USDA United States Department of Agriculture

Biennial Monitoring Evaluation Report

Boise NF

Fiscal Years 2018-2019

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Cover photo: BMP monitoring during the 2019 field season on the Pine Flats Campground. Photo by John Riling.

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Acronyms

ACS – Aquatic Conservation Strategy
AOP – Aquatic Organism Passage
ASQ – Allowable Sale Quantity
BAER – Burned Area Emergency Response
BMP – Best Management Practice
BURP – Beneficial Use Reconnaissance Program
CFR – Code of Federal Regulations
CWD – Coarse Woody Debris
DD – Detrimental Disturbance (soils)
EPA – Environmental Protection Agency
FACTS – Forest Service ACtivities Tracking System
FSM – Forest Service Manual
FY – Fiscal Year
GMHA – General Habitat Management Area
GNA – Good Neighbor Authority
GIS – Geographic Information System
GPS – Global Positioning System
GRAIP – Geomorphic Road Analysis and Inventory Package
HM – Head Months (grazing)
IDEQ – Idaho Department of Environmental Quality
IDPR – Idaho Department of Parks & Recreation
IDT – Interdisciplinary Team
IHMA – Important Habitat Management Area
INFRA – Infrastructure Database
MIS – Management Indicator Species
ML – Maintenance Level
MMBF – Millions of board feet (timber)
MTBS – Monitoring Trends in Burn Severity
NAGPRA – Native American Graves Protection and Repatriation Act
NEPA – National Environmental Policy Act
NF – National Forest
NFS – National Forest System
NRHP – National Register of Historic Places
NRM – Natural Resource Manager
NVUM – National Visitor Use Monitoring
PALS – Planning, Appeals and Litigation System
PHA – Priority Heritage Assets
PHMA – Priority Habitat Management Area
PIBO – Pacfish/Infish Biological Opinion
PSI – Photo Science Inc.
RCA – Riparian Conservation Area
RD – Ranger District
RO – Regional Office
ROD – Record of Decision
ROS – Recreation Opportunity Spectrum
TEPCS – Threatened, Endangered, Proposed, Candidate and Sensitive (species)
TIM – Timber Information Manager
TMDL – Total Maximum Daily Load
TSPQ – Total Sale Program Quantity
TSRC – Total Soil Resource Commitment
USDA – U.S. Department of Agriculture
USFS – U.S. Forest Service
WBAG – Water Body Assessment Guidance
WBP – Whitebark Pine
WCATT – Watershed Condition Assessment Tracking Tool
WCF – Watershed Condition Framework
WCI – Watershed Condition Indicator
WCS – Wildlife Conservation Strategy
WIT – Watershed Improvement Tracking
WUI – Wildland Urban Interface

Introduction

The 2012 Planning Rule, which is found in the Code of Federal Regulations (CFR) at 36 CFR 219, guides Forest Plan monitoring across the Forest Service. The Boise National Forest (Boise NF) conformance strategy focuses on addressing the purpose of the Forest Plan monitoring program as described in 36 CFR 219.12(a)(1), which includes the need for monitoring information that enables the responsible official to determine if a change in Plan components or other Plan content that guides management of resources on the Plan area may be needed.

The Boise NF Forest Plan was amended in 2010 to incorporate the Wildlife Conservation Strategy. The next Forest Plan revision is projected to occur in the next 10 years. The analysis of the management situation will be developed at that time.

This report presents monitoring information for fiscal years (FY) 2018-2019 and is organized in two main parts. The first part is a discussion of four determinations from which one may conclude whether a change to the plan, management activities, or the monitoring program, or a new assessment, may be warranted based on the new information. The second part presents findings for each monitoring question in the monitoring plan and the data source and monitoring result for each indicator for each monitoring question. The monitoring questions and associated indicators address each of the eight requirements which are noted at 36 CFR 219.12(a)(5).

(i) The status of select watershed conditions.

(ii) The status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems.

(iii) The status of focal species to assess the ecological conditions required under §219.9.

(iv) The status of a select set of the ecological conditions required under §219.9 to contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern.

(v) The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives.

(vi) Measurable changes on the plan area related to climate change and other stressors that may be affecting the plan area.

(vii) Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities.

(viii) The effects of each management system to determine that they do not substantially and permanently impair the productivity of the land (16 U.S.C. 1604(g)(3)(C)).

Responses to some questions have been deferred until the Forest is able to collect necessary data and update changed conditions for some resources given the recent wildfires, or until such time the Forest has capacity or is scheduled to complete monitoring for specific programs and resource areas.

Objective

The Biennial Monitoring Report evaluates new information gathered through the Plan monitoring program and relevant information from the broader-scale strategy and makes this information available to the public. The monitoring evaluation report must indicate whether a change to the Plan, management activities, the monitoring program or a new assessment may be warranted based on the

new information. The Biennial Monitoring Report is also used to inform adaptive management of the Plan area. Any testing of assumptions, another rule-stated purpose of monitoring, would be addressed where relevant to one of the four determinations to be made.

The objective for this report is to help the Responsible Official understand the needs and/or opportunities for adaptive management, per 36 CFR 219.12(d)(2). The monitoring report is not a decision document representing final Agency action and is not subject to the objection provisions of Subpart B of 36 CFR 219 (see 36 CFR 219.12(d)(4)). During monitoring evaluation, resource specialists and program managers considered whether the following needs existed:

- Need for Changing the Forest Plan;
- Need for Changing Management Activities;
- Need for Changing the Monitoring Program; and/or
- Need for Conducting an Assessment to Determine Preliminary Need to Change the Plan

Changes to Monitoring Plan since Last Report

The Boise National Forest made changes to the plan monitoring program in the Boise National Forest Land and Resource Management Plan. The changes modify the current plan monitoring program by updating indicators used in answering monitoring questions. Changing specific indicators reflects updated evaluation tools used by forest employees to monitor plan implementation and will help better inform how specific management activities influence forest plan compliance. Changes to monitoring questions were not proposed and were not incorporated. The forest provided public notification of the proposed changes and justifications, as well as a public comment opportunity, on the Boise National Forest webpage at https://www.fs.usda.gov/detail/boise/landmanagement/planning/?cid=stelprdb5394255. No comments were received.

Monitoring Evaluation

This section describes the details of how monitoring data were collected, reported and evaluated for the Plan Monitoring Program to support the recommendations and/or findings. This section displays the summary of data results compiled for each monitoring item.

Each monitoring item includes 1) finding on the needs for change (as previously described); 2) the monitoring question and its indicator(s); and 3) data source, background information if needed and an evaluation of the monitoring results.

Physical & Biological Ecosystems

Terrestrial Ecosystems

Monitoring Question #1

Are live vegetation, snags, and coarse woody debris (CWD) at, or moving towards, desired conditions as described in Appendices A and E of the Forest Plan?

Findings

The Boise NF found no need for changing the Forest Plan, management activities, or the monitoring program.

This monitoring question has not been addressed since the amended 2010 Forest Plan, so this assessment covers from 2008 (baseline data from Forest Plan revision) through FY19. For future Forest Plan Monitoring, the Boise NF found it appropriate to answer this monitoring question either on a decadal basis, when improved datasets become available, or following large scale uncharacteristic disturbance events (e.g. wildfire) exceeding a cumulative 250,000 acres.

Wildfires over the last decade exponentially increased the number of snags and CWD within burned areas. However, these high concentrations do not substitute for the snag and CWD deficit that exists in other parts of the Forest, particularly areas where historical timber harvest practices left an insufficient supply of large trees to recruit into desirable snags and CWD. The reduction of large tree size class over the last decade indicates there are fewer large trees to recruit large snags and CWD, but given the relatively low reduction of large tree size class stands across the Forest (Figure 3), it is reasonable to conclude stands outside of uncharacteristic burn areas are progressing into the large tree size class as desired, partially balancing the loss of large tree size class resulting from wildfire. Wildfires have caused a departure from desired conditions for live vegetation in some portions of the Forest, particularly where fire effects were uncharacteristically large and severe, such as within the nonlethal fire regime. However, overall analysis indicates restoration efforts (i.e. thinning, prescribed fire, and reforestation) are trending live vegetation, snags, and CWD towards desired conditions, with reductions in tree density/canopy cover and increases in the ponderosa pine cover type. These incremental improvements, despite three large wildfire seasons, suggest projects developed under direction from the revised 2010 Forest Plan and Wildlife Conservation Strategy are successfully addressing Forest Plan objectives for restoration, resilience, and progression towards old forest habitat conditions.

Indicator #1

Mix of size classes, canopy cover class, and species composition and their spatial patterns by forested Potential Vegetation Group (PVG) and non- forested cover types.

Data Source

Potential Vegetation Group feature class, fire history feature classes and Monitoring Trends in Burn Severity (MTBS) for the Boise National Forest. Vegetation Classification, Mapping, and Quantitative Inventory (VCMQ) Existing Vegetation spatial files for 2008 and 2019. Forest Service ACtivities Tracking System (FACTS).

The VCMQ existing vegetation spatial products are mid-level existing vegetation maps (1:100,000). They were prepared to support the Boise National Forest 2010 Forest Plan Revision effort. Over 2.6 million acres were mapped through a partnership between Photo Science Inc. (PSI) and the Boise National Forest (BNF), with assistance from the Intermountain Regional Office (RO). PSI provided general project management and expert vegetation mapping support, BNF field crews collected training and accuracy assessment data, and the RO provided support for designing a field-based classification system and field keys, cross-walking existing vegetation information, and developing descriptions for the map units. Vegetation map units were originally designed to meet a minimum polygon size of 5 acres and 2 acres (for aspen and riparian). All map products were designed according to the Forest Service mid-level vegetation mapping standards in order to be stored in the Forest GIS and National databases. Mapping was based on 20 cm resolution imagery collected in 2008 with an estimated horizontal accuracy of 7 m.

This forest derived product attempted to bring the minimum polygon sizes up to the 5 ac (or 2 ac) thresholds as required by the original contract but were not followed.

The updated dataset (2019) reflects changes induced by large wildfires. Wildfire effects are limited to those fires with a soil burn severity rating - Cougar, Buck-Pioneer-Rough, Elk-Pony, Ridge, Trinity, Walker, and Whiskey. Processing resulted in numerous polygons becoming smaller than the objective minimum mapping units of 2 and 5 acres, respectively. Changes were implemented through a series of 6 models for each fire. Effects for all fires were then integrated using a seventh model. All models are stored on national Forest Service servers and are available upon request (T:\FS\NFS\Boise\Program\2000NFResourceMgmt\GIS\Existing_Vegetation\Refresh\FireChanges.tbx.)

Results

Over the last decade, wildfire has unequivocally been the most influential agent of change for live vegetation, snags and CWD. From 2008 through the 2019 fire season, 25 percent of the forest burned from wildfires (Figure 1 and Figure 2), 90 percent of which occurred in 2012, 2013, and 2016. No large wildfires (>100 acres) occurred in 2008 on the BNF.

Figure 1. Fire history for the Boise National Forest from 2008 through 2019.

