FY 2016-2017 Monitoring and Evaluation Report

Bighorn National Forest

July 2018

Trail camera monitoring of elk browsing willow on the Powder River Ranger District.

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CERTIFICATION

The Revised Bighorn National Forest Land and Resource Management Plan Record of Decision was signed September 30, 2005. The forest plan is a dynamic document, subject to change based on biennial monitoring and evaluation as we implement. Through monitoring, we determine whether the plan is sufficient to guide management for the subsequent year or whether the plan or our management actions should be modified.

I have reviewed the FY 2016-2017 biennial monitoring and evaluation report for the Bighorn National Forest. I believe the results of monitoring and evaluation for fiscal years 2016-2017 meet the intent of chapter 4 of the forest plan and the 2012 Planning Rule (36 CFR 219). I also believe the monitoring and evaluation requirements in chapter 4 have been met, and the decisions made in the forest plan are still valid at this point in time.

I have assigned Forest specialists to a monitoring team. This team is responsible for review of this monitoring report and making recommendations to me regarding any changes to the forest plan. The team provides me with interdisciplinary review of this report and analysis of how well we are meeting expected outputs. That information is included in this 2016-2017 biennial report.

19 July 2018

ANDREW K. JOHNSON
Forest Supervisor

Date

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2016-2017 Monitoring and Evaluation Report
Overview of the Monitoring Process

The following discussion is an overview of the monitoring process used on the Forest. Monitoring results are reported in attachment A. Monitoring is reported on a 2, 6, 10 year schedule as specified under each monitoring element (2005 revised forest plan, pgs. 4-6 to 4-14). Only those monitoring items due to be reported in 2016-2017 are included in this document.

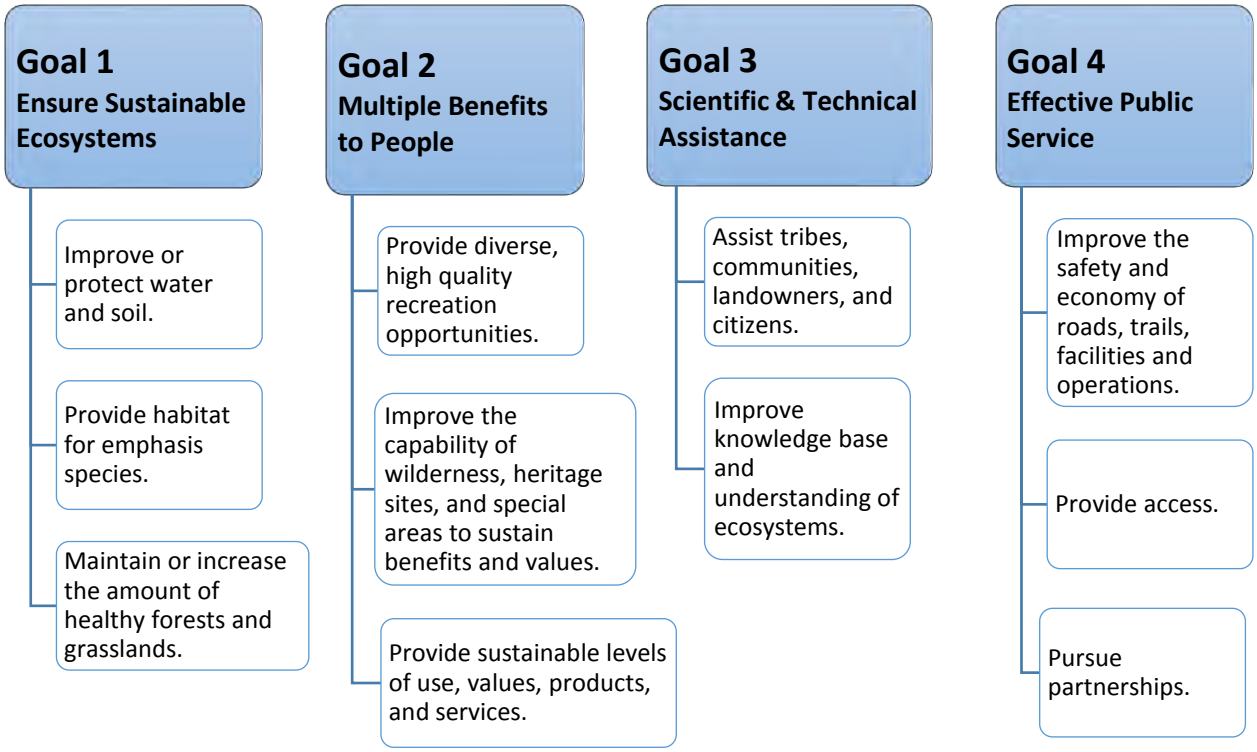
Monitoring and evaluation are important parts of implementing the forest plan. When the plan was revised in 2005, four steps for successful monitoring were established:

1. Setting priorities for monitoring items so budgeting could focus on the highest priority.
2. Identifying who would be responsible for the monitoring items and who potential cooperators might be.
3. Evaluating the collected data.
4. Publishing the data in a report.

Monitoring is the collection of data and information; evaluation is the analysis of the collected data and information. Evaluation answers the monitoring questions, determines whether forest plan revision or amendment is warranted, and shows whether plan implementation should be modified.

Monitoring and evaluation are the backbone of adaptive land management, and there are three primary parts. The first part is making sure the forest plan is being followed during project planning and implementation. That is *implementation monitoring*. Another part is regularly checking in with forest plan objectives to see how well they are being achieved – *effectiveness monitoring*. *Validation monitoring* is done to determine if forest plan expectations and assumptions still hold true.

Implementation Monitoring	Is the forest plan direction being followed during project planning and implementation?
Effectiveness Monitoring	Are management activities effective in achieving forest plan goals, objectives, and strategies?
Validation Monitoring	Is there a better way to meet forest plan goals and objectives and achieve desired conditions? Is there a need to change or amend the forest plan?



The desired conditions for the forest are described in a three-tiered hierarchy of goals, objectives, and strategies. The four main goals (shown above) are the basis for the development of the objectives, and each objective has specific strategies.

The monitoring strategy for the forest looks at all the forest plan objectives and strategies using the three types of monitoring: implementation, effectiveness, or validation. Results for 2016-2017 are shown in the next section – Attachment A.

Attachment A

2016-2017 Monitoring Results

Transition of the Monitoring Strategy to the 2012 Planning Rule

The monitoring strategy for implementation of the 2005 Revised Land and Resource Management Plan (forest plan) was originally guided by the 1982 Planning Rule. The more recent 2012 Planning Rule includes a requirement that all Forests that are not in plan revision update their forest plan monitoring strategy within four years, or as soon as is practicable to the requirements of the new rule (36 CFR 219.12c). This chapter was updated with Administrative Change #4 on June 3, 2016.

The administrative change to the forest plan is a modification to monitoring elements found in the previous version of chapter 4 which included 48 monitoring questions. There are eight categories required to be monitored under the 2012 planning rule including those listed in 2.1 through 2.8 in this chapter (i.e., 2.1 Status of select watershed conditions). We retained those elements of the original monitoring strategy that addressed these eight categories and removed elements that did not address the requirements. This conversion resulted in a total of 30 monitoring questions or sets of questions (forest plan, pgs. 4-6 through 4-14). However, the Forest continues to monitor the removed elements and their corresponding monitoring questions under our programmatic monitoring efforts, which are above and beyond the requirements of the Forest Plan.

The 2012 Planning Rule requires that the monitoring plan consist of "monitoring questions and associated indicators" which "must be designed to inform the management of resources on the plan area, including by testing relevant assumptions, tracking relevant changes, and measuring management effectiveness and progress toward achieving or maintaining the plan's desired conditions or objectives" [219.12 (a)(2)]. The monitoring program now consists of only monitoring questions and associated indicators to evaluate whether forest plan components (i.e., desired conditions, goals, objectives, standards, guidelines, and suitability) are effective and appropriate, and to determine whether management is effective in maintaining or achieving progress toward desired conditions and objectives for the plan area.

The 2012 Planning Rule provides for a biennial report in contrast to the previous annual monitoring report schedule. The monitoring evaluation report must indicate whether or not a change to the forest plan, management activities, the monitoring program, or a new assessment, may be warranted based on the new information. The monitoring evaluation report must be used to inform adaptive management of the plan area [36 CFR 219.5(a)]. This is the first biennial monitoring and evaluation report.

A press release with links to the Forest's land management plan website which contained the monitoring transition document and a letter from the Forest Supervisor informed the public of a 30-day opportunity to comment on the draft monitoring transition document [219.16(c)(6)]. The Bighorn NF presented the proposed and draft changes to the Bighorn NF Steering Committee at two separate meetings and gathered their feedback. The Forest Plan Monitoring Team considered their

feedback and all public comments in preparing this chapter which is now consistent with the 2012 Planning Rule. Public comments and the corresponding responses from the Forest Service can be viewed at the following website under Administrative Change #4: https://www.fs.usda.gov/detail/bighorn/landmanagement/planning/?cid=fswdev3_009165.

Monitoring Results

For this report, the monitoring items from chapter 4 of the revised forest plan are listed according to the numbering system provided in the 2012 Planning Rule. All plan components being monitored are tied to the aforementioned goals of the forest plan. For example, objective 2a relates back to part of goal 2 – multiple benefits to people.

INTRODUCTION

Monitoring of the implementation of the 2005 Bighorn National Forest Revised Land and Resource Management Plan (forest plan) is guided by the 2012 planning rule (36 CFR 219). The requirements of the 2012 planning rule for the forest plan monitoring program are provided in 36 Code of Federal Regulations (CFR) 219.12(a)(1).

This Biennial Monitoring Report provides a synopsis of monitoring data and qualitative information for fiscal years 2016 and 2017 for the Bighorn National Forest (Bighorn) and is divided into two main sections. The first section includes the decision steps using four determinations of whether a change to the plan, management activities, the monitoring program, or a new assessment, may be needed based on any new information provided in the monitoring report. The second section provides the finding (whether any changes to the forest plan are needed), indicators, data source(s), frequency of reporting, and monitoring results.

The forest plan is 13 years old and a plan revision is not scheduled to occur until 2032. Since the revision in 2005, there have been four amendments and corrections to the forest plan that are provided in Appendix A.

Section 1: DETERMINATIONS FROM THE BIENNIAL EVALUATION

Under 36 CFR 219.12(d)(2), monitoring evaluations that were provided by resource specialists guide the following determinations for adaptive management made by the Forest Supervisor, Responsible Official:

1. **NEED FOR CHANGING THE FOREST PLAN**
   Monitoring has not indicated a need for changing the Bighorn National Forest Plan.

