3,853	3.0	2.1	2.3
Wholesale Trade	3,100	2.4	3.6	2.2
Mining	1,780	1.4	0.4	6.5
Information	1,281	1.0	1.1	1.1
Management of companies	1,172	0.9	1.0	0.4
Educational services	1,036	0.8	1.1	0.8
Utilities	372	0.3	0.4	0.6
Total	130,057	100	100	100

Trends in employment for the area of influence are important to understand how the area arrived at the current conditions. As seen in figure 1, from 1970 to 2000, the three industry sectors that added the most new jobs were services (23,649 new jobs), retail trade (12,808 new jobs), and finance, insurance & real estate (4,841 new jobs). On the other hand, jobs in non-service sectors decreased, such as mining and farming (U.S. DOC 2021b).

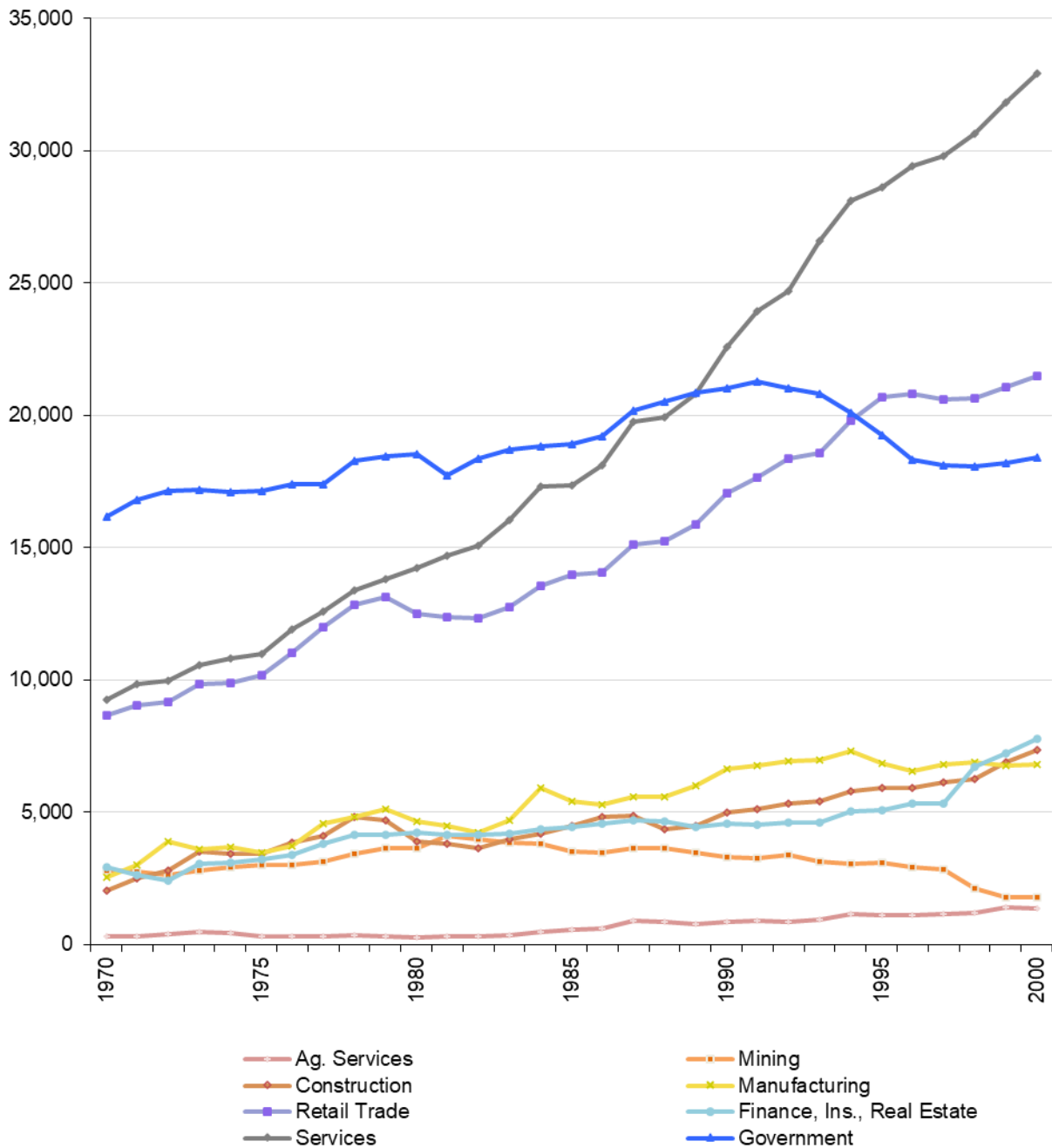


Figure 1. Trends in employment by industry in area of influence (U.S. DOC 2021b)

Recreation-related Employment

Recreation in the Black Hills area contributes to employment and the local economy, as people spend money on lodging, services, food, and supplies. Tourism-related employment (in retail trade, passenger transport, arts, entertainment, and recreation, accommodation and food sectors) helps us understand the importance of recreation in the local economy. As seen in Table 6, the seven-county area of influence has

greater shares of employment in tourism sectors than for South Dakota, Wyoming, and the U.S. Custer and Lawrence counties have the highest tourism-related employment in the area of influence. From 1998 to 2019, travel and tourism employment grew in the area of influence from 12,031 jobs to 15,725 jobs (a 31 percent increase). In comparison, non-travel and tourism employment during the same period grew from 45,842 jobs to 55,246 jobs (a 21 percent increase) (U.S. DOC 2021c). These economies depend on the recreation opportunities provided by the Black Hills National Forest and surrounding areas.