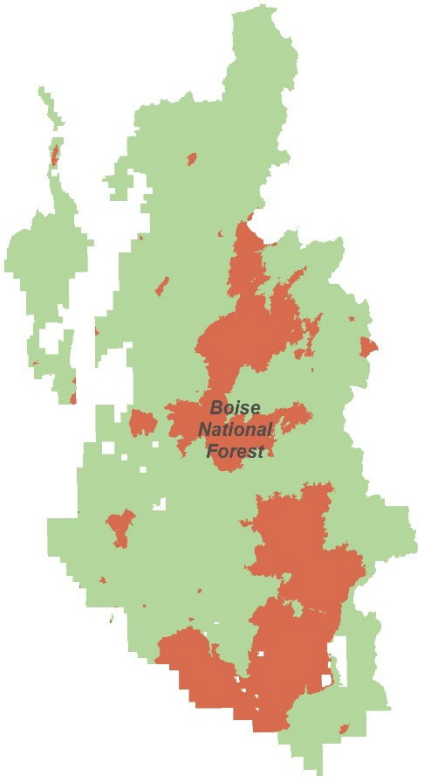


Figure 2. Photo taken on August 22, 2016 of the Pioneer fire, on the Idaho City Ranger District. This was the largest wildfire that occurred during the analysis period.

Based on Monitoring Trends in Burn Severity (MTBS), when viewed across the forest, most of these fires burned with mixed severity fire effects, creating a heterogeneous patch and pattern at the Forest scale. Of the 620,796 acres of wildfire, the nonlethal fire regime burn the most, but it was fairly balanced across other fire regimes, as displayed in Table 1. Fire intensity and patch sizes within Potential Vegetation groups 4 and 7-11 burned more characteristically to historical disturbance patterns described in Table A-1 and Figure A-1 of the Forest Plan. From an ecological perspective, fire within these PVGs

(comprising over 30 percent of the burned landscape) helped maintain and develop desired conditions overall. Wildfire within PVGs 1 and 2 experienced the most uncharacteristic fire effects. Consequently, it's reasonable to conclude disturbance within these fire regimes trended live vegetation, snags and coarse woody debris (CWD) conditions away from desired conditions described in Appendices A and E of the Forest Plan. The remaining PVGs burned with a mixture of desired effects. When looking closely at the spectrum of effects within these PVGs (3, 5, 6, and 97-99), more desirable effects occurred within PVG 3 and less desirable effects within PVG 99, particularly sagebrush communities.

Table 1. Percentage of area burned (620,796 acres) on the Boise National Forest from 2008 through 2019, separated by fire regime and Potential Vegetation Group.

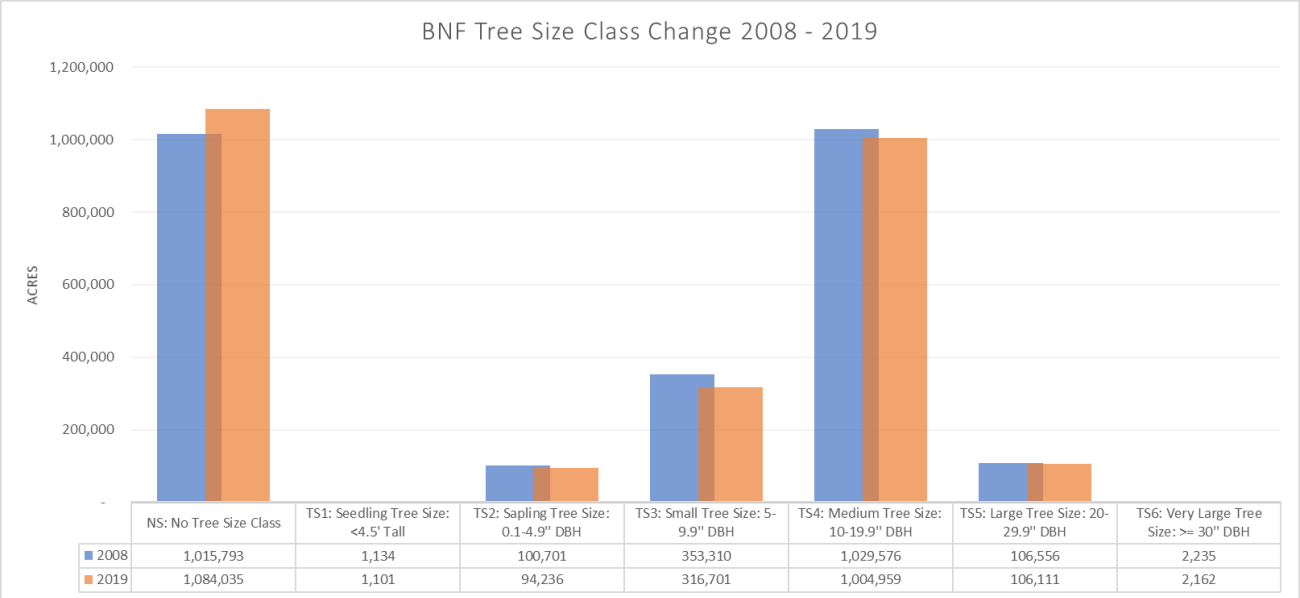
Fire Regimes	Percent Acres Burned
Lethal	**10.98%**
PVG 8	0.02%
PVG 9	0.42%
PVG 10	10.54%
Mixed1	**12.46%**
PVG 3	12.23%
PVG 6	0.23%
Mixed2	**21.29%**
PVG 4	9.40%
PVG 7	11.21%
PVG 11	0.68%

Fire Regimes	Percent Acres Burned
Non-forest	**27.40%**
PVG 97	0.03%
PVG 98	2.63%
PVG 99	24.73%
Nonlethal	**27.87%**
PVG 1	9.06%
PVG 2	18.69%
PVG 5	0.12%

Based on an analysis of existing vegetation for canopy cover, tree size class, and dominance types from 2008 through 2019, combined with restoration efforts, trends indicate an overall progression towards desired conditions for canopy cover and species composition, and a slight decline in desired quantities of medium, large, and very large tree size classes (Figure 3).

A key objective for the 2010 amended Forest Plan is to progress stands across the Forest into the large tree size class. Forest Plan standards for retention of old forest habitat and large tree size class ensured restoration treatments retained and fostered development of large tree structure. A slight reduction of acres in the large tree size class since 2008 is a result of uncharacteristic wildfire disturbance, combined with tree growth and effective restoration treatments on other areas across the Forest.

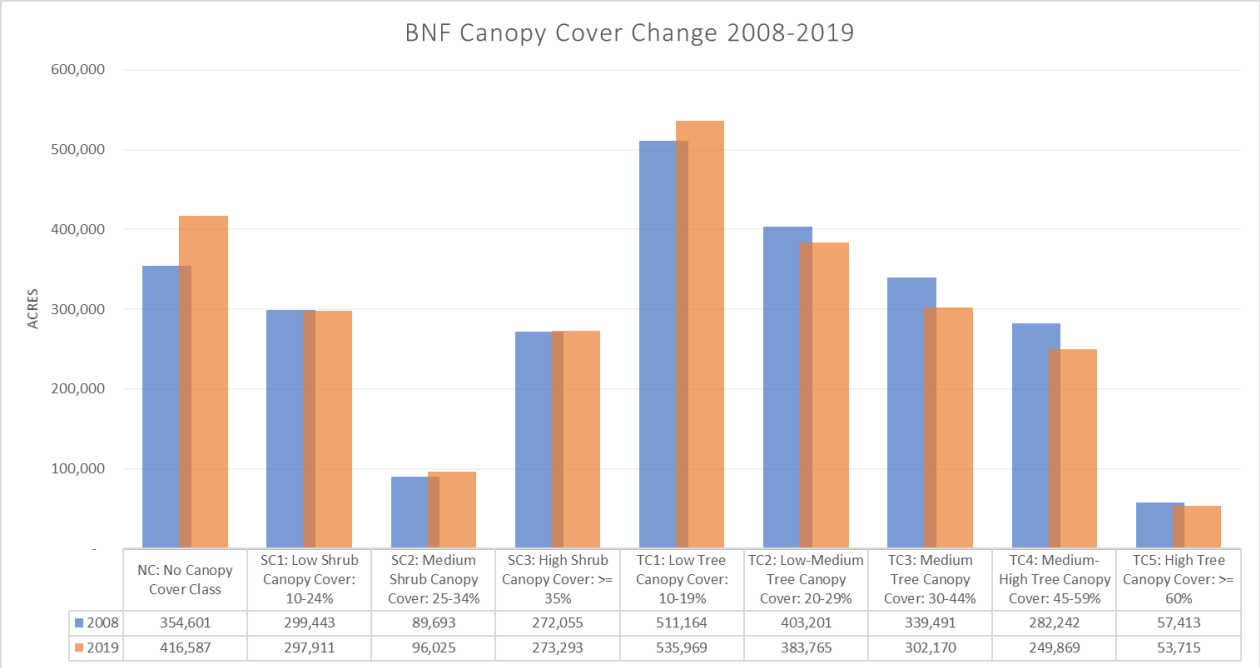
Figure 3. Tree size class change from 2008 to 2019 for the Boise National Forest.



	NS: No Tree Size Class	TS1: Seedling Tree Size: <4.5' Tall	TS2: Sapling Tree Size: 0.1-4.9" DBH	TS3: Small Tree Size: 5-9.9" DBH	TS4: Medium Tree Size: 10-19.9" DBH	TS5: Large Tree Size: 20-29.9" DBH	TS6: Very Large Tree Size: >= 30" DBH
2008	1,015,793	1,134	100,701	353,310	1,029,576	106,556	2,235
2019	1,084,035	1,101	94,236	316,701	1,004,959	106,111	2,162

Effects resulting from changes in canopy cover densities can be difficult to discern at the Forest scale. Overall, forested vegetation – particularly in drier PVGs such as 1 thru 6 – have tree densities that are higher than desired, which is predominantly a result from a century of wildfire suppression. In these situations, reducing canopy cover is a desired trend for the Forest. However, when these reductions occur at intensities and patch sizes that are uncharacteristic for the ecological community (i.e. PVG), they are not desirable. Canopy cover shifted from medium and high densities (classes T2-T5) to more open (T1) and shrub conditions (SC2-SC3), with a notable increase in the “no canopy cover class”; likely a direct result from wildfire. The combination of desirable and undesirable wildfire effects, as well as restoration efforts appears to have resulted in a net improvement across the Forest for medium and high canopy cover classes (TC3-TC5). Increases in the nonforested canopy cover class (NC) likely exceed desired reductions, even with consideration of desired reductions in meadow encroachment (Figure 4).

Figure 4. Change in canopy cover classes for the Boise National Forest from 2008 to 2019.