2. **NEED FOR CHANGING MANAGEMENT ACTIVITIES**
   Monitoring has not indicated a need for changing management activities.

3. **NEED FOR CHANGING THE MONITORING PROGRAM**
   Monitoring has not indicated a need for changing the monitoring program.

4. **NEED FOR CONDUCTING AN ASSESSMENT TO DETERMINE PRELIMINARY NEED TO CHANGE THE PLAN**
   Monitoring has not indicated a need for conducting an assessment to determine preliminary need to change the plan.

Section 2: MONITORING QUESTIONS AND INDICATORS

2.1 Status of select watershed conditions

2.1.1 Monitoring element 1: Watershed condition framework

Monitoring question: Is the unit improving condition in priority watersheds?

Finding: No changes are needed.

Indicator: Completion of essential projects identified in watershed restoration action plan.

Data source(s): Project completion reports

Frequency of reporting: Six years

Monitoring results: Over the course of the monitoring period there was an improvement in priority watersheds on the forest. The last of the improvement projects for the Upper Tongue watershed, priority watershed, was completed in FY 2017. Upgrading this priority watershed from "functioning at risk" to "properly functioning" improved the watershed condition. Over the course of the last six years, the essential improvement projects completed included:

- Ongoing livestock grazing Best Management Practices (BMP) implementation
- West Fork South Tongue River and Sucker Creek Revegetation project
- South Tongue River geomorphic assessment
- Road and stream crossing maintenance
- Black Mountain fence construction

Detailed descriptions of each of these projects are publicly available in the Watershed Classification and Assessment Tracking Tool database located at the following url: https://apps.fs.usda.gov/wcatt/

2.1.2 Monitoring element 2: National Best Management Practices Program

Monitoring question(s): Are best management practices (BMP) implemented, and are they effective at protecting water quality?

Finding: No changes are needed.

Indicator: Monitoring protocols rating system.

Data source(s): Best management practices review forms, local and national protocols.

Frequency of reporting: Two years.

Monitoring results: BMPs are proving to be effective in protecting water quality. The Bighorn conducted BMP reviews for six rangeland management activities in FY 2016 and 2017. Hondo Creek and Canyon Creek pastures on the Powder River District, West Wallrock and Rooster Hill pastures on the Medicine Wheel district, and South Walker Prairie and Lower Double Spring pastures on the Tongue District were reviewed for BMP implementation and effectiveness. In each review, range management practices (developed using forest plan standards and guidelines) were maintaining or helping to improve watershed conditions, and water quality was not being degraded.

One timber BMP review was conducted for the Garland salvage sale, and eleven other reviews were conducted for minor activities on the Forest, all using the national BMP protocol. These included two for dispersed camping, two for facilities, two boat ramps, one for road maintenance, two for construction sites, and two for road-stream crossings. In each review, site-specific practices were effective at protecting or maintaining water quality. In all BMP reviews conducted, BMPs were, generally, effective in protecting water quality. During seven of the reviews there were, however, localized areas or specific features of management where practices could be improved. This was particularly evident with rangeland management activities BMP reviews where four range permittees received input from the review team that allows them to make relatively minor adjustments that can result in improvements to operations.

Results of all BMP reviews are recorded in the national BMP database (https://citrix.fs.usda.gov/Citrix/StoreWeb/).

2.2 Status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems

2.2.1 Monitoring element 3: Air quality

Monitoring question: **Is acidic deposition impacting our high-elevation mountain lakes?**

Finding: No changes are needed.

Indicator: Number and size of completed essential projects (identified in watershed restoration action plans). Changes in buffering capacity.

Data source(s): Wilderness lake sampling, long-term at Solitude and Florence Lakes, U.S. Environmental Protection Agency sampling protocols.

Frequency of reporting: Six years or earlier.

Monitoring results: Available in the next reporting cycle scheduled under the frequency of reporting.

2.2.2 Monitoring element 4: Camping impacts in wilderness

Monitoring question: **Are wilderness camping impacts exceeding acceptable limits?**

Finding: No changes are needed

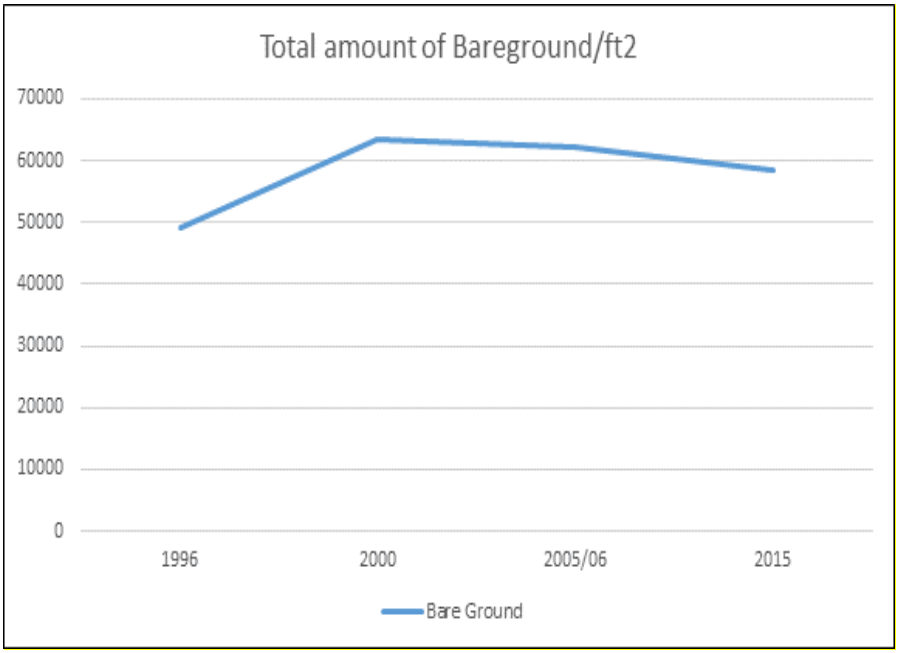


Figure 1. Year of survey (x axis) by square feet of bare ground (y axis).

Indicator: Impacts to soils, water, and vegetation in use areas.

Data source(s): Bare ground field assessments.

Frequency of reporting: Six years.

Monitoring results: Bare ground surveys were conducted during the summer of 2015 of more than 350 known campsites in the Cloud Peak Wilderness. This data was also collected in 1996, 2000, 2005, and 2006. The information is used to determine the trend in soil and vegetative disturbance due to recreational use by observing the change in overall bare ground. Figure 1 shows the total amount of bare ground recorded during each of those monitoring periods. In summary, bare ground assessments indicate a trend of slightly reduced disturbance over the past 15 years.

2.2.3 Monitoring element 5: Wilderness

Monitoring question: Are impacts exceeding acceptable limits?

Finding: No changes needed.

Indicator: Trends in number of visits, crowding, and solitude. Woody debris.

The forest plan contains standards and guidelines for Wilderness including a prohibition on campfires above 9,200 feet. This prohibition is to ensure that sufficient amounts of woody material are available in pristine and semi-primitive wilderness management areas in order to maintain the natural processes associated with soil building and nutrient cycling. To ensure attainment of natural processes above 9,200 feet, naturally occurring woody debris amounts should be upwards of 20 tons/acre according to the 2005 Final Environmental Impact Statement (FEIS) for the forest plan. Monitoring of campsites conducted in 1996 and 2000 in these zones documented that the forest plan standard for woody debris was not being met.

Seventy-five percent of the Cloud Peak Wilderness is in the alpine and krummholtz ecological zones. The direct correlation is that human use of the area, specifically use of woody material for campfires, has inhibited attainment of desired conditions for soil development and nutrient cycling. Monitoring will document movement toward desired conditions for soils and inform future decisions about campfire prohibitions and sustainable levels of visitation in the Cloud Peak Wilderness.

Data source(s): Visits based on wilderness registration data in the corporate database. Crowding and solitude based on wilderness rangers' documentation of trail encounters and National Visitor Use Monitoring survey data. Law enforcement seasonal data. Woody debris based on James K. Brown's "Handbook for Inventorying Downed Woody Material" and field inventory forms. Documentation from educational presentations.

Frequency of reporting: Two years for trends in visits, crowding, and solitude. Twenty years for woody debris. The longer monitoring period for woody debris is due to the incremental increase of material over time.

Monitoring results: Available in the next reporting cycle scheduled under the frequency of reporting.

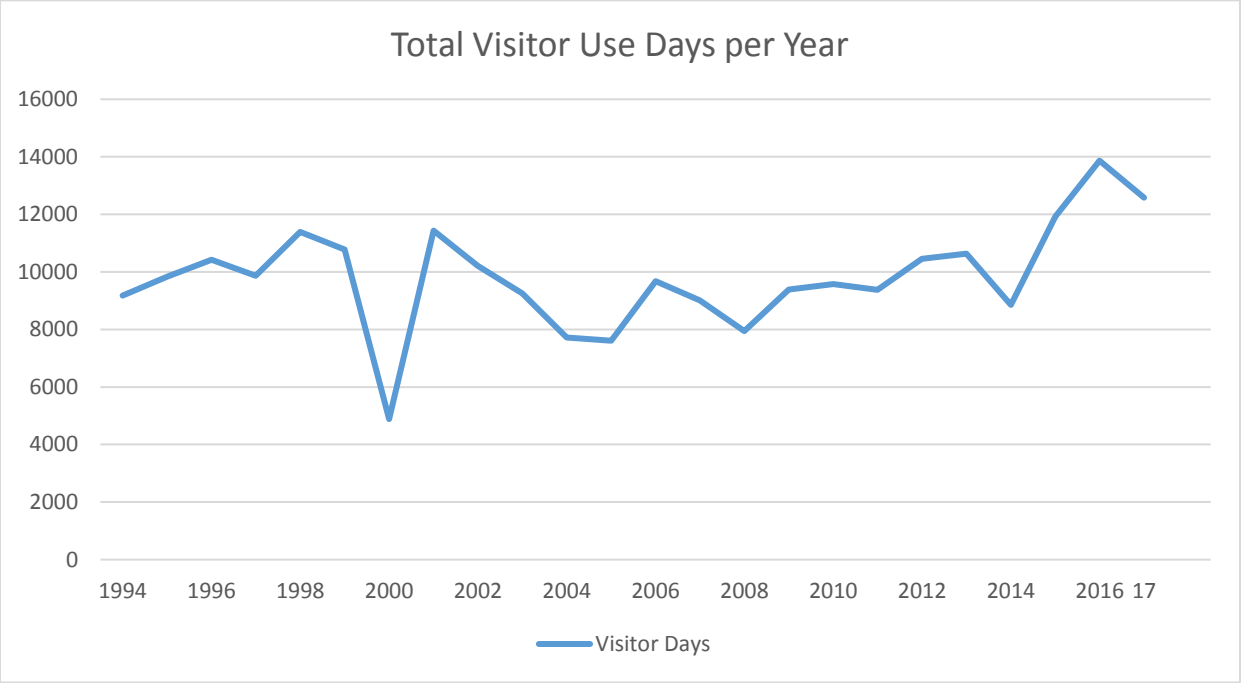


Figure 2. Cloud Peak Wilderness: Monitoring Year (x axis) by Total Visitor Days (y axis).