Table 6. Percentage tourism-related employment in area of influence, 2019 (U.S. DOC 2021c)

Location	Percentage of total private employment
Custer County, SD	34.9
Fall River County, SD	13.3
Lawrence County, SD	38.5
Meade County, SD	17.5
Pennington County, SD	19.8
Crook County, WY	17.3
Weston County, WY	14.2
Combined area	22.2
South Dakota	16.7
Wyoming	20.1
United States	15.8

The Black Hills area of influence specializes in health and social services, accommodation and food services, retail trade, arts, entertainment, and recreation, and other services sectors (IMPLAN 2019). These sectors are associated with the outdoor recreation economy, which spans multiple industries. The sectors that added the most new jobs from 1970 to 2000 (services, retail trade, and finance, insurance and real estate) (U.S. DOC 2021b) are all related to recreation, which demonstrates the growing importance of the recreation-related economy in the area.

Economic contributions from spending related to Black Hills National Forest visitation are detailed in the Forest Contributions to Social and Economic Sustainability section below.

Timber-related Employment

The timber industry is important in the Black Hills National Forest seven-county area of influence. The relative importance of the timber industry (including growing and harvesting, sawmills and wood product manufacturing) in terms of employment in the area of influence has fallen over time (figure 2). From 1998 to 2018, in the seven-county area, timber-related private employment decreased from 1,432 to 937 jobs—a 35 percent decrease. In 1998, timber represented 2.5 percent of total employment in the seven-county area. By 2018, timber represented 1.3 percent of total employment. In 2018, South Dakota timber employment was 0.8 percent of total employment, showing the Black Hills area somewhat specializes in the timber industry. In 2018, Lawrence County had the highest proportion of timber-related private employment in the seven-county area (2.8 percent, which was 283 jobs), followed by Crook County (1.7 percent, which was 26 jobs) (U.S. DOC 2020c). While the timber industry provides a relatively small contribution to the overall economy in the seven-county area, the economic contributions are not evenly distributed, and localized contributions may be greater.

Despite there being a decrease in timber-related employment in the seven-county area of influence (see Figure 2), this does not match the trend in timber supply from the Black Hills National Forest (see Figure 3). As seen in Figure 3 (using annual data from the timber assessment), the overall trend in annual cut volumes slightly increased from 1997 to 2021. Over the past ten years, Black Hills National Forest timber harvest has varied, from a minimum cut in 2020 of 125,000 ccf to a maximum cut in 2016 of 214,000 ccf, though the trend was slightly increasing. The past ten years of cut volume had less variation than from 1997 to 2008, which ranged from 24,000 ccf in 2001 to 253,000 ccf in 2008.

One potential reason for the decrease in timber-related employment is that the technology associated with the timber industry has changed to improve efficiency and automate processes. One lumber company noted “primary manufacturing of turning logs into timber products at sawmills has been updated considerably by computerization” (Hoard 2017). The mechanization of harvest equipment and advances in milling can lead to fewer employees. This may also result in fewer part-time jobs as the available jobs shift to full-time and require more technical training. Another lumber company expressed, “With this change [in technology], mills need more employees with backgrounds in science, technology, engineering and math” (Hoard 2017). These technology advancements require money for upgrades to equipment, and it is more difficult for smaller mills with fewer assets to qualify for loans, resulting in some going out of business and further reducing employment in timber sectors.

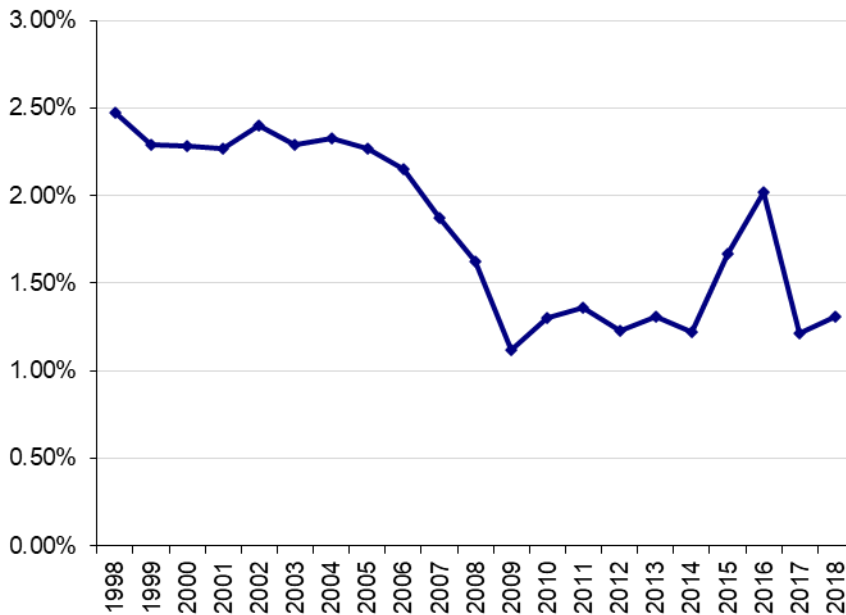


Figure 2. Timber employment as percent of total employment, seven-county area of influence (U.S. DOC 2020c)