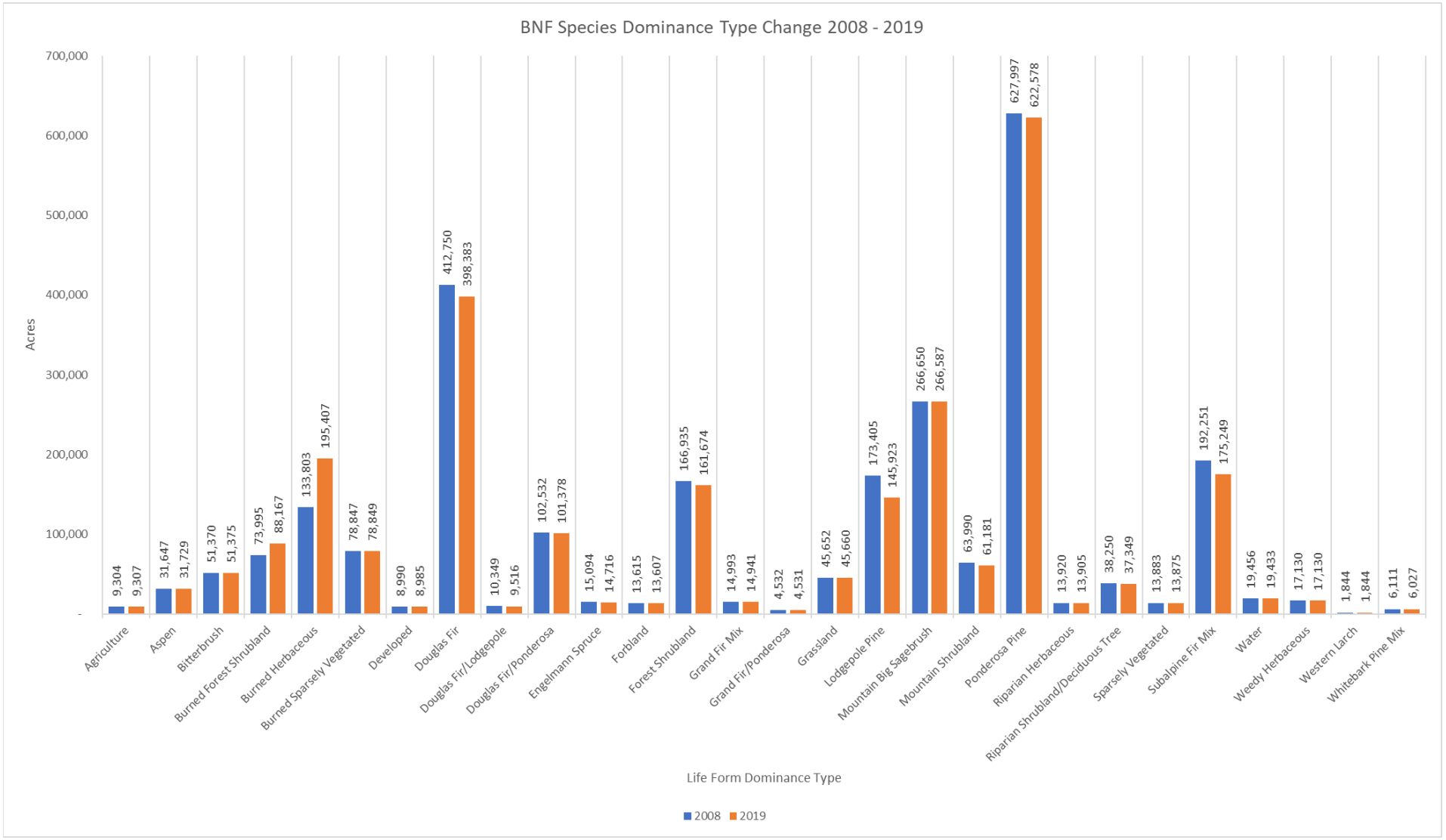


	NC: No Canopy Cover Class	SC1: Low Shrub Canopy Cover: 10-24%	SC2: Medium Shrub Canopy Cover: 25-34%	SC3: High Shrub Canopy Cover: >= 35%	TC1: Low Tree Canopy Cover: 10-19%	TC2: Low-Medium Tree Canopy Cover: 20-29%	TC3: Medium Tree Canopy Cover: 30-44%	TC4: Medium-High Tree Canopy Cover: 45-59%	TC5: High Tree Canopy Cover: >= 60%
2008	354,601	299,443	89,693	272,055	511,164	403,201	339,491	282,242	57,413
2019	416,587	297,911	96,025	273,293	535,969	383,765	302,170	249,869	53,715

Over the last decade, with the exception of aspen, desired early seral species such as ponderosa pine, western larch, whitebark pine, Engelmann spruce, and Douglas-fir have declined by roughly 22,235 acres due to wildfire (Figure 5). Lodgepole pine has also declined, however lodgepole, like aspen, is known to regenerate well following high severity disturbance from wildfire. While this natural regeneration is not currently reflected in the data, it is anticipated that lodgepole pine sites will naturally recover.

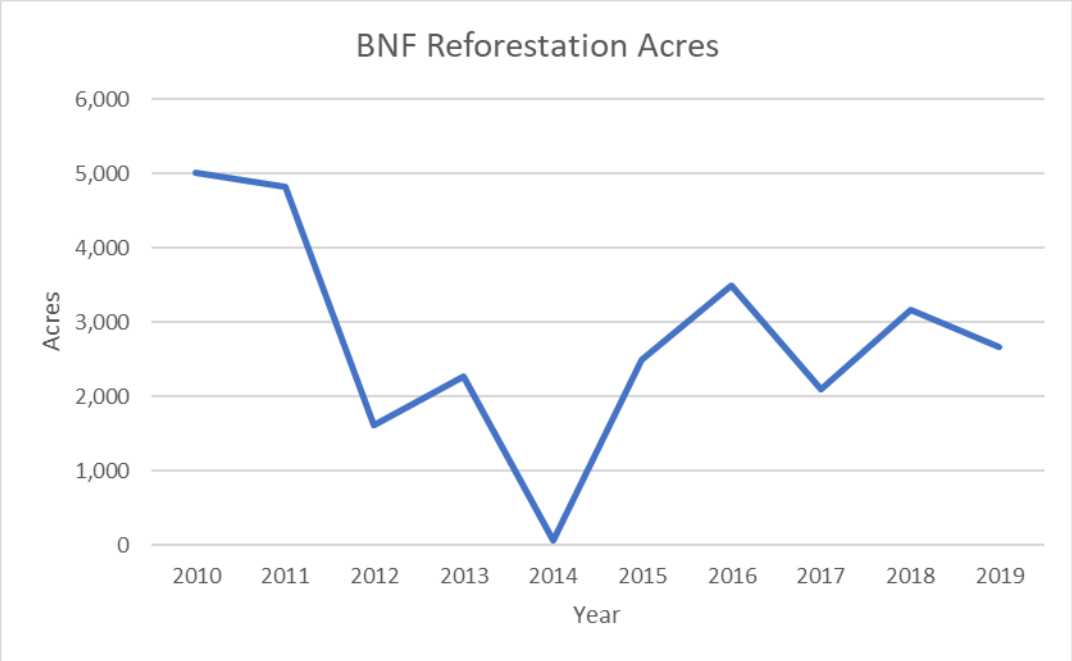
Advancement towards desired vegetative conditions for species composition and canopy cover are likely a result of restoration treatments, primarily tree planting, tree thinning, and prescribed burning, which resulted in increased tree growth and proportions of desired species. Desirable wildfire effects also contributed to improvements in vegetative conditions.

Figure 5. Comparison of life form dominance types between 2008 and 2019 for the Boise National Forest.



The 2019 existing vegetation spatial data (updated from 2008) does not reflect reforestation efforts that have occurred since 2008. Most tree planting occurred in areas that experienced high severity wildlife effects. The BNF planted 27,684 acres between 2010 and 2019 with desired early seral species, primarily ponderosa pine and less amounts of whitebark pine, Douglas-fir, western larch and Engelmann spruce (Figure 6). As these trees grow, desired conditions for tree size class (Figure 3), canopy cover (Figure 4), and species composition (Figure 5) will improve.

Figure 6. Acres planted with tree seedlings on the Boise National Forest between 2010 and 2019, by year.



Indicator #2

Project acres meeting or contributing to the desired condition for snags and CWD

Data Source

Natural Resource Manager (NRM), Forest Service ACtivities Tracking System (FACTS)

Results

Treatment acres can overlap, particularly over multiple years, e.g. tree thinning followed with prescribed fire. Multiple treatment activities that overlap in location are often required to develop functioning desired conditions for snags and CWD.

From 2008 through 2019, **265,534 acres** of treatment activities contributing to the desired condition for snags and CWD were reported as **completed**. Completed acres are reported when work is finished on the ground, or for reforestation, when stands are certified as successfully stocked (typically within 5 years of planting).

Within this same timeframe, **300,798 acres** of treatment activities contributing to the desired condition for snags and CWD were reported as **accomplished**. Accomplished acres are reported when contracts are awarded, but before work has been completed on the ground. If work is not done with a service contract, agreement, or timber sale (e.g. using workforce for Rx burning), then it is reported as accomplished and completed in the same year. For reforestation, acres are reported as

accomplished when the contract is awarded/trees are planted (occurs in same year), not when stands are reported as successfully stocked (certified-planted) – this helps avoid duplication in reporting.

Commercial and noncommercial thinning, prescribed burning, fuels mitigation, invasive species management, reforestation and related treatments are types of activities included that contribute, in different temporal scales, to recruiting and sustaining snags and CWD on the landscape. Overstory removal, clearcut/salvage harvesting, insect/disease prevention, survey work, pruning, cone/pollen collection, sanitation cut, shelterwood removal cuts, range and fisheries improvements, erosion controls, road and trail maintenance, and other activities not contributing to snag and CWD desired conditions were excluded.

Wildfire designated as having a resource benefit can help with snag and CWD recruitment, but these numbers were distinguished from the planned activities mentioned above. From 2008 through 2019, the Boise National Forest reported 141,259 acres of Natural Ignition wildfire, 400 acres of wildfire designated as a benefit to fuels, and 1,322 acres of wildland fire use.

Monitoring Question #2

Are restoration and conservation actions being implemented within Sage Grouse Priority Habitat Management Area (PHMA), Important Habitat Management Area (IHMA), and General Habitat Management Area (GMHA) to meet desired outcomes?

Findings

The Boise NF found no need for changing management activities or the Forest Plan monitoring program.

Indicator

Number of acres restored in PHMA, IHMA and GHMA

Data Source

Natural Resource Manager (NRM), Watershed Improvement Tracking (WIT) Database

Results

Restorative actions in sage grouse habitat during this reporting period focused on preventing further spread of existing weed infestations and prevention of establishment of new infestations. In Fiscal Years 2018 and 2019 the Forest completed a combined total of 3,456 acres of noxious weed treatment in PHMA, IHMA, and GHMA sage grouse habitat. Inventoried and treated invasive plant species are primarily found along roadways and riparian areas and so treatment efforts were focused along those corridors. Rush skeletonweed and diffuse knapweed make up the majority of the inventoried noxious weed acres in greater sage-grouse habitat on the Forest (Dardis et al 2016). Actions are wholly related to noxious weed treatments. Funding for noxious weed treatments continues to decline and this may pose a risk to the Forest's future ability to implement restoration actions in sage grouse habitat.

Monitoring Question #3

Are Forest management actions maintaining and/or restoring the distribution, abundance, and habitat quality of Threatened, Endangered, Proposed, Candidate and Sensitive (TEPCS) terrestrial species, or the occupied habitat of TEPCS and Watch plant species?