Figure 2 reflects the amount of use occurring in the Cloud Peak Wilderness since the required registration was implemented in 1994. Data for FY 2017 is not yet available for trailhead-specific use. Registration compliance for both FY 2016 and 2017 has been over 99%. This is based on the 2,193 contacts made over a two year period by the Wilderness Rangers with only eight of those contacts noted for "failure to register" in the Wilderness Rangers' daily encounter tallies.

<u>Trail Encounters by Management Area (MA) Prescription:</u>

MA 1.11 (Pristine)
No documentation for ranger patrols in this management area in FY 2016. Nine of the days were patrolled in Management Area (MA) 1.11. Seven of those exceeded forest plan standards of less than two encounters per day. Conversely, two of those days patrolled exceeded the standard.

MA 1.13 (Semi-primitive)
Guidelines for this area state "Limit the maximum trail encounters from Memorial Day to Labor Day and during the fall hunting season to an average of less 10 group encounters per day. Encounters averaged 4.45 groups or parties per day in FY 2016 and 6.24 in FY 2017.

Out of the 93 patrol days, 10 of the encounters exceeded forest plan guidelines for FY 2017 while only four of 93 days exceeded these guidelines in FY 2016. "Exceed" locations were on Trail 63 (West Tensleep trailhead), Trail 38 (Hunter trailhead), and Trail 46 (Circle Park trailhead).

Law Enforcement Contacts

The number and type of law enforcement contacts including formal citations, warnings, and incident reports can also illuminate specific impacts and identify behavioral trends requiring new or increased management focus.

Violation Notices - FY 2016/2017

- No violations were issued in either 2016 or 2017.

Warning Notices - FY 2016/2017

- Warning notices were issued to 17 individuals for the following violations:
- Three for 261.52(a) - building or maintaining a campfire above 9200 feet
- Five for 261.52(a) - building or maintaining a campfire below 9200 feet other than on a fire blanket
- Three for 261.57(a) - being in CPW without registration
- One for 261.58(e) - camping within 100 feet of water
- One for 261.57(g) - failure to dispose of garbage

Incident Reports - FY 2016/2017

The Wilderness Rangers documented with incident reports all violations encountered in the Cloud Peak Wilderness. This monitoring has been done since the summer of 1993.
FY 2016-17 incident frequencies are as follows:

- Two for 261.6a - damaging or cutting live trees
- Three for 261.11b- leaving human waste in an exposed condition
- 39 for 261.52a- building campfire within 300 feet of water/above 9200 feet (new in 2000) or building a campfire above 9200 feet
- Eight for 261.57a – entering Cloud Peak Wilderness without registration.
- 24 for 261.57g- failure to dispose of garbage
- Three for 261.58e- camping within 100 feet of water or closed area
- Three for 261.58aa- hitching a horse less than 100 feet from water

Total incidents in FY 2016/2017 = 82

Wilderness Education Program

A key for attaining a sustainable level of visitation with limited and acceptable impacts is a proactive education program which promotes a "best practices" stewardship ethic for visitors. The focus of the wilderness education program is the Leave No Trace (LNT) program. A summary of the wilderness education program is presented below.

Educational Presentations

Wilderness Awareness Course: A regional week-long wilderness awareness course was conducted on the Powder River District in September of FY 2016. The course was targeted to line and staff officers and resource specialists who have wilderness management responsibilities. Attendees included over 30 volunteers, and employees from across three Forests.

Leave No Trace: As in previous years the self-study LNT sessions were available for groups stopping at the Ranger District offices during regular business hours. An estimated 50 participants completed the self-study training.

Outdoor sessions, classrooms, Girl and Boy Scout troops, etc.

Table 1. Number of participants attending educational presentations.

Educational Presentations	**Number of participants**	**Age Group**
Wilderness Workshop	50	ADULTS
Healthy Kids Day YMCA- Intro to LNT	150	YOUTH
Healthy Kids Day YMCA- Intro to LNT	30	ADULTS
Local 4-H Kids camp-Intro to LNT	8	ADULTS
Intro to LNT	5	ADULTS
Internal Forest Service Trainings	50	ADULTS
Total Participants	293	

In addition to personal contacts for Leave No Trace orientation, an additional 3,800, or greater, contacts were made for required registration with groups visiting the Cloud Peak Wilderness. The Cloud Peak Wilderness required registrations include Leave No Trace information as well as website and toll free phone number contacts for more information.

Special exceptions to limited activities

Several Search and Rescue operations were conducted in the wilderness during the FY 2016/2017 period, but no unauthorized motorized intrusions were documented.

Wilderness Management Summary

Visitation to the Cloud Peak Wilderness has risen sharply in the past three years with significant concentrations at three popular trailheads including West Ten Sleep, Hunter, and Circle Park. Primary impacts include building campfires in prohibited locations and improper garbage disposal. Impacts and disturbance above 9,300 feet in MA 1.1 and impacts within 300 feet of water in MAs 1.1 and 1.13 are significant concerns. The registration program is working well with a high compliance rate. Registration is a valuable component for public safety and an important source of data for analyzing use trends for monitoring purposes.

2.2.4 Monitoring element 6: Forest ecosystem health

Monitoring question: What are the status, extent, and trend of natural disturbance events in and around the plan area, including insects, diseases, wildfires, blowdowns, and other natural events?

Finding: No changes are needed.

Indicator: Type of occurrence, acres, and location.

Data source(s): Aerial and ground survey data.

Frequency of reporting: Two years or as needed in response to disturbance events.

Monitoring results: Aerial surveys of the Bighorn Mountain range were conducted in FY 2016 and 2017, with only the 2016 data available at this time. The general trend continued with low to isolated activity:

Mountain Pine Beetle
Large areas of forest remain unaffected, yet susceptible, to mountain pine beetle. In 2016, mountain pine beetle was detected on about 50 acres.

Spruce Beetle
No spruce beetle activity was observed in FY 2017.

Douglas fir Beetle
Douglas-fir beetle populations have remained at low levels for several years with only 230 acres affected statewide in FY 2017. Past epidemics in the early and mid-2000s affected over 430,000 acres statewide and dead trees standing trees have begun to fall where they were not removed.

Subalpine Fir Decline
Subalpine fir is typically killed by western balsam bark beetles and mortality may also be associated with root disease fungi, although this disease association is less apparent in Wyoming than other areas. Subalpine fir mortality is widespread across Wyoming's high elevation spruce-fir forests but intensity of tree mortality is more scattered than stand level mortality seen in associated spruce. In FY 2017, statewide aerial surveys detected over 15,000 acres of subalpine fir killed, with varying intensity, by western balsam bark beetle and associated fungi.

Western spruce budworm

Defoliation of Douglas-fir, subalpine fir and less often spruce by western spruce budworm was detected on 68,000 acres, most notably in western Wyoming, with none detected on the Bighorn Mountains range. Bureau of Land Management, State and private lands on the southern Bighorns are conducting thinning projects to reduce budworm survival.

Dwarf mistletoes

This species is a parasitic plant native to the west and found in varying intensities throughout the Bighorn Mountains. The plants can slow growth, deform and eventually kill pines and Douglas-firs in Wyoming. They are persistent and spread slowly within and to adjacent trees by exploding berries that shoot sticky seeds. The Forest has used clearcutting as an effective treatment in lodgepole pine to locally reduce the infection.

Comandra blister rust and Western Gall rust

These native rusts can also slow growth, deform, cause breakage and eventually kill lodgepole pine on the Bighorn Mountains. They are found throughout the mountains with varying intensities from very light to areas of heavy infection. The Forest has used clearcutting as an especially effective treatment in lodgepole pine to locally reduce these infections.

Forest Health Management Reports can be found on the web at the following url: https://www.fs.usda.gov/main/r2/forest-grasslandhealth.

2.2.5 Monitoring element 7: Forest ecosystem health

Monitoring question: Are we moving toward desired future conditions for forested lands?

Finding: No changes are needed.

Indicator: Habitat structural stage, elk security model, acres of change, both created and natural.

Data source(s): Corporate databases (FS Veg, LANDFIRE).

Frequency of reporting: 10 years.

Monitoring results: Available in the next reporting cycle scheduled under the frequency of reporting.

2.2.6 Monitoring element 8: Aquatic and terrestrial invasive species

Monitoring question: What are the status and trends of select aquatic and terrestrial invasive species?

Finding: No changes are needed.

Indicator: Distribution and spread maps of select species. Priorities for the selection of species will be updated biennially or as needed.

Data source(s): Corporate databases (Natural Resource Manager Threatened, Endangered, and Sensitive Plants – Invasive Species) and spatial data integrated from county planning

Frequency of reporting: Two years

Monitoring results: Forested Vegetation: White pine blister rust (WPBR) is a lethal, nonnative disease of white (five-needled) pines. It occurs at varying infection levels in the Forest's limber pine stands, which have been described as a "keystone" species used by several animal species as habitat and a food source. Monitoring plots have been established, and in the past the Forest collected seed to provide some genetic refugia to regenerate future stands if extirpated by this rust, but the limited number of staff has not allowed for this monitoring in the past few years. The Forest continues to coordinate with regional and state partners to educate about potential invasive species such as the emerald ash borer, gypsy moths, and Asian longhorned beetle which may come in on out of area wood products.

The Forest has less invasive species than many of the surrounding Forests, but the number of new occurrences is increasing. Of particular concern over this monitoring period is invasive grasses (cheatgrass, ventenata, and medusahead). To treat these, the Forest is considering an environmental analysis that would allow us to conduct aerial treatments. The Forest relies heavily on partners for invasive species management. The County Weed and Pest districts perform most of the terrestrial invasives treatments on the Forest, and the Wyoming Game and Fish Department has a watercraft inspection program for aquatic invasives.