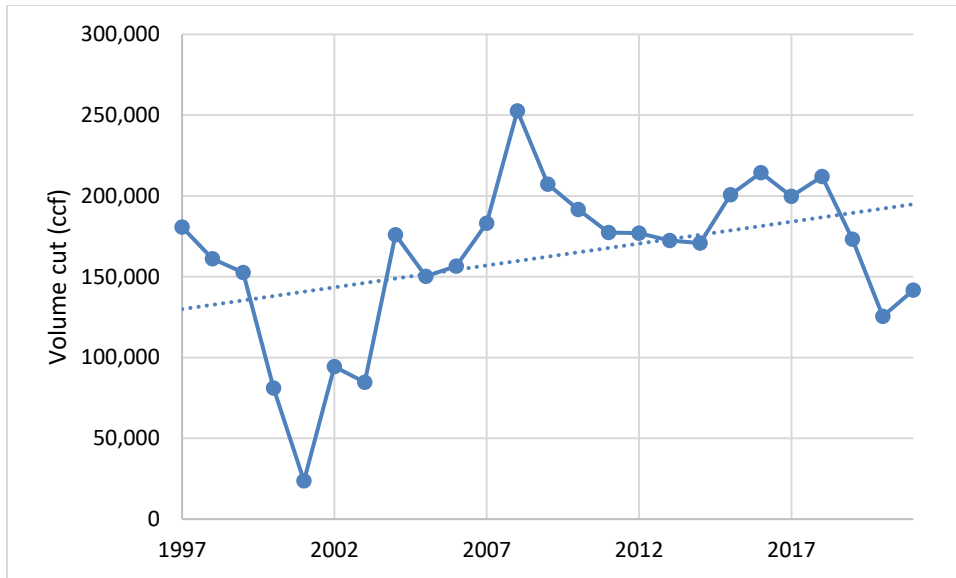


Figure 3. Black Hills National Forest Annual Cut Volume, 1997-2021 (see timber assessment)

Income

Per capita income is an indicator of economic well-being. It is the total personal income divided by total population of an area. For planning, income is an important consideration because low-income populations may be more vulnerable to any adverse effects that result from changes to forest plans and management. For example, if people must travel farther to access recreation sites, this increases the cost to use these recreation sites and this may have a disproportionate effect on low-income households. Table 7 provides per capita income for the seven-county area of influence.

South Dakota and Wyoming's per capita incomes in 2019 were both lower than the U.S. as a whole (Table 7). Fall River, Meade, Crook, and Weston counties all had per capita income values less than their respective state averages (U.S. DOC 2020a). This could be due to the types of jobs available in the area, which are predominantly government, health, retail trade, and accommodation and food services. Retail trade and accommodation and food services jobs generally pay less, on average, than more specialized jobs such as health and social services.

Table 7. Per capita income in the seven-county area (U.S. DOC 2020a)

Location	Per Capita Income (2019\$)
Custer County, SD	\$33,649
Fall River County, SD	\$27,556
Lawrence County, SD	\$31,712
Meade County, SD	\$28,809
Pennington County, SD	\$31,874
Crook County, WY	\$29,532
Weston County, WY	\$28,531
South Dakota	\$30,773
Wyoming	\$33,366
United States	\$34,103

Forest Contributions to Social and Economic Sustainability

The Black Hills National Forest provides contributions that affect social, cultural, and economic conditions. These contributions include ecosystem services and multiple uses from the forest that provide benefits to people either directly or indirectly. Management of the forest, in terms of its operations, employees, and connection to institutions and people outside the national forest boundary are also an important contribution to the area socially and economically. This section describes the major contributions the Black Hills National Forest provides that affect the social and economic sustainability in the area of influence.

Climate change will impact the forest contributions to social and economic sustainability, mainly related to the benefits of recreation opportunities. Climate change will affect recreation by extending the warm-weather recreation season and an increased frequency and extent of wildfire. Specifically, climate change is expected to affect both supply and demand of water-based recreation activities, for which the Black Hills National Forest is popular for. An increase in visitors could benefit the tourism economy and overall economic sustainability but will also create demands for access and facilities that go beyond the current capacity of a sustainable recreation program. An increased frequency of wildfire could impact the air quality and access to recreation sites, hindering forest contributions to social and economic sustainability. Climate change could also impact the provision of forest resources (e.g., an increase in beetle outbreaks killing trees) and forage for grazing (e.g., drought altering vegetation) (Timberlake et al. 2021). On a broader scale, given that the area of influence specializes in outdoor recreation and timber sectors, it is more vulnerable to the climate change impacts affecting social and economic sustainability.

Multiple Uses and Ecosystem Services

The provision of multiple uses and ecosystem services are two of the major contributions to social and economic sustainability of the Forest in the broader landscape. Ecosystem services are components of nature that contribute to human well-being, such as the provision of water; multiple uses include outdoor recreation, grazing, and timber harvest. These contributions are closely intertwined and best described in an integrated manner.

The concept of ecosystem services makes explicit the various ways humans benefit from and depend on the natural world. This dependency extends from essential support for life (oxygen, water, and food) to security (natural regulation of insects, disease, and fire regime) and quality of life (scenic beauty and other cultural services such as outdoor recreation and spiritual values). All living resources in existence are important and contribute to human well-being directly or indirectly.