Findings

The Boise NF found a need to change management activities, however there is no need for changing the Forest Plan or the monitoring program.

Indicator #1

Acres of Threatened, Endangered, Proposed, Candidate, and Sensitive (TEPCS) habitat maintained or restored

Data Source

Natural Resources Manager (NRM) Watershed Improvement Tracking (WIT) Database

Results

In FY18 and FY 19 there were approximately 42,050 acres of TEPCS habitat restored on the Forest (Table 2). Half of all restoration work during the reporting period was comprised of noxious weed treatments (21,204 acres). The noxious weed treatment total includes invasive species management and native plant treatments.

Table 2. Acres of TEPCS Habitat Restoration in FY18 and FY19

Activity Class	Sum of ACRES_BLI_CREDITED
Fuels	**1,761**
Other Fuel Treatment	242
Prescribed Fire	1,519
Road	**3,565**
Decommission-Treatment	3,565
Veg Management	**31,915**
Invasive Species Management (noxious weed treatment)	13,843
Native Plant Restoration	13
Native Plant Treatment (noxious weed treatment)	7,361
Planting	2,728
Revegetation (Reforestation)	3,136
Thinning	1,143
Thinning-Commercial	3,173
Thinning-Pre-commercial	519
Wildlife	**4,809**
Mine-Cave Protection	4,809
Grand Total	**42,050**

Indicator #2

Acres of disturbance of occupied habitat of TEPCS plant species and Watch plant species

Data Source

Planning, Appeals and Litigation System (PALS) Database and NEPA Decision Documents for activities implemented in fiscal years 2018 and 2019

Results

The Boise NF reviewed project lists with recent Decision Documents to determine which were implemented in Fiscal Years 2018 and 2019 and, of those implemented, which project activities occurred within known occupied habitats for TEPCS and Watch plant species. The review process did not include Special Use Permits. The review process assessed whether design features and mitigation measures for TEPCS plant species and Watch plant species were successfully implemented and effective in avoiding or reducing impacts to plant populations. The activities identified to occur within known occupied habitats and reviewed for successful implementation include:

- Bogus Basin Forest Health Restoration Project (Mountain Home RD);
- 2014 Trinity Ridge WBP Restoration Project (Mountain Home RD);
- Elk Post-fire Restoration Reforestation Project (Mountain Home RD);
- Bogus Basin Snowmaking Phase I (Mountain Home RD);
- South Pioneer Fire Salvage and Reforestation Project (Idaho City RD);
- North Pioneer Fire Salvage and Reforestation Project (Lowman RD);
- West Lowman Natural Fuels Reduction Project (Lowman RD);
- High Valley Integrated Restoration Project (Emmett RD);
- West Side Divide projects (Cottonwood, Ola Summit, Tripod) (Emmett RD);
- French Hazard WUI (Cascade RD);
- Idaho Power Snowbank Underground Line Project (Cascade RD); and
- Oro Mountain Whitebark Pine Enhancement Project (Cascade RD).

In general, for projects implemented through timber sales or contracts, project managers incorporate design features and mitigation measures into timber sale documents and reforestation and stewardship contracts. Project managers ensure implementation of design features and mitigation measures through timber sale and contract inspections. The purpose of design features and mitigation measures is to reduce impacts to the viability of TEPCS plant populations.

The 2014 Trinity Ridge WBP Restoration and Oro Mountain Whitebark Pine Enhancement projects restored degraded habitats of whitebark pine. In 2018 and 2019, the Boise NF planted 252 acres of whitebark pine seedlings in the Trinity Ridge WBP Restoration Project area and removed competing conifers on 26 acres in the Oro Mountain Whitebark Pine Enhancement Project area.

For the Idaho Power Snowbank Underground Line Project, the Cascade RD authorized Idaho Power to install an underground power line to provide electrical service to the Snowbank Communication Site. The installation bisected a whitebark pine population. The authorization included the condition that for every whitebark pine tree injured or killed during power line installation, Idaho Power would pay for growing out 10 whitebark pine seedlings to be planted in the impacted population. The number of seedlings per injured tree took into account that survival rates for whitebark pine seedlings are very low. In fiscal year 2018, the Boise NF planted 450 seedlings grown out by Idaho Power. The Boise NF is currently monitoring the survival rates of the planted seedlings.

For special use permit renewals, the Boise NF communicates design features and mitigation measures to special use permittees. Follow-up monitoring for most special use permits to determine successful implementation of the design features and mitigation measures has yet to occur.

During the review process, one concern that arose amongst specialists and project managers both in 2018 and 2020 stemmed from miscommunications. Design features and mitigation measures were not always effectively communicated when projects moved from the Planning/NEPA phase to the Implementation phase. In particular, deferral of botanical surveys to the post-decision pre-implementation phase resulted in several projects moving forward into implementation without completed botanical surveys.

Based on observed concerns in 2018, the Boise NF reassessed its methods of communication as a project moves from the planning/NEPA phase to the implementation phase to improve effective communication and ensure projects achieve the desired species conservation results. The Forest developed a process for better consolidating design features and mitigation measures during development of more complex projects and transferring these to an "Implementation Guide". This guide makes it easier for the implementation team to understand what is required when implementing certain types of activities in certain areas and how they should proceed when certain resource conditions/circumstances (referred to as "Watch Out Situations") are encountered. Effective use of the "Implementation Guide" benefits all pertinent resource areas (e.g. wildlife, fisheries, water quality etc.), not only TEPCS plant species and Watch plant species.

As of the writing of this report, the Boise NF developed an Implementation Guide for the High Valley Integrated Restoration Project and is in the process of developing one for the Sage Hen Integrated Restoration Project. The Boise NF will assess the effectiveness of the Implementation Guide for the duration of these projects and the applicability to other projects in the foreseeable future.

Monitoring Question #4

Are Forest management actions affecting the distribution, abundance, and habitat quality of focal species and Species of Conservation Concern?

Findings

The Boise NF found a need to re-establish the Forest baseline for focal species and Species of Conservation Concern to determine the need for changing the Forest Plan, management activities, or the monitoring program.

Indicator #1

Population trend data for focal species in potential habitat *(Not answered in 2018)*

Data Source

Natural Resource Manager (NRM) National Resource Inventory System (NRIS) WILDLIFE Database; Annual Management Indicator Species Survey Data 2004-2018; Black-backed Woodpecker Monitoring Surveys on the Boise National Forest (2018); USGS Breeding Bird Survey Data; USDA FS R4 Terrestrial Wildlife Management Indicator Species Monitoring Strategy, Boise National Forest – September 30, 2012; Woodpecker Population Monitoring on the Boise National Forest - Project Protocol, version 1.5; Woodpecker Population Monitoring on the Boise National Forest – 2019 Annual Report.

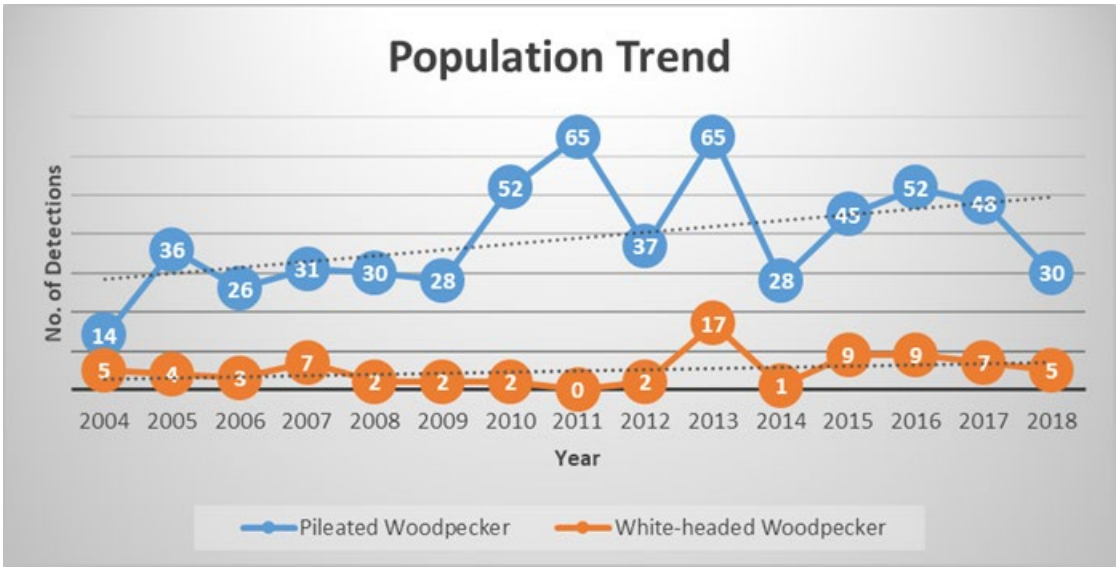
Results

Vegetation management actions, by design, change forested community structure and composition through harvest, reforestation, thinning and prescribed burning. These vegetation management actions affect distribution, abundance and habitat quality for focal species and Species of Conservation Concern. Interim focal species (pileated woodpecker, white-headed woodpecker, black-backed woodpecker) appear to have stable to slightly increasing population trends during the years they were monitored up to 2018. In depth discussion on the survey methodology can be found in the record for this report.

Trend results from 2004 to 2018 for white-headed and pileated woodpeckers are shown in Figure 7. The number of birds detected each year is identified within each circle. In this two-year reporting period numbers for both species have declined each year since 2016, even though trends over the entire fifteen years appear stable for the white-headed woodpecker and slightly upward for the pileated woodpecker.

Throughout its range in the U.S. and Canada, the white-headed woodpecker is considered vulnerable, imperiled or critically imperiled (NatureServe 2020). In Idaho, the Idaho Department of Fish and Game has identified it as a State Species of Conservation Concern. The Intermountain Region of the U.S. Forest Service has identified it as a Regional Forester Sensitive Species. It is no surprise that on the Boise National Forest the occurrence of white-headed woodpeckers is uncommon. Detection rates for white-headed woodpeckers are low all years, with the exception of 2013 (Figure 7), despite the presence of 500 monitoring points spatially stratified across the Forest.

Figure 7. White-headed Woodpecker and Pileated Woodpecker Population Trends - Boise National Forest.