The Forest has less terrestrial invasive species coverage than many areas in the Western U.S. and approaches invasive species inventory and treatment using an Early Detection, Rapid Response (EDRR) strategy. EDRR is a very important weed management strategy which aims to utilize a variety of surveying methods in order to detect new invasive species. This prevents these species from becoming established and becoming difficult to control or eradicate. Following the detection of a new infestation, an appropriate rapid response is enacted. This often includes repeated monitoring and, if necessary, recurrent treatments to ensure successful eradication (Wyoming Weed and Pest Council). In addition to treating known infestations, the Forest also focuses on treating terrestrial invasive species as they are found. In this manner,

invasive species can often be contained to small, isolated populations. EDRR is both economically efficient and better for the environment as less herbicide is used and the herbicides that are used can often be directly applied to plants as opposed to being broadcast over a larger area.

There are some trends that are apparent and that are a growing concern:

- On the Forest, and regionally, there has been an increase in invasive grasses in the past several years.
    - Cheatgrass (*Bromus tectorum*) increased in the amount and distribution on the Forest. It was first observed in lower elevations on south-facing slopes and typically associated with shallow soils and rock outcrops near the forest boundary. However, over the past year or two this species has been identified at higher elevations and on deeper soils (such as along the Hunter Creek Road (FSR 19) west of Hunter work center. With Cheatgrass increasing on the forest, Johnson County Weed and Pest (JCWP) implemented a test plot in Cull Watt Park.
    - North Africa grass (*Ventenata dubia*) was discovered near the Hospital Hill entry portal area in FY 2017. This species was known to occur in Sheridan County and the Forest has been cooperating with the Sheridan County Weed and Pest District in the treatment of off-Forest locations of this species. Test plots for the Grouse Mountain infestation will be implemented in 2018.
    - Due to the topography of the habitats, these invasive grasses thrive. Given that the infestation of invasive grasses could spread over large areas, the Forest is considering whether to initiate an environmental assessment to examine the potential impacts of future aerial treatments. Currently, the Forest does not have the ability to treat from aerial platforms, which are often the safest, most cost effective treatment options.
- New invasive plant species have been found on the Forest:
    - Orange Hawkweed (*Hieracium aurantiacum*) in Sheridan County
    - Dyer's Woad (*Isatis tinctoria*) in Washakie County
    - Diffuse Knapweed (*Centaurea diffusa*) in Johnson County.
- Known populations of invasive plant species appear to be increasing:
    - Spotted Knapweed (*Centarea stoebe)*
    - Musk thistle (*Carduus nutans*)

Internally as a Forest, we are working more closely on projects (i.e. timber sales) and ensuring more accurate information is gathered and shared in both the planning and implementation stages. In FY 2017, the Forest contracted an invasive species survey specific to the Buffalo Municipal Watershed Project in Johnson County. This provided crucial population information while still allowing our Johnson County Weed and Pest (JCWP) partners to conduct treatments elsewhere on the District. Also, in FY 2017, the Forest released biocontrol agents to target Canada thistle and JCWP released biocontrol agents to target Common mullien. With the increase in populations the Forest is attempting other treatment options and biocontrol is an

alternative to traditional herbicide applications that, once established, is cost effective and environmentally friendly.

The Aquatic Invasive Species (AIS) of greatest concern, which include New Zealand mudsnail, zebra mussels, quagga mussels and Eurasion watermilfoil, are not known to exist on the Forest. Whirling disease is known to exist in the Nowood and Clear Creek drainages, but its impact on fishes has diminished as of recent.

The Forest relies heavily on partners for management of both the aquatic and terrestrial invasive species areas:

- Nearly all of the terrestrial invasive treatments are performed by the county weed and pest districts under agreements with the Forest. The counties typically supplement Forest funding with their own funds for work on the Forest. The Weed and Pest Districts treat invasive species on lands of all ownerships, which helps reduce the threat of spread within and across Forest boundaries.
- To help reduce the spread of invasive species, there are several state and federal partners that fund public education efforts. These include the PlayCleanGo campaign and Early Detection and Distribution Mapping System (EDDMapS).
- To hinder the spread of AIS, the Wyoming Game and Fish Department (WGFD) funds check stations at major highway entry points for boats entering Wyoming. WGFD has an active AIS program funded by boat permit purchases.
- Interagency fire procedures are in place to limit the chance of spreading AIS when getting fire suppression water from off-site sources and when bringing firefighting equipment from off-Forest locations. In addition, the Forest washes and chemically decontaminates waders and tools when moving between 6th level watersheds to minimize the transport and spreading of AIS.
- The forest received additional funding from Rocky Mountain Elk Foundation (RMEF) in FY 2016 to treat areas of elk crucial range and parturition habitat by targeting Houndstongue and other invasive plant populations in the Tensleep Canyon area in Washakie County and in the Little Horn area in Sheridan and Big Horn Counties. In 2018, the Forest and county partners will, again, be using RMEF funding for repeat treatments and to further expand these areas.

2.2.7 Monitoring element 9: Rangeland health

Monitoring question: What is the long-term trend of rangelands?

Finding: No changes are needed.

Indicator: Number of monitoring sites meeting, moving toward, or moving away from desired conditions. Categorize sites by riparian or upland.

Data source(s): Long-term monitoring protocols outlined in the Region 2 "Rangeland Analysis and Management Guide" and further described within individual allotment management plans.

Frequency of reporting: Two years

Monitoring results: The Bighorn NF monitored 28 upland monitoring sites in FY 2015-2017. The sites monitored in 2015 were not reported in the last monitoring report and are being included in this report. Sixteen of the monitored upland sites are meeting or moving toward desired conditions. Five have unknown desired conditions and no apparent trend at this time. The desired condition for these sites will be further refined for monitoring purposes. Seven sites are not meeting desired conditions and are static or moving away from desired conditions. Major increases in sagebrush are the primary reason for sites not meeting desired conditions. Sagebrush is a least desirable species on the Forest. The desired condition is for more desirable native perennial grasses and forbs and a decrease in sagebrush to increase habitat diversity and improve forage values for wildlife and livestock. Changes in livestock management have been implemented on one of these sites. There were two riparian sites monitored in 2015 which met desired conditions that were not reported in the last monitoring report.

Table 2. Desired Conditions for Upland and Riparian Monitoring Sites, FY 2015-2017.

	Total	Meeting or moving toward desired conditions	Unknown desired conditions or no apparent trend at this time	Not meeting desired and are static or moving away from desired conditions
Upland	28	16	5	7
Riparian	2	2	0	0

2.3 Status of focal species to assess the ecological conditions required under 36 CFR 219.9

2.3.1 Monitoring element 10: Focal species

Monitoring questions: 1) Are forest management activities and natural events affecting ecological conditions indicated by the status of focal species? 2) Are management activities, or lack thereof, providing for the ongoing persistence of structural stage diversity to support northern goshawk habitat?

Finding: No changes are needed

Indicator: Changes in known historic nests for occupancy or abandonment and possible relocation.

Frequency of reporting: Two years.

Data source(s): Tabular and spatial data collected by wildlife biologists.

Monitoring results:

Results for Question 1

The monitoring of wildlife habitat includes monitoring for succession in forest stands referred to as Habitat Structural Stages (HSS) in the forest plan as follows:

Across the forest there are approximately 710,000 acres of forested habitat for the northern goshawk, and of that, approximately, 230,000 acres is considered primary habitat (Habitat Structural Stages 4B and 4C). Since the forest plan revision in 2005, about 1,438 acres per year have been mechanically harvested (17,250 acres). This would have affected about 7.5% of the primary habitat, if one assumed only primary habitat had been harvested. However, it is likely that of this 17,250 acres, other potential habitat in Habitat Structural Stage (HSS) 3B and 3C was harvested as well. The harvest methods used on the Forest consist of clearcut, shelterwood, selection cut, and thinning. Other than clearcuts, the methods tend to alter canopy cover of the areas harvested which would reduce, for example, HSS 4B or 4C to HSS 4A, which does not meet the canopy cover needs for primary habitat for goshawks. Clearcuts on the Forest over this period have ranged from approximately two to 200 acres in size which create openings and set structural stages back to HSS 1.

Table 3. Habitat Structural Stages (HSS)

HSS	Description	Diameter	Crown Cover %
1	Grass/Forb	Not Applicable	0 - 10%
2	Seedling/Sapling	< 1"	10 - 100%
3A	Pole-Sized	1 - 9"	10 - 40%
3B	"	"	40 - 70%
3C	"	"	70 - 100%
4A	Mature Timber	9+"	10 - 40%
4B	"	"	40 - 70%
4C	"	"	70 -100%

In FY 2016 and 2017, mechanical harvest occurred on approximately 1,270 acres, which is less than 1% of primary habitat. This is an insignificant change in HSS through human manipulation in the last two years and is consistent with forest plan modeling for timber harvest, which predicted an increased amount of mature forested habitat under all alternatives. The 2005 FEIS for the Revised Land and Resource Management Plan does note that natural succession is the largest factor in stand development on the Forest. Succession toward mature stand conditions (i.e., toward 4B and 4C) would increase available habitat over time without a stand replacing event.

Including natural disturbances across the landscape since 2005, approximately 37,000 acres have burned from larger fires (greater than 1000 acres) such as Bone Creek, Reservoir, Little Goose, Sheep Creek, and Gilead fires. These fires occurred in mature stands which altered more acres of potential habitat than through mechanical harvest. Wildfire acres, since 2005, amounted to approximately 16% of primary habitat, assuming all acres burned were in primary habitat. However, it is more likely that not all of those acres were primary habitat.

A minimal amount of HSS 1 or 2 exists on the forest, so these stand replacing events have, in fact, created more of these younger HSS by moving HSS 3B, 3C, 4B, 4C to HSS 1 or 2. While it is estimated that it takes a minimum of 25 years for stands to regenerate to a measurable diameter at breast height (DBH), wildfires still create a diversity in age classes in some watersheds. In the 2015 Forest Plan Monitoring Report, the Forest exceeded the estimated 10,000 acres that would be burned by wildfire in the first five years of the plan revision. Since 2015, wildfires that have occurred on the Forest include the Arden Fire (approximately 400 acres), Hatchery Fire (1,219 acres), and Sheep Creek Fire (300 acres). These fires add little to the overall changes in habitat structural stages.

While wildfires have resulted in a higher loss of mature stands than mechanical harvest, both events together result in a condition of mixed age classes. Some watersheds were more affected than others by wildfires and harvest activities. However, the Forest continues to support a variety of structural stages and has not seen a significant change in the overall percentage of acres per structural class.