When considering ecosystem services in forest plans, it is Forest Service policy to identify and consider a set of key ecosystem services provided by the plan area, rather than trying to identify and evaluate information about all ecosystem services that may be present in the plan area (FSH 1909.12, Ch. 10, sec. 13.12). In the effort to better focus and highlight contributions of National Forest management, key ecosystem services are those services that are important in the area of influence or the broader landscape and are likely to be influenced by the land management plan.

The key ecosystem services and multiple uses for the Black Hills National Forest are Outdoor Recreation and Wildlife, Forest Products, Water Resources, Forage for Grazing, and Mineral Production. These services, along with components of multiple uses, are described here with special emphasis on the various ways they contribute to people, communities, and ultimately social and economic sustainability. More detailed information on various ecosystem services is provided within other assessments including recreation, range, timber, soil and water, tribal, and wildlife.

Methods for Economic Contribution Analysis

Forest recreation, forest products, and forage are uses that are quantified and analyzed for their economic contributions in the area of influence. Economic contributions detailed in each section below were modeled using IMPLAN Professional Version 3.1 with 2019 data about the local economy. Levels of resource use (i.e., visits, volume harvested, and AUMs) are averaged for all resources except recreation visits, which are from 2019. This was the latest data available at the time of analysis.

IMPLAN is an input-output model, which estimates the economic impacts of projects, programs, policies, and economic changes on a region. IMPLAN analyzes the direct, indirect, and induced economic impacts. Direct economic impacts are generated by the activity itself, such as forest product harvesting. Indirect employment and labor income contributions occur when a sector purchases supplies and services from other industries in order to produce their product. Induced contributions are the jobs and labor income generated as a result of spending new household income generated by direct and indirect employment. The estimated jobs are defined as any part-time, seasonal, or full-time job. Direct, indirect, and induced contributions are included in the estimations.

These are modeled results, representing the estimated economic contributions in the local economy stemming from Black Hills National Forest visitors' spending, timber harvested, and authorized forage use. These estimates differ from the employment by industry statistics shown in the Conditions and Trends of the Economic Environment section above because the economic contributions are specific to forest activities, whereas the employment by industry are totals for the area of influence. Economic contributions from forest activities fall within many industries in the area and are only a small portion of the total employment in the area.

Outdoor Recreation and Wildlife

The Black Hills National Forest provides public lands for multiple outdoor recreation opportunities. Settings and opportunities supporting outdoor recreation activities, including fishing and hunting, are ecosystem services (cultural service). The forest has diverse recreational opportunities ranging from

nonmotorized activities, such as hiking and fishing, to motorized activities such as dirt biking and four-wheeling. Forest lands include a variety of developed recreation sites, many areas for dispersed recreation, recreation rentals and residences, and several other unique recreation areas. Outdoor recreation opportunities on the Black Hills National Forest also contribute to visitors’ quality of life. The Forest provides an area for friends and family to gather, to pass on traditions, and to strengthen relationships. Outdoor recreation opportunities on the forest also contributes to physical and mental health and well-being (Godbey 2009).

The Forest Service’s National Visitor Use Monitoring Survey offers a quantitative look at visitor activities across the Black Hills National Forest. Of the estimated 620,000 annual visits to the Black Hills National Forest in 2019, the primary reason for visiting the forest was for hiking/walking (27 percent), viewing natural features (13 percent), and fishing (11 percent). The National Visitor Use Monitoring Survey indicated that in addition to those primary activities, 58 percent of visitors cited viewing wildlife as another reason for visiting the forest. The remainder of visits were spread out across activities such as developed camping (10 percent) and driving for pleasure (10 percent). As far as winter recreation activities, three percent of visitors reported snowmobiling as their primary activity and no visitors reported cross-country or downhill skiing as their main activity (USDA Forest Service 2019).

Non-local visitors bring new money into the area economy with their tourism spending, while local recreationists also spend money in their communities. Recreationists spend money on supplies, lodging, gas, food, and services. Accounting for all recreation activities on the forest, spending by local and non-local visitors supports about 718 jobs and \$22.4 million in labor income on an annual average basis.

Hunting and fishing are popular recreation activities on the Black Hills that provide jobs and income to people in the area. These activities also contribute to peoples’ quality of life as they spend time with friends, family, experience solitude, and get exercise. Hunting and fishing licenses are provided by the state fish and game agencies, which generates revenue. Among many types of licenses in the state of South Dakota, in 2022, an annual fishing license is \$28 for residents and \$67 for non-residents, a Black Hills deer license is \$40 for residents and \$286 for non-residents, and a mountain lion license for residents is \$28 (South Dakota Game, Fish and Parks 2022). There were 5,193 single-tag licenses issued for the 2020 Black Hills deer season and 2,907 resident mountain lion licenses issued prior to the end of the 2019/20 Black Hills season (Huxoll 2021). With the revenue from fishing and hunting licenses, the states fund species management that contribute to the social and economic values held by people in the area, as well as visitors.

Motorized trail use is also a popular recreation activity on the Black Hills that generates revenue for the Forest Service and contributes to the local economy. A Motorized Vehicle Use Trail Permit is required for any motor vehicle traveling on motorized use trails in the Black Hills National Forest in South Dakota. As seen in Table 8, the Forest Service revenue from motorized trail permit sales significantly increased from 2011 to 2021 and has brought in more than \$5 million in sales during that time period.