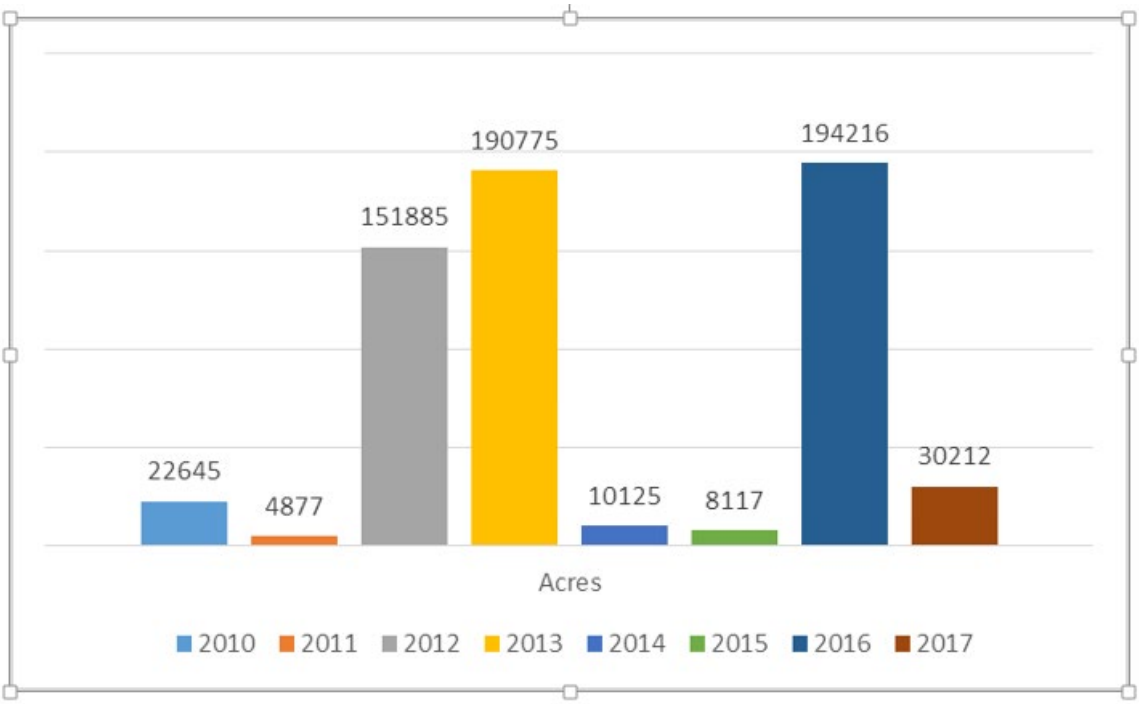


Pileated woodpeckers in contrast are readily detected on many more of the 500 monitoring points across the Forest. This species is considered common at all scales (Forest, state, range) and despite the decreasing detections noted in 2017 and 2018, the population trend appears to be slightly upward for the Boise National Forest overall (Figure 7). Although 15 years of data have been collected, population trend data for both species should be interpreted with caution. Fifteen years is a very brief window of time.

Of importance to both species, and which might not be displayed by the data above, is the effect large-scale wildfires of 2011, 2012 and 2016, may have had on the closed canopy, medium and large-tree size class habitat preferred by the pileated woodpecker, and the remnant, isolated patches of large-diameter, open-canopied ponderosa pine habitat preferred by the white-headed woodpecker.

Figure 8 below displays acres burned on the Forest since the 2010 Plan Amendment. Understanding the effect this has had on the distribution and amount of each species' habitat across the Forest is necessary to place forest management actions that may alter those habitats in context. In the case of the pileated woodpecker, the 2010 Plan described habitat as within the desired conditions (i.e. the low end of HRV (historical range of variability)), well-distributed, and abundant on the Forest. Even with all the wildfire since 2010, the risk of the Forest's pileated woodpecker population becoming isolated remains low; even if habitat loss from wildfires has occurred.

Figure 8. Acres Burned by Wildfires on the Boise National Forest since the 2010 Plan Amendment.



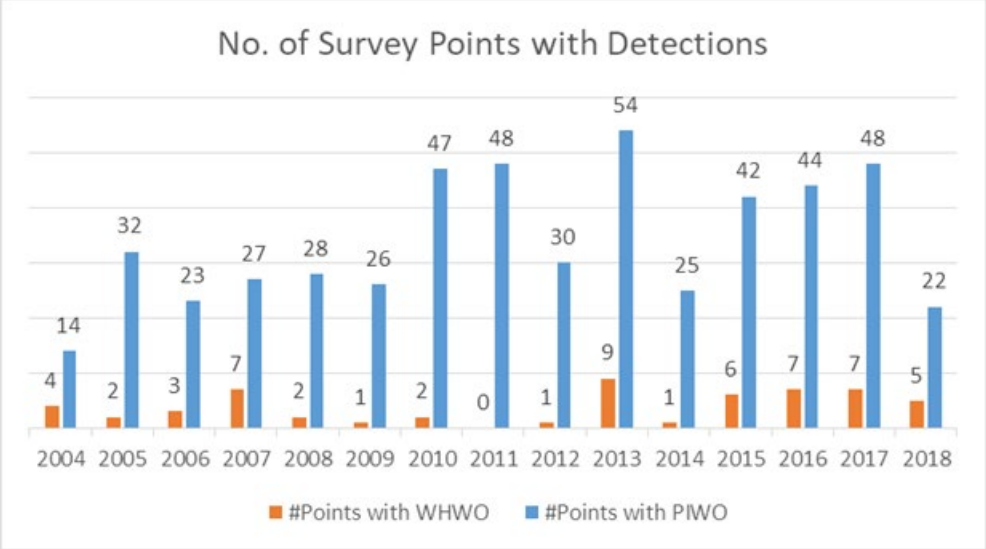
For the white-headed woodpecker on the other hand, the 2010 Forest Plan recognized widespread, extensive loss of white-headed woodpecker habitat on the Forest and the need to restore contiguous habitat patches of large-diameter ponderosa pine with open canopy conditions as strategically important if white-headed woodpeckers were to remain viable on the forest (USDA USFS 2010a). In 2010 restoration was expected to take 150 years to reach the low end of desired conditions, which fall within HRV, (i.e. 200,000 acres of habitat on the Forest). This quantity could provide habitat patches of sufficient size to support heathy, reproducing populations of white-headed woodpeckers well-distributed on the Forest (USDA USFS 2010a). Any further habitat loss extends the timeline to move into the low end of HRV and Forest Plan desired habitat conditions and potentially the ability of the forest to support a well-distributed, viable population. The wildfires in 2011, 2012 and 2016 burned occupied white-headed woodpecker habitat on the Forest. New assessments of the change in quantity and distribution of white-headed woodpecker habitat have not yet occurred. The lack of a

current white-headed woodpecker baseline means management activities in occupied habitat operate at increasing risk of uncertainty as to the Forest-level implications they may have on species viability.

The survey design used since 2004 to monitor white-headed and pileated woodpeckers was geographically stratified based on habitat across the Forest at that time. The habitat baseline for both species have substantially changed with the wildfire events and the survey design may no longer be sufficient to detect a change in population trend. There is a need to re-evaluate the baseline for the species and assess the survey design.

Figure 9 displays the number of survey points where each species was observed out of the 500 points surveyed annually.

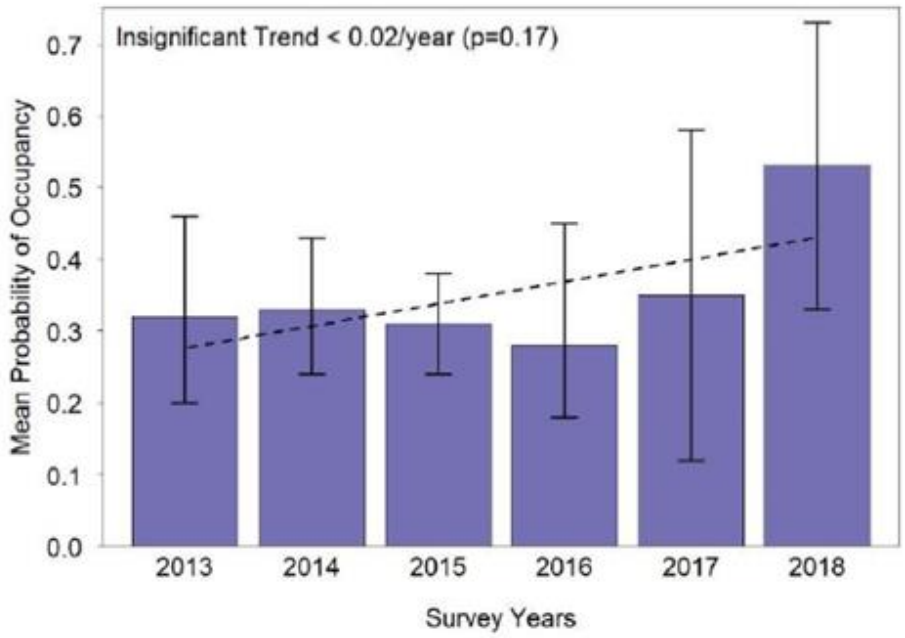
Figure 9. Total Survey Points with Pileated or White-headed Woodpecker Detections on the Boise National Forest.



Monitoring for back-backed woodpeckers has been different than for the other two species since this species was selected for monitoring in the 2010 Forest Plan amendment. See the project record for this report for an in-depth discussion of the methodology.

Trend results for black-backed woodpeckers from 2013 to 2018 are neutral and shown in Figure 10. The overall probability of occupancy across the Forest showed no statistically significant trend (Miller and Carlisle 2018). For the 2017-2018 monitoring period this means wildfires that create dead tree habitat, and salvage management actions that harvest dead trees, appear to be maintaining black-backed woodpecker populations on the Forest as represented by the mean probability of occupancy. The slightly increasing trend is not statistically significant. The increase in acreage of recently burned areas has likely increased the black-backed woodpecker population in size from a raw number perspective however (Miller and Carlisle 2018). As wildfire-created black-backed woodpecker habitat ages out of habitat (10+years post-fire), new wildfires or insect and disease irruptions have replaced those acres both in space and time on the landscape.

Figure 10. Black-backed Woodpecker Trend and Comparison of Mean Probability of Occupancy - Boise National Forest.



In FY 2019, due in part to concerns with the existing protocol's ability to monitor white-headed and pileated woodpecker population trends, as well as a need to consolidate monitoring of all three species if possible, a new protocol was developed in partnership with the Intermountain Bird Observatory (Miller and Carlisle 2019). This new methodology improves both efficiency of data collection and the ability to detect species' population trends for all species using one protocol on the Forest. The first year of implementation for the new protocol was FY 19. Monitoring under this new protocol was positive and showed high detections of all three species when compared to previous methodologies. The baseline breeding density established in 2019 will be used for future comparison and trend analysis in biennial reporting periods beginning in FY 2022.

Indicator #2

Acres treated within focal species habitat *(Not answered in 2018)*

Data Source

Forest Service Watershed Improvement Tracking (WIT) Database for acres treated within focal species habitat implemented in fiscal years 2018 and 2019; Forest Service Activities Tracking System (FACTS) Database for total acreage of restoration projects.

Results

Management Indicator Species as identified in the 2010 Forest Plan are currently treated as focal species until the Forest identifies focal species per the 2012 Planning Rule. See also the Forest Supervisor Letter of Acceptance, May 9, 2016 from the Forest Supervisor.

In Fiscal Years 2018 and 2019, the BNF reported 50,754 acres of treatments as **completed** in FACTS. **32,810** of those acres, or approximately **65 percent**, were within focal species habitats. Completed acres are reported when work is finished on the ground.

Wildfires can result in resource benefits to focal species such as the black-backed woodpecker. Natural ignition wildfire acres reported in FACTS for FY18 and FY19 totaled 27,848 acres. These acres are in addition to treated acres and are reported for supplemental information on focal species habitat conditions.

Indicator #3

Proportion of vegetation management projects that include restoration for Species of Conservation Concern in their Purpose and Need

Data Source

Planning Appeals & Litigation System (PALS) Database and NEPA Decision Documents for vegetation management projects signed in fiscal years 2018 and 2019.