Results for Question 2

Goshawks utilize a variety of structural stages depending on life cycle but typical potential habitat is in coniferous forested types and aspen of structural stages 3B, 3C, 4B, 4C, and 5. Nesting requirements include approximately 30 acres of mature conifer stands with a closed canopy greater than 60%, a post-fledgling area of 420 acres, and a nesting territory of 6,000 acres. Foraging requirements are varied and include mature stands with open canopy or meadow/shrub communities close to nesting stands.

As indicated in the above results for Question 1, there have not been widespread changes to HSS across the forest that have eliminated or significantly altered any HSS that goshawks depend on. There is a wide array of potential habitat (3B, 3C, 4B, 4C) across the Forest, and surveys in other areas proposed for vegetation management treatments have identified active nest sites not previously known. This indicates that goshawks continue to occupy forested habitats in various structural stages across the landscape.

The status of the northern goshawk on the Forest is difficult to assess in terms of distribution and abundance because baseline information of population trends, abundance, and distribution are not available. Surveys at 19 out of the 26 historic nest sites occurred during FY 2016 and 2017. Of these, only eight nest sites were found and none of these were occupied. However, goshawks were observed or heard in the area of two of the sites.

Tracking historic nests was intended to evaluate continued use of habitats post-harvest, and assess effects to the goshawk. This is the first year that goshawks served as a focal species with historic nests as a possible indicator, and it was discovered that the GPS points of historic nests were in a different datum which may have contributed to not finding several of the older historic nest sites. Success in locating nests at more recent historic sites was much better. While they were inactive, this does not indicate abandonment, but rather an alternate nest may be occupied instead. Lack of information on alternate nest sites makes it difficult to evaluate continued presence of goshawks, particularly in the older territories. Mapping of territories would also be helpful in refining search areas for alternate nests. Appropriate timing of surveys continues to be an issue as well, since nesting is, generally, complete by the time that nest sites are accessible (after snow melt).

The other complication is that information within the Forest's vegetation database is coarse. Therefore, inferences over time for changes to HSS are dependent on updates to the database and total acres across community types may not match from year to year. Future monitoring efforts should prioritize tasks with the Forest's GIS staff to ensure that data is updated well in advance of reporting deadlines. This would be particularly important when a 10 year report is due, since that timeframe would be more in line with detecting larger changes in HSS across the landscape versus every two years. The exception would be if large-scale wildfires or insects and disease were to alter the forested acres in a given year.

This is the first monitoring report addressing the 2012 Planning Rule concept of focal species. Despite relatively intense monitoring at the project and historic nest site scale in FY 2016 and 2017, data has been insufficient, or inconclusive, to draw inferences as to the effects of management activities on goshawks and their habitat. It is also noted that the forest-wide Geographic Information System (GIS) data sets are too coarse to draw conclusions and inferences at a two-year interval, and perhaps monitoring at a 10-year interval would be more appropriate in terms of habitat structural stages (HSS). Further investigation into the effectiveness and efficiency of the focal species monitoring will be considered over the next two-year monitoring period.

2.4 Status of a select set of the ecological conditions required under 36 CFR 219 to contribute to the recovery of federal listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern.

2.4.1 Monitoring element 11: Species viability

Monitoring question(s): Have there been changes to habitat or species trends for emphasis species that cause a concern for viability?

Finding: No changes needed.

Indicator: Significant changes in habitat, populations, or species' status.

Data source(s): Corporate databases (including, but not limited to, Forest Service corporate habitat and species databases, Wyoming Game and Fish Department databases, Wyoming Natural Diversity Database databases, and any other like database with information concerning Bighorn National Forest species).

Frequency of reporting: Six years or earlier.

Monitoring results: The Forest is dependent on coordination with Wyoming Game & Fish Department and reliance on their population/harvest data for big game and fish species, as well as other surveys for non-game animals. Similarly, the Forest works closely with the species specialists at the Wyoming Natural Diversity Database at the University of Wyoming for species inventories and assessments.

Since the 2015 Forest Plan Monitoring Report, there have been additional surveys and inventory and monitoring for various species/habitats on the Forest (bats, water voles, forest carnivores, amphibians, and northern goshawks). Monitoring also was conducted in willow habitats to determine use by wild and domestic ungulates in which data indicated use by both in varying degrees depending on location, season, and timing (see trail camera image in cover photo). Biological evaluation determinations for species/habitat were conducted for many project decisions on the Forest.

Prescribed fire continued as planned, primarily in sagebrush-grassland ecosystems, and has resulted in diversity in age class and distribution of sagebrush across the landscape. Mechanical harvest and one wildfire occurred since 2015, but these disturbances have minimally altered Habitat Structural Stages across the Forest. It is determined that ecological conditions are being met to sustain viable populations of emphasis species on the Forest.

There are species where additional distribution and ecology data is needed, including newly discovered plant populations such as carex diandra; mountain sucker; amphibians, bats, and avian species. One concern for management is the discovery of chytrid fungus in a few drainages on the Forest. The fungus is known to cause high mortality rates in amphibian populations. If a mass mortality occurred, populations may not be able to recover. WGFD and the Forest are coordinating on sampling to determine the extent of chytrid fungus. Another non-native disease of concern is white pine blister rust, which has caused widespread limber pine mortality. While the viability of limber pine is not considered threatened at this time, continued declines in the population could change this conclusion and may affect populations of other species dependent upon limber pine.

2.5 Status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives

2.5.1 Monitoring element 12: Recreation National visitor use monitoring

Monitoring question: What is the percent satisfaction for recreational visits on the unit?

Finding: No changes needed.

Indicator: Trends in visitor satisfaction for very satisfied, somewhat satisfied, and total satisfaction.

Data source(s): The National Visitor Use Monitoring Master Report provides satisfaction by site type (day-use developed sites, overnight developed sites, undeveloped areas – general forest areas, and wilderness) and the Forest as a whole in four categories (facilities, access, services, feeling of safety).

Frequency of reporting: National visitor use monitoring data is collected at five-year intervals and reported one to two years after collection.

Monitoring results: Available in the next reporting cycle scheduled under the frequency of reporting.

2.5.2 Monitoring element 13: Recreation demand

Monitoring question: **What is the trend in use (for example, dispersed recreation – social indicators or crowding)?**

Finding: No changes are needed.

Indicator: National, regional, and local reports of recreation use; National Visitor Use Monitoring visits

Data source(s): Summary of concessionaire reports, new National Visitor Use Monitoring (NVUM) data, and reports of trends. By activity where available.

Frequency of reporting: Two years (report National Visitor Use Monitoring visits after data collection occurs).

Monitoring results:
Motorized recreation demand is observed as stable. The sales of Wyoming State registration stickers for snowmobiles and for Off-Road Vehicles (ORVs) have remained stable for the past several years across the state. Purchases in FY 2017 include 33,000 snowmobile and 57,000 ORV stickers.

Data for campground use indicates that occupancy rates are high and increasing each year. As developed recreation use continues to increase, the Forest may need to explore options to address the increasing demand.

2.5.3 Monitoring element 14: System road maintenance

Monitoring question: **To what extent are system roads being maintained to address resource concerns and identified management objectives?**

Finding: No changes are needed

Indicator: Number of miles of road (and percentage) maintained to standard and managed to road management objective.

Data source(s): Forest Service Infrastructure database

Frequency of reporting: Two years.

Monitoring results: The Forest operates 1,437 miles of roads. This includes 502 miles of Level 1 roads, 686 miles of Level 2 roads, 241 miles of Level 3 roads, six miles of Level 4, and two miles of Level 5 roads. The Forest has been successful in maintaining this travel system with 95%-100% of Level 3-5 roads and 20-25% of Level 1-2 roads receiving annual maintenance. In addition to this maintenance, the Forest performs six miles of reconstruction/major improvements on Level 3-5 roads and five miles of Level 1-2 roads annually. For definitions of road maintenance levels please refer to the following url: https://www.fs.fed.us/eng/pubs/pdf/05771205.pdf.

To accomplish this work, the Forest has been proactive in agreements and partnerships. Currently, the Forest has road maintenance agreements in place with Sheridan and Bighorn counties, has an interagency road maintenance agreement with the Bureau of Land Management, shares resources with the Custer National Forest, and has numerous road use agreements with various individual stakeholders. These partnerships and agreements allow the Forest to leverage additional capacity, efficiently plan and execute maintenance and improvement work, and supplement limited Forest funds.

The Forest has undertaken planning efforts in the travel arena, and completed a "Subpart A – recommended minimum road system" report in 2015. This Subpart A report is required under the Travel Management Rule (36 CFR 212) requirements and, through strategic analysis, identifies a future minimum road system that is both sustainable and will meet the needs of internal and external stakeholders.

2.5.4 Monitoring element 15: Recreation site capacity and condition

Monitoring question: What are the trends in recreation site capacity and condition?

Finding: No changes are needed.

Indicator: Changes in people-at-one-time capacity. Sites managed to standard and estimated backlog in deferred maintenance.

Data source(s): Capacity and condition information from INFRA with supporting documentation of recent changes (construction, reconstruction, decommissioning, repurposing).

Frequency of reporting: Two years.

Monitoring results: In September of FY 2016, the Forest completed a Recreation Site Analysis (RSA), for 71 developed recreation sites that include trailheads campgrounds, picnic grounds, and two fully developed interpretive sites including Shell Falls and the Medicine Wheel. The final report identifies current condition and capacity, as well as deferred maintenance needs for these sites. A five-year program of work was developed to maintain these sites which reduced the deferred maintenance backlog and moves the Forest toward a sustainable developed recreation program based on budget trends and public demand.

Successful implementation of the five-year program of work will result in maintaining the 71 sites to required standards with a 9% reduction in operational costs and a 12% reduction in deferred maintenance. Site capacity at campgrounds will be retained at current levels. The Forest does not plan any additional decommissioning of recreation sites during this five-year period.

Despite a steady reduction in the recreation budget over the past five years, public demand for developed recreation is increasing on the Forest. In the FY 2016 and 2017 monitoring period, there was a 7% increase in overall use in the concessionaire-operated campgrounds including a total of 88,159 users in FY 2017. The average annual occupancy rate for concessionaire-operated campgrounds for FY 2017 was 56%. The five-year average (FY 2013-2017) was 50%. The highest occupancy rates were at Sibley Lake (87%), Leigh Creek (86%), West Tensleep Lake (84%), and Middle Fork (80%).

2.6 Measureable changes on the plan area related to climate change and other stressors that may be affecting the plan area

2.6.1 Monitoring element 16: Snow telemetry (SNOTEL)

Monitoring question: **What are the status and trends of precipitation in the plan area?**

Finding: No changes are needed.