Table 8. Black Hills National Forest Motorized Trail Permit Sales, 2011-2021

Year	Number Motorized Trail Permits Sold	Total Revenue
2011	7,832	\$190,195
2012	9,808	\$238,025
2013	11,170	\$272,295
2014	12,274	\$298,960
2015	16,804	\$406,230

Year	Number Motorized Trail Permits Sold	Total Revenue
2016	19,198	\$464,960
2017	21,508	\$528,275
2018	19,371	\$492,455
2019	22,811	\$576,485
2020	31,728	\$802,330
2021	38,521	\$986,900

Species supported by habitats on the forest are enjoyed—both consumptively and non-consumptively—by local and non-local residents alike. There exist diverse types of uses and benefits that people derive from wildlife resources that are considered non-consumptive or passive in nature. These include wildlife viewing, photography, nature study, etc. The trout fisheries on the forest are popular for fishing. Bird watching is another wildlife-related recreation activity that is popular on the forest.

Other than generating economic activities and contributing to the local economy, non-consumptive enjoyment of wildlife provides a variety of values to people. To be specific, **existence values** are benefits people derive from the very existence of species, even when the individual has not ever seen, or even planned on ever seeing, the species on the forest. For example, some local residents and non-local visitors are willing to pay for the preservation of wildlife through donations and/or taxes, even if they know that they may never actually encounter a particular species. **Vicarious use value** is closely related to existence values. Vicarious use value occurs when people gain pleasure from pictures, broadcasts, or written accounts of nature, including plants and wildlife species on the forest. Another form of existence value is **intrinsic value**, where wildlife has a right to exist, and therefore, has value independent of any human involvement. Intrinsic value is the human perception of that value. **Option values** exist when people are conscious that they might want to enjoy (either consumptively or non-consumptively) some species of fish, plant, or wildlife on the forest in the future, but are unsure that it will be available at that time, and they may be willing to pay a premium to ensure its future availability. **Quasi-option value**, on the other hand, is the potential benefits of new—or yet-to-be discovered—species and uses of plants and wildlife for a variety of benefits, including medicinal, agricultural, and other uses. This is based on the fear that any further destruction of habitats and species on the forest may obliterate future opportunities for beneficial discoveries. Lastly, there are **bequest values**, where individuals attach value from the fact that plant, fish, and wildlife species on the forest will be available for the enjoyment of future generations. See the wildlife assessment for more information on species for which people may hold these values, such as bighorn sheep and mountain lions.

Forest Products

The provision of forest products is a key ecosystem service provided by the Black Hills National Forest since it is important in the area of influence and the broader landscape, while also likely to be influenced by the land management plan. Timber harvests, including salvage and restoration activities such as thinning, provide forest products and contribute to the local economy, in addition to being an important tool in shaping the structure and composition of the forest. Timber harvest also contributes to a way of life for people in the area that have relied on Black Hills timber for generations. See the Timber and Vegetation Management assessment for data on harvest volumes and other information on forest health.

Timber harvested from the Black Hills National Forest accounts for a large portion of supply to local processing facilities. As detailed in McIver et al 2018, “The Black Hills National Forest supplied roughly

60 percent of the timber utilized in 2016 and the majority of mills in the TPA [timber processing area] reported depending upon USFS timber for half or more of their annual raw material requirements.” The timber harvested from the Black Hills National Forest has been processed in Crook, Custer, Lawrence, Meade, and Pennington counties. In these counties, there were seven sawmills, one log furniture, one house log/log home, and two post and small pole facilities in 2016 (McIver et al. 2018). Locally, wood product harvest supports sawmills and smaller businesses and provides an inexpensive source of fuelwood for some area residents.

Timber harvest directly supports jobs and income in logging and wood manufacturing firms and indirectly contributes to several other industries, from transportation, local government, and other support sectors in the local economy. Income earned from timber-related jobs stimulates the area’s economy as it circulates through local businesses. Based on cut volumes averaged from 2016 to 2021, the Black Hills National Forest supports an estimated 1,169 jobs and \$50 million in labor income on an annual average basis in the area of influence.

Additionally, special forest products are harvested from National Forests and Grasslands for commercial and personal consumption. The products may include food, medicinal plants, wildflowers, Christmas trees, and fuelwood. Local community members earn income through harvesting and selling special forest products. Some also harvest special forest products for subsistence, cultural heritage, family traditions, recreation or spiritual fulfillment. In 2021, fuelwood, Christmas trees, and transplanted trees were the primary special forest products removed from the Black Hills National Forest, which were for commercial and personal uses. These special forest products provide social and economic value to the local area.

Water Resources

Water resources on the Black Hills National Forest contribute to the use and enjoyment by the public. The provisioning of water resources are one of the key ecosystem services provided by the forest since it is important in the area of influence and in the broader landscape. Consumptive use includes water withdrawals and diversions for agricultural, municipal, residential, and commercial uses and non-consumptive use includes recreation.

Drinking water sourced from the forest is a benefit to people across the region. Watersheds on the forest, such as the Pactola Reservoir-Rapid Creek watershed, provide surface water for 4.2 million downstream consumers (USDA Forest Service 2022). For example, the Pactola Reservoir is a municipal water source for Rapid City, SD. The Victoria Creek-Rapid Creek watershed has one surface water intake serving 486 direct consumers and 15 ground water intakes serving 1,464 direct consumers.

Enjoyment and use of water resources on the forest include recreation activities such as fishing, wildlife viewing, boating, and swimming. Healthy fisheries provide habitat for many fish, specifically trout species that are popular for fishing in the area. Boating benefits the local tourism economy from the outfitter and guides, as well as the marina operators and campground concessionaires with special use permits operating near the reservoirs and lakes. See the Recreation assessment for detail on recreation uses.