Results

Federally threatened, endangered, proposed, candidate, and sensitive species (TEPCS) are currently considered Species of Conservation Concern (SOCC) for the Boise National Forest. When the Forest Plan is revised under the 2012 Planning Rule, or if new agency direction becomes available, the Forest will identify SOCC per the appropriate process. Until then, the Forest will respond to this monitoring question relative to TEPCS species.

Decision documents for vegetation management projects signed in Fiscal Years 2018 and 2019 were reviewed to determine what proportion included restoration of habitat for TEPCS species in the Purpose and Need. There were **5** vegetation management decisions made during this reporting period and **2** included language in the Purpose and Need to restore habitat for TEPCS species (Table 3). This is **40 percent** of vegetation management project decisions in the FY18 and FY19 reporting period. Projects with a purpose and need statement about restoration identified restoration of white-headed woodpecker (Regional Forester Sensitive Species) habitat as a reason for the proposed action.

Table 3. Vegetation Management Projects with Decisions in FY 18 or FY 19.

Vegetation Management Project	Date Signed	Unit	P&N included TEPCS Habitat Restoration
Boise Basin Experimental Forest EA	09/2019	Idaho City RD	Yes
French-Hazard WUI EA	10/2018	Cascade RD	No
West Lowman WUI CE	12/2018	Lowman RD	No
Cottonwood CE	07/2019	Emmett RD	Yes
Lodgepole Springs Restoration Prescribed Burn CE	4/2018	Emmett RD	No

Projects that involved vegetation management secondary to the purpose of the project, such as Special Use Permit Projects, were not included in the list since vegetation management is incidental

to the authorization of the permit (e.g. Idaho Power Company - Horseshoe Bend to Garden Valley Project).

Monitoring Question #5

Have habitat restoration and conservation actions been prioritized in watersheds identified in the Forest Plan Wildlife Conservation Strategy (WCS) as priority watersheds?

Findings

The Boise NF found no need for changing the Forest Plan, management activities, or the monitoring program.

Indicator #1

Proportion of acres restored or enhanced annually in WCS priority watersheds compared to total acres in other 5th field watersheds *(Not answered in 2018)*

Data Source

Natural Resource Manager (NRM) Watershed Improvement Tracking (WIT) Database

Results

An increasing proportion of acres restored annually in WCS priority watersheds from 2016 to present, and maintaining an average of 18,479 acres (range of 11,529-25,623 ac) of restored habitat over the last four years, demonstrates the Forest's efforts to restore habitat and prioritize actions in WCS priority watersheds.

There were 11,204 acres of habitat restored or enhanced in WCS priority watersheds in 2018 and 10,318 acres in 2019 (Table 4). This is **44 percent** and **63 percent respectively of total restored habitat on the Forest for FY18 and FY19**. There is an overall upward trend in the last four years (FY16 was 25 percent; FY17 was 13 percent). The downward drop in FY17 was due to the Forest focus on post-Pioneer Fire salvage activities which are not restoration activities.

Table 4. Proportion of acres restored annually in WCS priority watersheds versus total acres restored.

Activity Type by Year	All Acres Restored	WCS Watershed Ac Restored
2018	**25623**	**11204**
Road	1969	0
Veg Management	22854	11204
Wildlife	800	0
2019	**16427**	**10318**
Fuels	1761	112
Road	1596	0
Veg Management	9061	10206
Wildlife	4009	0
Grand Total	**42050**	**21522**

Indicator #2

Total acres restored or enhanced of terrestrial habitat *(Not answered in 2018)*

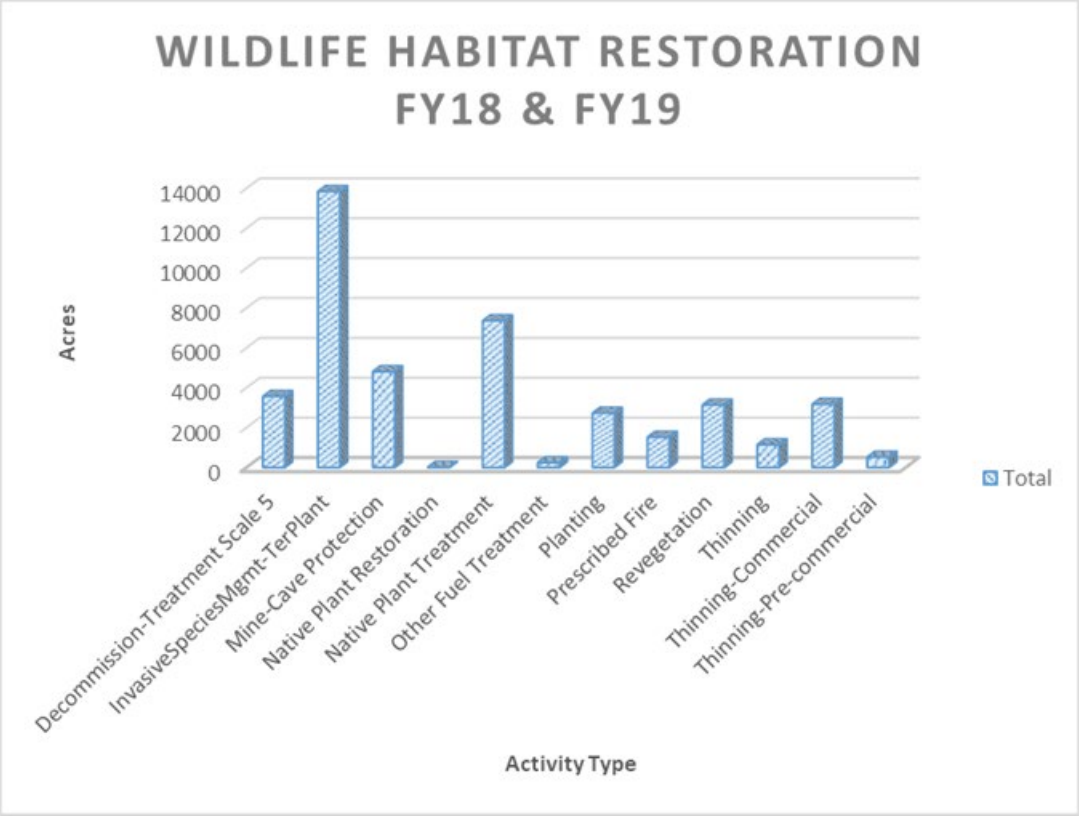
Data Source

Natural Resource Manager (NRM) Watershed Improvement Tracking (WIT) Database

Results

In FY 18 and FY 19 there were **42,050 acres** of terrestrial habitat restored on the Forest using a variety of treatment types (Figure 11). Half of all restoration work during the reporting period was comprised of noxious weed treatments (21,204 ac). Noxious weed treatments are comprised of invasive species management and native plant treatment. Activity types included in the noxious weed treatment total are invasive species management and native plant treatment. In FY 16 (20,338 ac) and FY 17 (11,529 ac) there was a total of 31,867 acres of terrestrial habitat restored.

Figure 11. Total acres restored or enhanced terrestrial habitat.



Monitoring Question #6

Are special forest product gathering activities resulting in resource depletion (e.g., overharvest of fungi, bear grass, berries)?

Findings

The Boise NF determined that this question may be answered in a future report. At this time, the Forest found no need for changing the Forest Plan or management activities; however, there may a need to be changes to the monitoring program based on the Forest's capacity to collect and extrapolate data to interpret results for this question.

Indicator

Number of collection permits and amount of product by species *(Not answered in 2020)*

Monitoring Question #7

Has winter recreation affected source environments in priority watersheds identified in the Forest Plan Source Environment Restoration Strategy?

Findings

The Boise NF found a need for changing management activities; however, the Boise NF found no need for changing the Forest Plan or the monitoring program.

Indicator

Level of winter recreation use in priority watersheds identified in the Source Environment Restoration Strategy

Data Sources

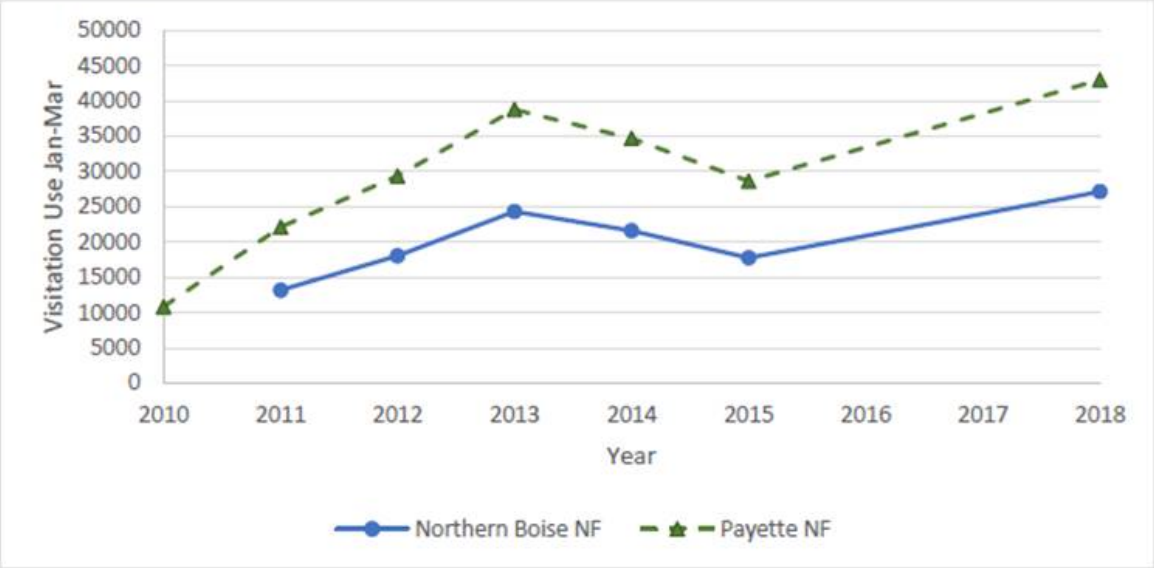
- Final Report from Round River Conservation Studies to Idaho Department of Fish and Game: *Heinemeyer, K, J. O'Keefe, D. Evans Mack. 2019a. Use of aerial surveys to monitor backcountry winter recreation and predict associated wolverine habitat use. Report to Idaho Department of Fish and Game. Round River Conservation Studies. 20p.*;
- Record of Decision for the Boise National Forest Land and Resource Management Plan as amended (2010);
- Boise National Forest Source Environment Restoration Strategy Map (2010 Forest Plan Alternative B – 2010 Selected Alternative, Map 3).
- Boise NF corporate GIS Data sets

Results

Backcountry winter recreation is increasing in the northern portion of the Forest and this trend is expected to be representative of what is going on across the Forest as the population of Idaho continues to grow and winter recreation remains as popular as ever. Source priority watersheds were established in the Forest Plan in 2010 to focus on a need to consider human influence on the landscape and the effect that may have on habitat quality and use by wildlife species. The wolverine was the species used to define the priority watersheds. Research has demonstrated wolverines respond to increasing backcountry winter recreation with a commensurate increase in avoidance of that habitat. As the Forest documents increasing winter recreation in these Source Environment priority watersheds, and the indirect effects of this translates into an indirect loss of habitat for species of conservation concern like the wolverine, management will need to consider what actions, if any, should be taken to balance resource management.