Indicator: Elevation, precipitation (inches), and percentage. Elevation, snow depth inches, and snow-water equivalent.

Data source(s): Natural Resource Conservation Service, U.S. Geological Survey, National Oceanic and Atmospheric Administration, Wyoming State Engineer's Office websites.

Frequency of reporting: Six years.

Monitoring results: Various agencies and groups track climate monitoring in Wyoming which include SNOTEL data in the analyses. An analysis summary by the EPA in FY 2016 states that median snowpack depths have gone down 20 to 40 percent over the last 100 years. The Forest does not track long-term precipitation trends, but gathers data and analysis from other agencies as needed.

Reference: U.S. Environmental Protection Agency. 2016. What Climate Change Means for Wyoming. EPA 430-F-16-052.

2.6.2 Monitoring element 17: Snow telemetry (SNOTEL)

Monitoring question: What are the status and trends of temperature change in the plan area?

Finding: No changes are needed.

Indicator: Trend in local and regional air and water temperatures. For example, U.S. Geological Survey and National Oceanic and Atmospheric Administration trend data, maximum air temperature (number of record high temperatures per station), and stream temperature logger trends.

Data source: Natural Resource Conservation Service, U.S. Geological Survey, National Oceanic and Atmospheric Administration, Wyoming State Engineer's Office websites.

Frequency of reporting: Six years

Monitoring results: An analysis by the EPA in FY 2016 cites an approximate 2 degrees Fahrenheit temperature increase at Burgess Junction over the last 100 years. There are other monitoring sites on the Forest other than Burgess Junction. However, the Burgess Junction site is representative of a typical user site on the Forest.

The Forest also monitored stream temperature at 15 locations around the Forest. Trends do not indicate any change now due to the short period of data collection (five years).

2.7 Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities

2.7.1 Monitoring element 18: Heritage

Monitoring question: What activities have sustained heritage benefits and values?

Finding: No changes are needed.

Indicators: Programmatic agreements, historic preservation plans, priority area inventories, consultation, and public awareness and education.

Data source(s): Report from Heritage corporate database, supplemented by internal reporting of activities and accomplishments

Frequency of reporting: Two years

Monitoring results: Under an Archaeological Resource Protection Act (ARPA) permit, the Wyoming State Archaeologist Office conducted two archaeological surveys in the Cloud Peak Wilderness. In FY 2016 and 2017, the Assistant State Archaeologist and volunteers examined over 1000 acres and documented 12 prehistoric sites. All sites were evaluated for eligibility to the National Register of Historic Places.

The Forest implements the Programmatic Agreement among the USDA Forest Service, Wyoming Forests, Wyoming State Historic Preservation Officer (WY-SHPO), and the Advisory Council on Historic Preservation. This agreement is being expanded to include additional project categories.

In consultation with WY-SHPO, the Forest developed and implemented a Memorandum of Agreement regarding mitigation of adverse effects caused by the decommissioning of a historic building at the Burgess Ranger Station. The agreement specified archival photography of the building, development of a historic narrative for the Burgess Work Center highlighting contributions of the Civilian Conservation Corps for the Forest public web site, and distribution of an educational pamphlet regarding the building and site. All of these elements were completed.

The Forest continues to implement the Medicine Wheel National Historic Preservation Plan (HPP) in order to manage the Medicine Wheel/Medicine Mountain National Historic Landmark. The plan requires three annual consultation meetings among the seven signatory consulting parties to monitor implementation of the HPP. In FY 2016 and 2017, this requirement was met. As part of the HPP, the forest provides visitor information services for the site from mid-June until early September to provide public education and protection. The number of registered visitors in FY 2016 was 10,737 and, during FY 2017, the total was

12,741. Documented Native American ceremonies conducted at the site totaled 98 in FY 2016 and 63 in FY 2017.

Also in FY 2017, the rope fence around the Medicine Wheel was replaced with the assistance of tribal representatives, Bighorn County Commissioners, and Wyoming SHPO staff. Replacement of the rope fence required removal of offerings attached to the rope. Through consultation, the offerings were divided between representatives of the Medicine Wheel Alliance and Medicine Wheel Coalition for appropriate treatment.

2.7.2 Monitoring element 19: Recreation opportunity

Monitoring question: **To what extent are we providing diverse outdoor recreation and travel opportunities?**

Finding: No changes are needed.

Indicator: Trends indicated by recreation opportunity spectrum class map updates, permitted use numbers (outfitters and guides, cabins, events, etc.), recreation, road and trail facilities provided or maintained, and changes in regulations. The range of indicators covers the extent of existing agency systems.

Data source(s): Permitted uses data from the special use data system database; recreation facilities provided - number of developed sites by type (day use developed site results, overnight use developed site results, capacity from corporate databases and National Visitor Use Monitoring); and changes in regulations from special order files and the Federal Register. For recreation opportunity setting class, GIS maps showing changes in settings, access, and regulation.

Frequency of Reporting: Two years for permitted uses, recreation facilities provided, and changes in regulations. Six years for a recreation opportunity setting class map.

Monitoring results: Developed recreation facilities provided on the Forest include:

- 33 Campgrounds (30 operated by concession and three including Cross Creek, Hunter, and Little Goose, operated by the Forest).
- Three rental cabins including Muddy Guard Station, Pole Creek Cabin, and Sheep Mountain Fire Lookout
- 35 Interpretive Sites
- 10 Picnic Grounds
- 17 Trailheads

The special use permit program offers additional recreation opportunities. In FY 2017, permits managed for these opportunities included:

- 70 priority use outfitter guide permits and four temporary outfitter guide permits

- 16 recreation event permits
- Four organization camp permits
- Seven resort permits
- 264 recreation residence permits

The following Forest Orders were issued in FY 2016 and 2017 that updated previous orders with minor changes:

- Forest Order BHF 2017-01 Reissuance of travel management restriction order to correct the Medicine Wheel NHL revised boundary.
- Forest Order BHF 2017-02
  Reissuance of the limits of stay for camping order.
- Forest Order BHF 2017-06
  Revised Forest Order for Burgess Junction Visitor Center to restrict snowmobiles from the area perimeter.
- Forest Order BHF 2017-08
  New temporary order to close the Granite Pass gravel pit area during the WYDOT highway improvement project.
- Forest Order BHF 2016-08 Reissuance of previous order on cave prohibitions and restrictions.
- Forest Order BHF 2016-01 Reissuance of the forest-wide order for Wilderness occupancy and use.

The Forest trails program is implemented through a Trails Strategy Plan to prioritize trails for selection of maintenance and construction/reconstruction projects. The current trails system includes approximately 550 miles of non-motorized trails, 200 miles of ATV/motorcycle trails, 40 miles of winter cross-country ski trails, and approximately 380 miles of winter groomed snowmobile trails.

Accomplishments for the trails program for the reporting period include the following:

- Forest Trail Crew, State Trail Crew Summer and Winter Crews, and volunteers completed 574 miles of trail maintenance to standard in FY 2016 and 428 miles of trail maintenance to standard in FY 2017.

- In FY 2016, the State Trail Crew completed construction to convert Forest Service Road (FSR) 329 to a motorized trail, heavy maintenance on West Graves Lake Trail #221, Bear Lodge ATV Trail #203, and upgraded three trail cattle guards. The State provided 200 hours of summer trail work.

- In FY 2017, the Wyoming State Trail Crew completed heavy maintenance on Parallel Trail #117, Serendipity Trail #629, Rapid Creek Trail #029, Graves Creek Trail #212, and Woodrock Trail #212. They installed three new upgraded cattle guards on Shutts Flat Trail #430, and one on Bonanza Lookout Trail #224 and contributed 800 hours of summer trail work.

- Wyoming State Trails Program Crew provided two contracts for the grooming of snowmobile trails with a total value of over $270,000. In addition the State Trail Crew provided 1,800 hours of winter trail work valued at $58,014.

- Wyoming Conservation Corp completed 1.5 miles of new trail construction on a connecting trail between Highline Trail #067 and East Tensleep Trail #068.

In the fall of FY 2017, the Forest completed a project to reconstruct the paved interpretive trail at the Shell Falls Wayside site. As a result, accessibility on the trail has been improved and viewing locations have been enlarged to enhance scenic viewing opportunities.

2.7.3 Monitoring element 20: Access

Monitoring question: Are we providing appropriate legal access to the National Forest?

Finding: No changes are needed.

Indicators: Number of easements (How many are being utilized by the public?). Number of requests for additional legal access (Is it needed? Is additional legal access needed?). Number of rights-of-way needed based on forestinventory.

Data source(s): Lands staff – requests for legal access and evaluation of need. Number of easements and GIS map of easements held from the automated lands project database and anecdotal information on utilization from ranger district staff. Number of rights-of-way needed based on forest GIS inventory. INFRA database for roads and trails.

Frequency of reporting: Two years for requests for legal access. Six years for number of easements held and information on utilization and number of rights-of-way needed based on the Forest inventory.

Monitoring results: In FY 2017, the Forest moved closer to completing a reciprocal right-of-way through Wyoming State lands in order to perfect legal access for the United States, and the general public. The United States will be granted 2.02 miles of access through state trust lands to National Forest System lands in Johnson County, Wyoming.

2.7.4 Monitoring element 21: Decommissioning of roads and trails

Monitoring questions: To what extent are user-created roads and trails being decommissioned and how is the issue being addressed through signing and public education?

Finding: No changes are needed.

Data source(s): corporate database for roads and trails, report on education activities.

Indicators: Miles of road decommissioned, number of associated signs constructed, and education efforts.

Frequency of reporting: Two years

Monitoring results: In both FY 2016 and 2017, the Forest decommissioned 6.5 and 18.3 miles of user created and system road annually. The user created roads were not designed to geometric standards, presented safety risks, and were causing resource damage. Through this work, the Forest has been successful in meeting decommissioning targets without closing Level 2-5 roads (roads open to the public) and continues to maintain necessary access in accordance with the forest plan.

The Forest has been working with local stakeholders and collaborative groups to educate the public on travel management objectives, regulations, and policy. Between FY 2016 and 2017, over 56 road regulatory signs were installed to assist with user education and regulation. The Bighorn National Forest Steering Committee along with the general public were engaged in the completion of the Subpart A document. The Forest continues to communicate and educate the public on road decommissioning targets, existing travel management challenges, and public education.

2.7.5 Monitoring element 22: Scenic character

Monitoring question: **Are activities and uses consistent with scenic character goals and scenic integrity objectives?**

Finding: No changes are needed.

Indicator: Compare forest-wide existing scenic integrity level to current condition and scenic integrity objectives established in the forest plan.