A well-functioning ecosystem helps maintain the integrity of the watersheds so that forests, riparian, and wetland areas are able to filter out pollutants to maintain water quality. This reduces municipal and well-water treatment costs and alleviates demand for costly infrastructure. Built infrastructures on the forest include water-related infrastructure such as dams, reservoirs, groundwater wells, water storage tanks, and

water pipelines on the forest. For details on water-related uses see Infrastructure assessment. See Air, Soil and Water assessment for detail regarding the existing condition of watersheds.

Forage for Grazing

Rangelands on the forest provide a variety of forage and habitats for grazing livestock and wildlife. Ranchers depend on grazing allotments to provide forage for their stock. In 2021, there were 420 grazing permits held by 193 different permittees (see Rangeland Management Assessment). From 2018 to 2021, the average authorized forage use on the forest was 110,744 Animal Unit Months (AUMs). All permits on the Black Hills National Forest are for cattle grazing. Annual authorized use is based on forage conditions and other management considerations. This level of grazing supports approximately 120 jobs and \$4.3 million in labor income on an average annual basis in the area of influence.

In addition to its contribution to economic activity in the area of influence, livestock grazing contributes to social sustainability. Ranch ownership can strengthen ties to the community, fellow ranchers, and families. Research has found that many ranchers identify the value of ranching as being closer to the earth, providing a desirable place to raise a family, and providing a satisfying way of life (Smith and Martin 1972). Interaction with other ranchers builds networks and social capital (Ooi et al. 2015). Such interpersonal relationships contribute to a sense of belonging and quality of life.

Mineral Production

Federal lands can play an important role in mineral and energy production. Mineral production impacts the local economy and communities when companies extract natural resources on federal lands. The only reported minerals production on the Black Hills National Forest from 2018 to 2021 were crushed stone (average annual value of \$74,000) and slate stone (average annual value of \$28,000).¹ There was also carbonate production on the Black Hills National Forest during the same period with an average annual estimated sales value of \$23 million.² Feldspar is produced on the forest (and likely contributes to the local economy) but the volume is unknown, so it is not included in contribution estimates. The Black Hills National Forest mineral resources contributed 235 jobs and \$12 million in labor income on an annual basis to the area of influence.

While economic contributions from commercial mineral production are minimal, the Black Hills National Forest provides social and corresponding economic values related to recreational minerals use. Prospecting and recreational mining, such as gold panning, is an important leisure activity for visitors to the Black Hills National Forest. It brings families together outdoors, supports cultural traditions, and provides opportunities to recreate on the forest. When these recreationists visit the forest, their visitor spending supports the local economy.

¹ All mineral production from the Black Hills National Forest is from public domain lands with the surface owned and managed by the federal government. Mineral production values do not include split estates.

² Unlike leasable and saleable mineral operations, which are required by law to report or otherwise account for production to the land management agencies, no such provisions are found within the United States mining laws (30 U.S.C. 21-54) nor Forest Service locatable minerals regulations at 36 CFR 228 Subpart A. Therefore, reporting of any locatable mineral commodity production on NFS-managed lands is strictly voluntary on the part of the operator or parent company.

Agency Operations

Forest Operations and Infrastructure

Black Hills National Forest operations are developed to implement the forest plan and contribute directly and indirectly to the Forest Service presence in the community. Management of the forest directly contributes to the local economy by employing individuals living within the area and by spending federally appropriated dollars on goods and services to carry out management programs. While forest plans do not include staffing and procurement strategies, the presence and impact of Agency resources in the area of influence are considered in this analysis. Forest budgets may fluctuate over the life of the management plan but are not dictated by the management plan. Forest budgets are distributed by Congressional appropriations and funds from other acts of Congress.

In 2019, the Black Hills National Forest expenditures on programs, management activities, and salary was about \$30.5 million (including about \$600,000 for fire). Approximately 60 percent of the budget was spent on salaries. In 2020, the Black Hills National Forest employed 248 permanent employees and 60 temporary employees.

The remaining 40 percent was spent on equipment and other non-salary expenditures that contribute to forest management. The Black Hills National Forest's operational expenditures contribute to economic activity in the communities that surround the forest. Forest Service employees live in these communities and spend their income on housing, food, and a variety of other local goods and services. The forest's non-salary expenditures generate economic activity in businesses that supply goods and services to support Forest Service programs.

Total Forest Service expenditures on the Black Hills National Forest supports an estimated 468 jobs and approximately \$25 million in labor income on an annual average basis within the seven-county area of influence. These values are the result of Forest Service spending on restoration activities, local lodging for personnel, filling Forest Service vehicles at local gas stations, hiring local contractors for building maintenance, etc.

These expenditures also support programs that contribute to recreation opportunities, providing and maintaining wildlife habitat, and ecosystem restoration projects. These programs also include activities to restore the forest to improve fire resiliency near communities. Managing these wildland-urban interface areas in a condition that prevents the spread of unwanted fire into adjacent lands and communities is a contribution of the forest to local communities.

Forest Service staff, partnerships, contracts, or agreements, and other operations directly and indirectly influence the social, cultural, and economic conditions of the affected communities through demand for local goods and services, contributions to the tax base, and participation in community institutions and activities.