Surveys of recreation visits in wolverine habitat show increasing winter recreation visitation in priority watersheds on the Boise National Forest over 8 years of monitoring (Figure 12). Data is collected in the same winter period (mid-January through the end of March) for each year monitored. Winter recreation visits at major trailheads were comprised of backcountry snowmobilers as well as skiing/snowboarding users. Data in Figure 12 are from monitoring at six priority watersheds on the Cascade Ranger District (Heinemeyer et al 2019a). It is expected the other priority watersheds on the Forest, are experiencing increasing winter recreation trends as well due to the growing human population in the state of Idaho, particularly, southwestern Idaho adjacent to the Boise National Forest, and due to the popularity of winter recreation sports in the state.

Figure 12. Total estimated visitation per year from remote trail use counters at monitored backcountry winter recreation access sites on the Boise and Payette National Forests from 2010-2018; gaps in monitoring are indicated by a lack of a point in the year of the gap (Heinemeyer et al 2019a)



Wolverines have been shown to respond to increasing levels of winter recreation with increasing avoidance of those areas (Heinemeyer et al 2019a). Females show a stronger avoidance response than males (Heinemeyer et al 2019a). It is likely resident wolverines in priority watersheds are modifying their behavior to avoid areas of high levels of winter use. This could cause them to underutilize areas of their habitat important for foraging, denning, or resting. If winter recreation is increasing across many or most priority watersheds on the Forest, this could have an effect beyond habitat loss for one or two individual wolverines and contribute to a larger effect on the Forest's distribution and perhaps persistence of wolverines over time. Increasing the number of priority watersheds being monitored in the future would be useful in understanding the magnitude and extent of what is going on.

Fire

Monitoring Question #8

In Wildlife Conservation Strategy (WCS) priority watersheds, is wildland fire and or management-ignited fire moving landscapes towards desired conditions for resiliency and fire condition class?

Findings

The Boise NF determined that this question may be answered in a future report. The previous biennial monitoring report, which answered this monitoring question, states this question is appropriate to answer on a five-year monitoring cycle.

Monitoring Question #9

Are high wildfire risk areas being identified within the Wildland Urban Interface (WUI) and are those acres being subsequently treated to reduce that risk?

Findings

The Boise NF found no need for changing the Forest Plan, management activities or the Forest Plan monitoring program.

Indicator

Acres of high wildfire risk within the Wildland Urban Interface (WUI) treated in a manner that reduces risk

Data Source

Natural Resource Manager (NRM) Forest Service Activities Tracking System (FACTS) Database

Results

Wildfire risk areas within the Wildland Urban Interface (WUI) were identified on the Boise NF and are being treated with hazardous fuels reduction treatments, such as prescribed burning, non-commercial thinning, yarding, mechanical piling, and hand piling. The Boise NF implemented planned WUI treatments for the following acres by fiscal year:

- Fiscal Year 2018: 8,421 acres
- Fiscal Year 2019: 4,718 acres

Aquatic Ecosystems

Monitoring Question #10

Do implemented activities maintain or restore water quality to fully support beneficial uses?

Findings

The Boise NF defers addressing this monitoring question to the 2022 Forest Monitoring Report.

Monitoring Question #11

Are management activities in riparian conservation areas (RCAs) designed to maintain or restore riparian functions and ecological processes?

Findings

The Boise NF found no need for changing the Forest Plan or management activities. The 2018 biannual report identified the need to change this monitoring question and its indicator. A focused review by Forest Fisheries and Watershed Program Managers determined that the monitoring question was still appropriate, but the indicator did not clearly align with the question. The indicator has been updated (below).

Indicator

Design-based preservation of RCA function and process as captured in the project record in three planning elements 1) IDT determination of RCA delineation process and within-RCA activities, 2) Stand-scale silvicultural prescriptions specific to PVG objectives, and 3) Burn Plan for prescribed fire activities as related to number one (above).

Data Source

NEPA decision documents, specialist reports and biological evaluations/assessments from fiscal years 2018 and 2019

Results

For projects in fiscal years 2018 and 2019, the Boise NF delineated RCA buffers per the Forest Plan and passed them through a Forest Plan consistency checklist to avoid impacts to riparian functions and ecological processes during project implementation. The Forest Plan consistency checklist integrates the Matrix of Pathways and Watershed Condition Indicators. Accordingly, vegetation management activities had limited ground disturbing activities in the outer margins of RCAs. The outcome was maintenance of riparian function and ecological process, and minimal change in either a positive or detrimental direction.

Monitoring Question #12

Have habitat restoration and conservation been prioritized in watersheds identified in the Forest Plan Aquatic Conservation Strategy (ACS) priority watersheds?

Findings

The Boise NF found no need for changing the Forest Plan, management activities or the Forest Plan monitoring program.

Indicator #1

Within ACS priority watersheds: Applicable Forest Plan Pathways and WCIs

Data Source

Watershed Improvement Tracking (WIT), National Environmental Policy Act (NEPA) decision documents for pertinent projects implemented in fiscal years 2018 and 2019, with crosswalk to Forest Plan ACS priority watersheds.

Results

Although the Aquatic Conservation Strategy (ACS) and Watershed and Aquatic Recovery Strategy (WARS) high priority subwatersheds are the highest priority for aquatic restoration, not all projects implemented or dollars spent in fiscal years 2018 and 2019 occurred in these subwatersheds.

Some projects are driven by other Forest Plan priorities or resource issues while other projects were implemented because the Forest Service must meet its multiple use obligations and respond to special use requests. Restoration projects may be driven by outside groups that have a specific interest in an issue or aquatic resource that falls outside of ACS priority subwatersheds. Even with these considerations, projects implemented in fiscal years 2018 and 2019 addressed some key forest wide or management area objectives in ACS or high priority WCF subwatersheds (Table 5).

Indicator #2

Within ACS priority watersheds: Certified accomplishments (core and integrated targets)

Data Source

Forest Service Watershed Improvement Tracking (WIT) database

Results

In fiscal years 2018 and 2019, the Boise NF implemented four (2018 - 3, 2019 - 1) actions in ACS priority watersheds, resulting in 13.96 (2018 - 12.89, 2019 - 1.06) stream miles restored or enhanced.

Additional actions outside ACS priority watersheds restored or enhanced a total of 130.56 (2018 – 96.05, 2019 - 34.51) miles of aquatic habitat.

Table 5. Projects with stream miles restored or enhanced (by fiscal year)

Fiscal Year 2018 Projects	Miles	Fiscal Year 2019 Projects	Miles
Elk Creek Reforestation	12.96	Elk Creek Reforestation	7.74
Rattle Snake Bridge Replacement	12.05	Pierce Creek Willow Planting	0.07
Pierce Creek Bridge Replacement	1.88	Barber Bridge Rehabilitation	0.13
312 Road Relocation*	**2.56**	Dollar Creek Road Obliteration	10.74
Mores Creek Bridge Replacement	53.05	Dollar Trail Rehabilitation	2.63
Mores Creek Bridge Replacement*	**9.86**	South Fork Salmon Rehabilitation	4.63
Dollar Creek Road Obliteration	2.77	Clear Creek Reforestation	7.51
Dollar Creek Slump	0.20	**Tributary to Deer Creek AOP***	**1.06**
Ice Hole Campground Restoration*	**0.47**		
Wapiti Creek Restoration	0.25		
Total	**96.05**	**Total**	**34.51**

* Within ACS Priority Watersheds

Monitoring Question #13

Are Forest management actions affecting the distribution, abundance and quality of habitat for TEPC aquatic species or focal species?

Findings

The Boise NF found no need for changing the Forest Plan, management activities, or the Forest Plan monitoring program. For future Forest Plan Monitoring, the Boise NF found it appropriate to continue to answer this monitoring question on a two-year monitoring cycle.

Background

The Boise NF selected bull trout as an aquatic focal species because bull trout are sensitive to habitat changes, dependent upon habitat conditions that are important to many aquatic organisms, relatively well understood by Forest biologists, and widely distributed throughout the Forest. In addition, bull trout populations are not influenced by stocking by Idaho Department of Fish and Game. For further background on the methodologies and assumptions used in answering this question, refer to the 2018 Biennial Monitoring Report (pp. 19-20).

Identified bull trout patches are categorized into four strata: (Strata 1 - Occupied) patches known to support a bull trout population (i.e., spawning and/or early rearing has been documented by the occurrence of bull trout <150mm) as indicated by past surveys (last 7 years); (Strata 2 - Suitable) patches that have been surveyed and baseline conditions likely will support a bull trout population, but bull trout have not been detected or patches where bull trout have been detected, but observation are older than 7 years; (Strata 3 - Unsuitable) patches that have been surveyed, baseline conditions (i.e., stream temperature, etc.) likely will not support a bull trout population, and bull

trout have not been detected (i.e. we assume these patches are unsuitable and unoccupied); and (Strata 4 - Unknown) patches that have not been surveyed.

Indicator

WCIs tracked for selected aquatic focal species:

- Presence/absence data;
- Acres/miles of occupied habitat;
- Number of strongholds; and
- Number of isolated populations.