Data source(s): GIS and INFRA data on visible changes in forested vegetation and changes in facilities (for example, construction, reconstruction, or removal of recreation; range; transportation; special use; and fire, administrative, and other facilities). Wyoming Department of Transportation changes in road standards, maintenance, signs, and other wayfinding infrastructure.

Frequency of reporting: Two years for notable changes of vegetation, structures, and highway management in the scenic byway corridor. Every two years, review a sample of management activities and compare forest plan direction, National Environmental Policy Act record, and actual outcomes for scenic integrity and landscape character. Every six years, map existing scenic integrity levels on National Forest System lands and compare them to the year 2000 baseline and the forest plan scenic integrity objectives with a brief narrative on trends.

Monitoring results: During the monitoring period, the Forest consulted with Wyoming Department of Transportation on the Pole Creek Gavel Pit project, located is the scenic byway corridor of Highway 16, and on the Burgess South Highway project located in the scenic byway corridor of Highway 14. In

each case, under a signed NEPA decision, consultation resulted in a project design which will meet forest plan scenery guidelines for scenic byways.

Several facility and infrastructure improvement projects were accomplished in FY 2016-2017. These projects include major renovations at Shell Falls Visitor Center, Lake Point Campground, Lake View Day Use Area, Veterans Cove Day Use Area, North Point Day Use Area, Burgess Work Center, Tyrell Work Center, Burgess Visitor Center, and Hunter Work Center. These projects improved user access, brought facilities up to national standards, addressed safety concerns and reduced the Forest deferred maintenance backlog by, approximately, $428,000. All completed projects complied with the Forest Master Plan recommendations and met Forest Built Environmental Image Guidelines.

2.7.6 Monitoring element 23: Community involvement

Monitoring question: Are we participating in local, regional, and/or state efforts that build capacity to adapt to economic, environmental, and social changes?

Finding: No changes are needed.

Indicators: Youth activities outdoors, volunteer activities, cooperation with other government entities, partnership agreements, permits, employment programs, training and education outreach. List activities that provide evidence of participation in the social and economic sphere.

Data source(s): District and supervisor's office staff in recreation and resources for youth activities, volunteer activities, partnership agreements and grants, research and event permits, conservation education, and interpretation. Line officers for cooperation and participation with other governmental entities.

Frequency of Reporting: Two years

Monitoring results: The Forest continues long-term partnership agreements with Wyoming State Trails to provide education and travel management education and enforcement during summer and winter motorized recreation seasons. The State contributed funding support and use of two snowmobiles and six off-road vehicles to perform patrols. During the FY 2016 and 2017 snowmobile seasons, 4,613 contacts were made. During the FY 2016 and 2017 off-highway vehicle seasons, 25,436 OHV contacts were made. Compliance with the Wyoming State Trails sticker program is over 99%. Education efforts include providing directions, safety and Tread Lightly educational messages, and copies of the Forest MVUM and State Trails maps. The Forest patrollers cleared roads and trails, blocked user created trails, and provided assistance to visitors with vehicle problems or health emergencies.

Through participating agreements with the Student Conservation Association (SCA), the Forest hosted seasonal student interns to staff the Shell Falls and Medicine Wheel interpretive sites. Volunteers were also recruited to support operations at these two sites.

Conservation education and interpretation continues to be an important part of the Forest program of work. Over the two-year reporting period, Forest personnel provided 92 on-forest and off-forest education programs covering wide range of topics including "Tread Lightly" and Leave No Trace training sessions, resource education, archaeology, and historic preservation. Over 3,755 youth and 1,702 adults attended these programs.

Volunteers continue to provide significant support to the Forest's recreation and trails programs including:

- FY 2016: a total of 1,730 hours were logged from local and non-local volunteers assisting with developed and dispersed recreation management and 1,278 hours were logged by volunteers assisting in trail management, including young adults and teens.

- FY 2017: a total of 1,643 hours were logged from local and non-local volunteers assisting with developed and dispersed recreation management and 1,225 hours were logged by volunteers assisting in trail management, with many of these being young adults and teens.

- The partnership with Black Mountain Nordic Club continued for maintenance of the Sibley and Cutler Nordic Ski Trails.

Over the monitoring period, line officers (District Rangers and Forest Supervisor) were actively engaged in coordination with local governments including four meetings with the Steering Committee and over 30 meetings with city mayors and county commissioners for the local communities surrounding the Forest.

2.7.7 Monitoring element 24: Public communication

Monitoring question: Are we communicating with the public about national forest management?

Finding: No changes are needed.

Indicators: Number and methods of communication. Are our communications accurate and timely? Responsiveness to Steering Committee feedback.

Data source(s): Themes from public feedback: Steering Committee, organized public groups, key stakeholders, and individuals.

Frequency of reporting: Two years

Monitoring results: Two meetings per year were held with the Bighorn National Forest Steering Committee in FY 2016 and 2017. Key topics, among others, for those meetings included the following:

FY2016

- Dispersed Camping Collaborative
- Roadless Collaborative
- Future Recreation Site Analysis (RSA)
- Bighorn sheep/Domestic sheep risk assessment
- Microburst Salvage Opportunity
- Collaboration and the Bighorn Mountains (training)
- Forest Plan Monitoring Conversion
- General Management Review
- Governor's Task Force on Forests
- Wyoming Water Development Office/Buffalo Municipal Watershed

FY2017

- Mineral development in the area/statutory rights
- Managing wildland fire to achieve resource benefits, consistent with the forest plan, depending on timing, location, conditions, and other factors
- Good Neighbor Authority/contracting flexibility
- Joint Chiefs
- Landscape Restoration Partnership funding
- Effects from the Roadless Area Conservation Rule
- County, state, and federal agency alignment
- Prescribed burn project priorities
- Multiple decisions tiered from analysis
- Buffalo Municipal Watershed Project
- Highlights of forest plan accomplishments (since the 2005 forest plan was written)

This biannual Steering Committee meetings in FY 2016/2017 allowed an opportunity to share ongoing project work across the entire Forest in every resource area.

Steering committee feedback included commitments on the following topics: Dispersed Camping, Stocking Levels and Sustainability and publishing the 10 year Forest Plan Accomplishments report to the web. The Forest followed through on these commitments through completion or scheduling of future meeting topics.

In FY 2016, there were 59 news releases and, of those, five were open houses and public meetings. In FY 2017, there were 49 news releases and, of those, 10 were for open houses and public meetings on forest specific topics.

Other communication with the public in FY 2016 and 2017 included the creation of a Facebook webpage for the Forest and the continued sharing of information on the Forest's Twitter webpage.

2.7.8 Monitoring element 25: Economic benefits

Monitoring question: What are range, timber, and recreation programs' contributions to the plan area?

Finding: No changes are needed.

Indicators: Employment, income, and contribution to the gross domestic product.

Data source(s): Impact Analysis for Planning (IMPLAN) model with program-specific coefficients. State of Wyoming economic data.

Frequency of reporting: 10 years

Monitoring results: Available in the next reporting cycle scheduled under the frequency of reporting.

2.7.9 Monitoring element 26: Permitted livestock grazing

Monitoring question: What is the trend of livestock grazing on the Forest?

Finding: No changes are needed.

Indicator: Animal unit months: permitted, authorized, or actual.

Data source(s): Corporate database.

Frequency of reporting: Two years

Monitoring results: There are 89,306 permitted AUMs with 77,744 cattle, 888 horses, and 10,674 sheep. There were 76,122 authorized AUMs in FY 2017 with 66,767 cattle, 945 horses, and 8,410 sheep. With so little change, the FY 2017 results are indicative of the FY 2016 results so only the FY 2017 monitoring data is reported in Table 4.

Table 4. Permitted and Authorized Animal Unit Months (AUMs) in FY 2017

Year	Permitted AUMs			Authorized AUMs		
	Total	Cattle/horse	Sheep	Total	Cattle/horse	Sheep
FY 2017	89,306	78632	10674	76,122	67712	8410
2005 Revised Forest Plan	113,800					
2005 Forest Plan FEIS				84,100		

2.7.10 Monitoring element 27: Wood products and stewardship

Monitoring questions: What forest products are sold, what is the quantity, and how does that quantity compare with forest plan projections?

Finding: No changes are needed.

Indicator: Volume sold by product and acres treated through contracting, permits, or other means (stewardship contracting).

Data source(s) Corporate databases (Periodic Timber Sale Accomplishment Report from Timber Information Manager).

Frequency of reporting: Two years

Monitoring results: Tables 5-8 compare allowable sale quantity (ASQ) and total sale program quantity (TSPQ) outputs to those projected in the forest plan. Allowable sale quantity is considered the maximum timber quantity by cubic measure (one CCF is defined as 100 cubic feet of solid wood) that can be harvested from lands designated as suitable for timber production over the planning period. Total sale program quantity is the CCF volume we expect to offer based on past experience, which includes wood from Other Vegetation Management (OVM), firewood and other products, and adjusts ASQ volume for logistical, financial and economic realities.

As shown in Table 5, below, the ASQ volume sold since 2005 is 49% of the 246,103 CCF projected for this time period. During this period, sawtimber sold was 26% and roundwood or products other than logs (POL) was 43% of their projected amount. Half of the lands identified as suitable for timber production in the forest plan are within Roadless Area Conservation Rule (RACR) areas, with prohibitions or restrictions on timber harvest. The RACR is the main reason the volume removed is lower than projected.

The total sale program quantity volume sold during this planning period was 70% of the projected total, with 57% of the sawtimber, and 94% of the POL. The Forest nearly met the projected volume of TSPQ in OVM with 99%. This level of activity is due to the Forest's emphasis on fuels projects in the Wildland Urban Interface, outside of lands designated as suitable for timber production.

In projecting future treatments to achieve the desired future conditions in the forest plan, harvest in the abundant acres of smaller pole sized stands (POL) was sought to provide more size and age class diversity. Current commercial markets for this size material has helped the Forest to emphasize these treatments.

Stewardship: The Forest continues to utilize all means to work towards the desired future conditions in the forest plan from traditional timber sale, service contract and stewardship contracts. Low market values of wood products, inability to collect deposits for road use, and long hauls to processing facilities are challenges to achieve these goals.

The Forest struggles to find timber that is available for harvest from lands designated suited for timber production. While the acres of suited timber are roughly half of that in the forest plan, management area standards and guidelines have not changed to reflect this change. The Forest emphasis on fuel treatments has exceeded the projected amount of treatments on non-suited lands, but this trend will not continue in the long term.

Table 5. Annual outputs of Allowable Sale Quantity and Total Sale Program Quantity compared to forest plan projections, FY 2005-2017.