Infrastructure on the Black Hills National Forest includes National Forest System roads, trails, bridges, public utilities, private infrastructure, recreation facilities, drinking water systems, and administrative facilities. Forest infrastructure is an essential input in economic activity in the region. Recreational use of the Forest relies on accessible roads, trails, and developed sites. Households and industries rely on cellular towers, water developments, and transmission lines to conduct their business. Forest infrastructure is not a separate category in the economic contribution analysis because it is embedded in nearly all market transactions associated with forest uses. Timber cannot be removed from the forest for processing without National Forest System roads. Recreational visitors will not spend money in communities near the Forest

if they cannot access preferred recreational sites. New families and businesses will not move to the communities surrounding the forest if they lack access to infrastructure essential to modern life.

Federal Payments to Counties

Payments to local governments support public services in communities near the Black Hills National Forest and contribute to employment and labor income in the counties that surround the forest. Forest Service payments to local governments in sparsely populated and low-income areas are likely to be particularly meaningful, since these areas typically get less revenue from property, sales, and income taxes to fund local government operations.

The Black Hills National Forest contributes to local governments through several payment programs. The Payments-in-lieu-of-taxes (PILT) program compensates local governments for the lack of property taxes associated with nontaxable Federal land located within a county’s boundary. Local governments provide a variety of services that support the use and enjoyment of the forest, including road maintenance and emergency services. PILT payments are distributed by the Department of the Interior for tax-exempt Federal land administered by the Bureau of Land Management (BLM), the Forest Service, the National Park Service, U.S. Fish and Wildlife Service, and for Federal water projects and some military installations (U.S. DOI 2020). These payments are designed to supplement other Federal land receipt-sharing payments that local governments may receive, including timber, grazing fee, and mineral material sales receipts from National Forests and Grasslands as reflected in Secure Rural Schools or 25 Percent Fund payments.

The Forest Service also makes payments to counties through the Secure Rural Schools (SRS) program to offset declines in revenue-sharing payments due to lower timber harvest volumes. The SRS program supports schools, roads, and ecosystem restoration in the area. The 25% Fund shares revenue generated from the sale of commodities produced on public land with the county where the activities take place. Twenty-five percent payments are typically lower than those under the SRS program. Changes to these payment programs have a larger impact on rural counties which depend, to a greater degree, on these payments for school, road, and bridge funding.

Table 9 displays 2019 federal payments to counties in the area of influence. The PILT column captures payments from all federal lands in the county and the SRS and 25-percent payment columns capture payments from all national forests in the county. Including all federal payment sources in the county provides context for the relative importance of federal payments to county budgets. Pennington and Custer counties received the greatest federal payments in the area of influence (U.S. DOI 2020; USDA Forest Service 2020).

Table 9. Payments to counties, 2019 (U.S. DOI 2020; USDA Forest Service 2020)

County	Total Federal PILT Payment	Percentage of PILT Eligible Acres Administered by Forest Service	Secure Rural Schools Payment	25 percent Payment
Custer County, SD	\$874,425	91	\$387,136	\$0
Fall River County, SD	\$738,556	95	\$61,517	\$0
Lawrence County, SD	\$589,505	98	\$312,935	\$0
Meade County, SD	\$186,716	55	\$68,884	\$0
Pennington County, SD	\$1,892,889	86	\$432,206	\$0

County	Total Federal PILT Payment	Percentage of PILT Eligible Acres Administered by Forest Service	Secure Rural Schools Payment	25 percent Payment
Crook County, WY	\$791,272	51	\$0	\$156,059
Weston County, WY	\$746,137	76	\$0	\$5,767

The average PILT payment from 2018 to 2020 from the Black Hills National Forest was about \$3 million annually. The average Forest Service payment from the SRS and 25 percent fund during the same period was about \$1.5 million annually. These Federal payments to counties associated with the Black Hills National Forest contribute 61 jobs and \$2.9 million in labor income on an average annual basis to the area of influence.

Summary of Forest Contributions

Multiple uses on the Black Hills National Forest contribute to social and economic sustainability. The forest provides benefits to people and key ecosystem services, such as recreation and timber. These benefits contribute to quality of life, culture, and livelihoods for people in the area of influence. While the social benefits of forest resources are not captured quantitatively, they are important to consider alongside the economic contributions.

The estimated economic contributions of these Black Hills National Forest resources, uses, and management activities are summarized in table 10 and referred to throughout this section. The estimates reported below are based on 2019 economic conditions for the area of influence (IMPLAN 2019).

Table 10. Estimated jobs and income contributed by Black Hills National Forest program areas

Program area	Jobs	Labor Income
Recreation (local and non-local)	718	\$22,400,000
Grazing	120	\$4,300,000
Timber	1,169	\$49,600,000
Minerals	235	\$12,000,000
Payments to States/Counties	61	\$2,900,000
Forest Service Expenditures	468	\$25,200,000
Total	2,770	\$116,400,000

There are approximately 130,000 jobs and \$6.3 billion in labor income in the seven-county area of influence. Table 10 shows the number of jobs attributable to various Black Hills National Forest program areas totaling an estimated 2,770 jobs and \$116.4 million on an average annual basis. Timber, recreation, and Forest Service expenditures contribute the most to employment in the regional economy, relative to other resource areas. The Forest Service expenditures category captures both salary and non-salary expenditures. Therefore, this category includes Black Hills National Forest employees, forest contractors and suppliers, as well as employees of businesses where forest employees spend their household income.

As seen in table 11, the Black Hills National Forest contributes about two percent of all jobs and labor income in the seven-county area. These jobs fall within many industries across the analysis area because they include direct, indirect, and induced jobs, as detailed in the Methods for Economic Contribution Analysis section above. The multiple uses of the Black Hills National Forest (mainly timber, recreation,

and minerals) contribute the most jobs to the agriculture, manufacturing, government, and accommodation and food services industries in the area of influence.

Table 11. Distribution of forest contributions across industries in area of influence

Industry	Forest Service-related Jobs	Percentage of Jobs in Area	Forest Service-related Labor Income	Percentage of Labor Income in Area
Accommodation, Food Services	506	3.82%	\$12,643,272	3.96%
Administration, Waste Management	69	1.61%	\$2,070,656	1.45%
Agriculture	381	9.16%	\$15,295,699	18.37%
Arts, Entertainment, Recreation	67	1.74%	\$981,956	1.35%
Construction	21	0.22%	\$1,001,757	0.21%
Educational Services	13	1.22%	\$276,285	1.11%
Finance & Insurance	62	1.07%	\$2,941,105	0.93%
Government & Non NAICS	338	1.70%	\$19,919,070	1.47%
Health & Social Service	146	0.95%	\$9,922,114	0.90%
Information	17	1.35%	\$843,316	1.23%
Management	31	2.65%	\$3,251,269	2.47%
Manufacturing	343	7.95%	\$16,068,214	5.75%
Mining	104	5.82%	\$5,481,307	4.06%
Other Services	100	1.01%	\$3,613,277	0.95%
Professional, Scientific, Technology	71	1.08%	\$3,414,512	0.92%
Real Estate	92	1.25%	\$1,639,819	1.20%
Retail Trade	190	1.47%	\$5,161,968	1.34%
Transportation	115	2.81%	\$5,274,746	2.30%
Utilities	8	2.10%	\$891,503	1.90%
Wholesale Trade	98	3.17%	\$5,697,042	2.67%
Total	2,770	2.13%	\$116,388,886	1.86%

The jobs estimates offer an incomplete picture of the Black Hills National Forest’s contributions to the seven-county economy because not all jobs are equivalent. Labor income estimates help to clarify the role of forest management in supporting livelihoods in communities near the Black Hills National Forest. Sectors that have the highest employment may not generate the highest labor income and vice versa. This is evidenced by the forest uses contributing more to total jobs in the area of influence than labor income. Forest contributions as a percent of total jobs in the area of influence (2.13 percent) is greater than the percent of labor income contributed by the forest (1.86 percent).

Looking at average labor income per job reveals that jobs associated with timber pay more, on average, than jobs associated with recreation, while Forest Service expenditures support the highest average annual incomes. This finding is consistent with agricultural and recreation-related jobs often being part-time or low-skilled positions.

In the Black Hills National Forest area of influence, the forest will continue to contribute to social and economic sustainability by providing for multiple uses, ecosystem services, infrastructure and having a presence in the community. While timber harvest, recreation, and other resources will continue to play an

important economic and social role in the area, individual counties may experience different levels of contributions, as well as varying degrees of progress toward the path of sustainable economic development. This is because some counties are currently more dependent upon specific industries than others. For example, counties with sawmills likely have greater economic contributions from the timber resources. Other counties may rely more heavily on tourism, regional services, or agriculture. For this reason, different counties will experience different extents of contributions deriving from the Black Hills National Forest's resources and management.

Forest Plan Consistency with External Plans on the Landscape

Black Hills National Forest plan revision efforts do not conflict with county level master plans reviewed (see Values, Beliefs, and Attitudes section) regarding socioeconomic contributions.

Potential Needs for Change

As discussed throughout this document, there are changing socioeconomic conditions in the seven-county area of influence that contribute to the potential need for changes in the forest plan revision process. These include:

- The population is growing in the majority of the area of influence. This is increasing the demand for recreation opportunities, the provision of ecosystem services (e.g., drinking water), and jobs. This changed condition creates a need for sustainable recreation balanced with ecological integrity and economic opportunity. Consider and integrate recreation within desired conditions and other plan direction to accommodate a growing demand for recreation opportunities.
- Climate change will impact the forest contributions to social and economic sustainability, mainly related to the benefits of recreation opportunities (e.g., jobs and quality of life). Climate change will affect recreation by extending the warm-weather recreation season and increasing the frequency and extent of wildfire. Consider plan direction that takes into account a changing climate, including adaptive responses to impacts of climate change (such as more frequent and larger disturbance events). Focus on maintaining ecosystem resiliency to continue to provide multiple uses and ecosystem services.
- Employment in the area of influence has been changing over time. Over the past 20 years, timber-related employment has declined, and services and retail trade employment, both associated with the tourism industry, has increased. This demonstrates a need for economic resiliency and diversity by balancing traditional resource uses with other ecosystem services. Consider plan direction to support diverse economic contributions from the forest's multiple uses.
- Conflicting values for forest health and resource use, such as timber, have escalated. There is a need to manage for resilient ecosystems so that forest resources can continue to contribute to social and economic values. Consider direction for ecosystem-based management at a landscape scale and emphasize maintenance and restoration of ecosystem function and natural processes to improve resiliency.

In order to comply with the 2012 Planning Rule, the new plan will explicitly consider the Forest's roles and contributions to social and economic sustainability, as well as ecosystem services. See also related assessments (Rangeland Management, Timber, Recreation, etc.) for additional potential needs for change.

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