Activity	Total Volume Sold	ASQ Sawtimber Vol. (7"+)	ASQ POL (Live 5"-6.5")	Personal Use Firewood	OVM Volume, Sawtimber	OVM Volume, POL
Unit of Measure	CCF	CCF	CCF	CCF	CCF	CCF
ASQ 2005 Forest Plan Projection	27,183	23,467	3,716	-	-	-
TSPQ 2005 Forest Plan Projection	18,931	10,688	1,693	3,000	3,550	3,550
2005	22,498	0	400	2,200	19,898	0
2006	18,073	15,101	442	2,432	95	4
2007	9,335	279	353	2,105	6,574	24
2008	7,726	3,533	1,488	1,340	1,354	12
2009	3,773	20	483	3,205	0	64
2010	24,583	6,694	6,191	3,070	7,323	1,305
2011	3,330	0	248	2,660	422	0
2012	3,238	0	317	2,628	232	61
2013	17,222	13,804	383	2,404	625	6
2014	34,221	25,653	6,074	2,486	9	0
2015	11,291	6,637	1,881	2,557	122	94
2016	10,263	4,353	1,514	2,533	1,472	391
2017	7,785	3,210	897	2,335	1,250	93
Total Actual Output	173,338	79284	20671	31,955	39,376	2,054
Total Projected ASQ Output	353,379	305,071	48,308			
Total Projected TSPQ Output	246,103	138,944	22,009	39,000	39,845	6,305

Activity	Total Volume Sold	ASQ Sawtimber Vol. (7"+)	ASQ POL (Live 5"-6.5")	Personal Use Firewood	OVM Volume, Sawtimber	OVM Volume, POL
% of Projected ASQ Output	49%	26%	43%			
% of Projected TSPQ Output	70%	57%	94%	82%	99%	33%

Christmas tree sales and other special forest products permits (i.e., fuelwood, post and poles, and teepee poles) have been steady at a level near or above forest plan projections without any noted adverse consequences (see Table 6). Quality teepee poles are in high demand from local and adjacent states. The Forest struggles to find accessible teepee pole areas that can be harvested with personal use permits.

Table 6. Christmas Tree Sales and Personal Use Firewood Permits, FY 2005-2017.

Activity	Personal Use Firewood	Christmas Trees
Unit of Measure	CCF	Each
TSPQ 2005 Forest Plan Projection	3,000	2,100
2005	2,200	1,699
2006	2,432	2,012
2007	2,105	1,845
2008	1,340	5,787
2009	3,205	1,946
2010	3,070	2,054
2011	2,660	2,010
2012	2,628	1,948
2013	2,404	1,928
2014	2,486	1,861
2015	2,557	2,063
2016	2,533	2,095
2017	2,335	2,300
Total Actual Output	34,955	31,648
Total Projected TSPQ Output	39,000	27,300
% of Projected TSPQ Output	90%	116%

The commercial harvest proposed in the forest plan included more clearcutting and uneven-aged harvests than were accomplished in this period. Actual Forest harvests emphasized Shelterwood Overstory Removals, Sanitation/Salvage, Commercial Intermediate Harvests (thinning), and clear-cutting. This was a result of an emphasis on scheduling areas outside of RACR previously harvested by removing the commercial overstory from regenerated stands, reacting to natural events, and treating Wildland Urban Interface areas, generally, through Intermediate harvests. Commercial harvests of ASQ acres were 39% of the projected amount.

Table 7. Commercial harvests by treatment types, FY 2005-2017.

Treatment Type	Clear-cutting	Shelterwood Prep Cut	Shelterwood Seed Cut	Shelterwood Overstory Removal	Uneven-aged, Selection	Commercial Intermediate Harvests	Salvage, Sanitation	Total of Acres
Unit	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Annual Planed Amount ASQ	691	82	82	82	764	0	0	1,701
Projected acres to date ASQ	8,983	1066	1066	1066	9,932	0	0	22,113
Actual acres Accomplished	927	461	549	2,258	149	2,044	2,206	8,594
Percent of projected ASQ	10%	43%	52%	212%	2%			39%

Non-commercial treatments are shown below. The Forest exceeded the projected amount of acres treated in almost every category except in prescribed fire. Of note, are the acres of OVM mechanical treatments which include commercial harvests at 207% of the projected TSPQ.

Table 8. Noncommercial harvests by treatment types, FY 2005-2017.

Treatment Type	Aspen Regeneration, Maintenance	OVM Forested Mechanical	Forested Prescribed fire	Non-Forested Prescribed fire	Wildfire/ Wildland fire use	Blowdown	Insect & Disease Mortality	Timber Stand Improvement	Reforestation	Total Acres
Unit	Acres	Acres	Acres	Acres	Acres			Acres	Acres	Acres
Annual Planned amount TSPQ	50	300	1,150	2,500	2,500	-	-	501	400	7,401
Projected acres to date TPSQ	650	3,900	14,950	30,000	32,500			6,513	5,200	75,400
Actual acres Accomplished	889	8,068	100	9,500	36,985	625	25,348	8,977	5,328	101,795
Percent of projected TSPQ	137%	207%	1%	32%	114%			138%	102%	135%

2.7.11 Monitoring element 28: Lands suitable for timber production

Monitoring question: Is the inventory of lands suitable for timber production accurate?

Finding: The inventory of lands suitable for timber production is accurate, but the suitable lands within the RACR roadless areas are either not available, or are available with restrictions. Currently, the Forest follows the RACR and the Forest Plan direction, which results in less timber output, forest vegetation acres treated, and less achievement of forested vegetation goals under the 2005 Forest Plan decision.

Indicator: Use established process to evaluate lands.

Data source(s): Corporate databases (FSVeg, Forest Inventory and Analysis data, Forest Plan direction)

Frequency of reporting: 10 years

Monitoring results: This element is scheduled to be addressed in 2020. However, the Roadless Area Conservation Rule (RACR), implemented after the 2005 revised forest plan decision, has a significant effect on the activities permitted on suited lands for the Forest. While the forest plan decision designated 185,282 acres suitable for timber production, roughly half or 91,312 acres are within RACR areas. Timber cutting is prohibited or restricted in RACR with limited exceptions provided. Given this change, the inventory of lands suitable for timber production in the forest plan is incorrect. Currently, the Forest follows the RACR and the forest plan direction, which results in less timber output, forest vegetation acres treated, and less achievement of forested vegetation goals under the 2005 Revised Forest Plan decision. Forest plan standards and guidelines designed for twice the currently available suited lands would still apply. Until a need for a Forest Plan revision is indicated, the Forest will operate on a rough estimate of 50% of the suited land base still being available for timber production.

Knowing what lands are suitable for timber production is critical in determining the Allowable Sale Quantity (ASQ) and Total Sale Program Quantity (TSPQ) for the Forest. If only half of the suitable acres are available to harvest, the ASQ and TSPQ in the Plan is unsustainable. A forest plan amendment could quantify the reduction in outputs and forest vegetation management objective achievement, or a full revision of the forest plan could reopen the 50% of suitable timber that is currently restricted under the changed condition of the RACR.

2.8 Effects of each management system to determine that they do not substantially and permanently impair the productivity of the land

2.8.1 Monitoring element 29: Soils

Monitoring question: **What activities have affected soil productivity and hydrologic function?**

Finding: No changes needed.

Indicators: Type, degree, and extent of soil disturbance and risk rating to determine the effect of soil disturbance on soil productivity and hydrologic function.

Data source(s): Results from best management practices reviews for management activities in range, timber, recreation, facilities, roads, etc.

Frequency of reporting: Two years

Monitoring results: No substantial impacts to soil productivity and hydrologic function were recorded in the FY 2016-2017 monitoring period. Forest standards and guidelines were effective in meeting regional soil quality standards. As noted in Monitoring Element 2, a series of BMP reviews were conducted on the Forest to assess water quality impacts from various Forest activities. Soil disturbance is a key indicator of impacts closely tied with BMP effectiveness, results of BMP reviews are an assessment of impacts to soil productivity and hydrologic function, as well as water quality.

Disturbed sites associated with project disturbance were restored using a seed mix composed of native plants. Seed mixes used on wetland areas often incorporate more mesic species. Where stream bank stabilization was part of the project, willow root stock or willow shoots were planted, and sedge plugs were incorporated (e.g., Shutts Flatts, Canyon Creek Annual Operating Plan, Granite Creek bank stabilization, etc.).

2.8.2 Monitoring element 30: Long-term stream monitoring

Monitoring question: What does long-term monitoring station data demonstrate about aquatic ecosystem health and upstream watershed condition?

Finding: No changes needed.

Indicator(s): Geomorphic and greenline data from long-term monitoring stations.

Data source(s): Long-term monitoring station data review and trend analysis.

Frequency of reporting: Six years

Monitoring results: Long-term, reach-level monitoring sites (LTMs) have been established at 34 total stream monitoring locations across the forest. Fifteen sites are forest-wide and permanent, whereas, the remainder are project-level sites and monitoring may be discontinued if a site is judged to be stable. Each site is scheduled to be visited at least every three years and the majority of sites have been surveyed two times over the last five years.

A review of LTM data collected on the Forest reveals that aquatic ecosystem health is, generally, being maintained, and there are no instances that indicate upstream watershed conditions are in decline. A few locations, such as the experimental reach LTM on the North Tongue River, show channel shifting or migration, but the photo points and greenline data indicate stable or improving riparian conditions are typically being observed in our monitoring program. The comprehensive review of all LTM is projected to be complete in 2018, and monitoring schedules will be reviewed to assess whether monitoring frequency may be reduced at that time.

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Appendix A: Amendments and Administrative Changes to the Bighorn NF Forest Plan.

Bighorn NF Forest Plan Amendments
Amendment #1 (2007) – Northern Rockies Lynx Amendment
Bighorn NF Forest Plan Administrative Changes
Administrative Change #1 (2010) – Updates Appendix C, Emphasis Species, to reflect the 2007 and 2009 Region 2 sensitive species list.
Administrative Change #2 (2013) – Updates language about consistency with the 2007 Northern Rockies Lynx Management Direction Record of Decision (chapter 1, text preceding lynx standards and guidelines); updates the fire terminology in Chapters 1, 2, and 3 to be consistent with the federal wildland fire management policy; corrects the list of municipal watersheds on the Forest; adds the soils and heritage resources sections to the final EIS; includes the errata from 2006 as well as changes made in 2013.
Administrative Change #4 (FY 2016) – Changes to the monitoring program to comply with the 2012 planning rule (36 CFR 219).