Data Source

Annual/MIS monitoring, Aquatic Survey Database, and Environmental DNA

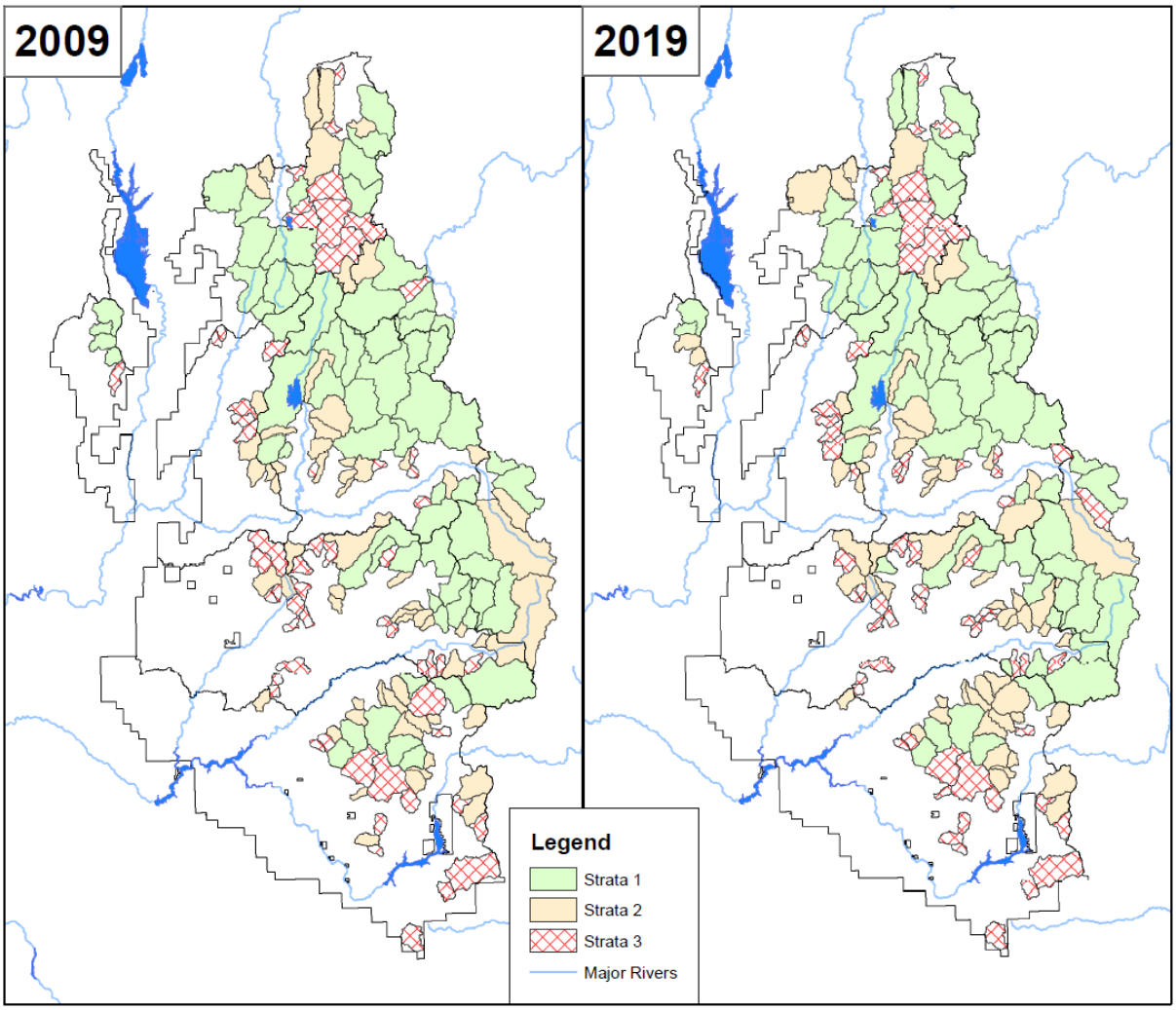
Results

There are 179 bull trout patches across the Boise National Forest. Some subbasins have as many as 45 bull trout patches and not all patches would be able to be monitored in a single year. It takes approximately seven years to complete one monitoring cycle.

The Boise NF started bull trout patch trend monitoring in 2003 and completed initial surveys for all strata 4 patches by 2009. Therefore, bull trout trend monitoring will make comparisons of strata 1 bull trout patches between this reporting period (ending with fiscal year 2019) and 2009 (the first year the Boise NF obtained baseline conditions for all 179 bull trout patches) See Figure 13.

Monitoring bull trout patches across the Boise NF since 2009 suggest occupied bull trout patches have decreased, 60 Strata 1 patches in 2009 compared to 57 strata 1 patches in 2019. Below is a summary and trend of subbasins (Hydrologic Unit Code, HUC-8) that experienced changes in the number of strata 1 patches. All subbasins are included in Table 6 below.

Figure 13. Bull trout patch occupancy from 2009 to 2019.



Boise River Basin

- **North and Middle Forks Boise subbasin (HUC-17050111):** Monitoring suggests that occupied bull trout patches decreased.

  There are numerous culvert barriers throughout the North and Middle Forks Boise subbasin. These barriers block bull trout from accessing the higher elevation quality habitat. Additionally, largescale wildfires burned a significant (76%) portion of the North and Middle Fork Boise subbasin at varying intensities. Post-fire debris flows were documented within several bull trout patches which likely influenced bull trout occurrence and reproduction. Bull trout populations will likely return to these patches as habitat and riparian conditions improve.

  Management actions implemented by the Boise NF that may influence bull trout population trends within the North and Middle Forks Boise subbasin include road and trail management, recreation (developed and dispersed), special uses, and range management. Additionally, the

Bureau of Reclamation manages Arrowrock Reservoir that may also have an influence on bull trout populations within the North and Middle Forks Boise Subbasin.

- **South Fork Boise subbasin (HUC-17050113):** Monitoring suggests that occupied bull trout patches decreased.

  Numerous culvert barriers throughout the subbasin block bull trout from accessing the higher elevation quality habitat. Additionally, largescale wildfires burned a significant portion of the subbasin at varying intensities. Post fire debris flows were documented within several bull trout patches which likely influenced bull trout occurrence and reproduction. Bull trout populations will likely return to these patches as habitat and riparian conditions improve.

Payette River Basin

- **South Fork Payette subbasin (HUC-17050120):** Monitoring suggests that occupied bull trout patches decreased.

  Largescale wildfires burned a significant portion of the subbasin at varying intensities. Post fire debris flows were documented within several bull trout patches which likely influenced bull trout occurrence and reproduction. Bull trout populations will likely return to these patches as habitat and riparian conditions improve.

- **Payette subbasin (HUC-17050122):** Monitoring suggests that occupied bull trout patches decreased. Management actions implemented by the Boise NF that may influence bull trout population trends within this subbasin include road and trail management, recreation (developed and dispersed), special uses, and range management.

  There were no large-scale wildfires within this subbasin. High road densities, dispersed recreation and cattle grazing may be influencing bull trout in the higher elevations where bull trout are known to occur. The District has taken steps to minimize impacts from recreational users by constructing buck and pole fences within bull trout patches. Additionally, the District and grazing allotment permittees have used temporary electric fences to manage cattle within the allotment.

Salmon River Basin

- **Upper Middle Fork Salmon subbasin (HUC-17060205):** Monitoring suggests that bull trout populations have increased.

  This subbasin experienced extensive wildfire since 2000. One difference with the Upper Middle Fork Salmon subbasin compared to the other subbasins across the forest is there is not a lot of topographic relief. The forest has not observed any significant debris flows associated with wildfire within this subbasin. Additionally, the Forest has implemented several habitat restoration actions and culvert replacements over the years.

- **South Fork Salmon subbasin (HUC-17060208):** Monitoring suggests that bull trout populations have increased.

  This subbasin experienced several wildfires since 2000. There have been a few debris flows within fire scars however bull trout populations remained stable. The Forest in partnership

with the Nez Perce Tribe has implemented several habitat restoration actions, road decommissioning and culvert replacements over the years.

Table 6. Bull trout patch trends summarized by subbasin

Basin / Subbasin	**2009**[1]			**2019**			**Trend**
Boise Basin	Strata 1	Strata 2	Strata 3	Strata 1	Strata 2	Strata 3	
Boise Mores	1	4	9	1	5	8	ø
South Fork Boise	4	11	12	3	11	13	-
North Middle Fork Boise	13	18	14	12	18	15	-
Payette Basin	Strata 1	Strata 2	Strata 3	Strata 1	Strata 2	Strata 3	
Payette	4	0	1	2	2	1	-
South Fork Payette	15	20	5	13	18	9	-
Middle Fork Payette	3	3	6	3	2	7	ø
North Fork Payette	1	0	0	1	0	0	ø
Salmon Basin	Strata 1	Strata 2	Strata 3	Strata 1	Strata 2	Strata 3	
South Fork Salmon	10	5	9	12	3	9	+
Middle Fork Salmon	9	1	1	10	1	0	+

[1] Bull trout patch monitoring started in 2003, however 2009 was the first year all strata 4 patches (patches that have not been surveyed) had initial surveys conducted.

ø = No Trend

\+ = Positive Trend

\- = Negative Trend

Monitoring Question #14

Is water quality in priority watersheds being maintained or restored to fully support beneficial uses and native and desired non-native fish species and their habitats?

Findings

The Boise NF found no need for changing the Forest Plan, management activities or the Forest Plan monitoring program.

Indicator

Miles of stream habitat improved

Data Source

State data, including BURP data, PIBO data collection, WIT

Results

The Boise NF compared the 2014 Integrated Report to the 2016 Integrated Report to determine if there were changes in water quality data on the Forest. There were two ACS priority subwatersheds that had streams not supporting beneficial uses (Table 7). Water quality monitoring by IDEQ found most subbasins and ACS priority subwatersheds monitored are being maintained to fully support beneficial uses and native/desired non-native fish species and their habitats.

Table 7. Subbasins and ACS Priority subwatersheds with stream NOT supporting beneficial uses within BNF

Basin/Subbasin/**Subwatershed**	**2014** (miles of streams)	**2016** (miles of streams)	**Water Quality Trend**
Boise Basin			
Boise Mores subbasin	378.8	387.8	ø
ACS Upper Mores Creek 6th HU	**36.1**	**36.1**	ø
Lower Boise subbasin	11.9	11.9	ø
South Fork Boise subbasin	110.5	110.5	ø
North Middle Fork Boise subbasin	5.0	13.2	-
ACS Roaring River 6th HU		**8.3**	-
Payette Basin			
Payette subbasin	0	9.7	-
South Fork Payette subbasin	121.5	121.5	ø
Middle Fork Payette subbasin	22.8	168.4	-
ACS Upper MF Payette 6th HU	**0.0**	**27.6**	-
North Fork Payette	84.1	84.1	ø
Salmon Basin			
South Fork Salmon subbasin	250.6	250.6	ø
ACS Wardenhoff-Bear 6th HU	**13.1**	**13.1**	ø
Middle Fork Salmon subbasin	48.8	48.8	ø
ACS Upper Bear Valley 6th HU	**28.9**	**28.9**	ø
ACS Upper Elk 6th HU	**1.1**	**1.1**	ø

ø = No Trend
- = Negative Trend

Productivity of the Land

Soils

Monitoring Question #15

Is the Forest maintaining or restoring soil quality?

Findings

The Boise NF defers addressing this monitoring question to the 2022 Forest Monitoring Report.

Invasive Species

Monitoring Question #16

Are Forest invasive species management activities effectively controlling or eradicating targeted populations of noxious weeds and preventing new invader species from becoming established?

Findings

The Boise NF found no need for changing the Forest Plan, Management Activities, or the Forest Plan monitoring program.

Indicator #1

Acres treated of current infestations

Indicator #2

Acres treated of new infestations

Indicator #3

Acres treated of new invader species to the Forest

Figure 14. Whitetop or hoary cress (*Cardaria draba*), an Idaho Noxious weed known to occur on the Boise National Forest

Data Source for All Indicators

Natural Resource Manager (NRM), Forest Service ACtivities Tracking System (FACTS) and Threatened, Endangered and Sensitive Plants – Invasive Species (TESP-IS) Databases

The data used to respond to this question was generated from the NRM FACTS database and Boise NF Corporate GIS data sets. Annually, field personnel record site information and log in GPS points at each noxious weed treatment site. This data is entered into the official Forest Service database, NRM TESP-IS, with the spatial data being entered into Boise NF Corporate GIS data sets. This database tracks locations, acres treated, as well as target noxious weed species. The data for this report was drawn from these field level entries from NRM and Boise NF GIS data sets.

Results for All Indicators

When comparing acres of weed infestations treated from year to year, it is generally noted that if sites are retreated, the amount of herbicide used on the site becomes less over time for a given site – meaning the weed infestation is contained, controlled, and/or eradicated at that site. Retreatments occur at a site because the seed source that exists in the soil continues to germinate each year. Some sites do not require retreatment the following year but may require retreatments 2 or 3 years in the future. Acres of weed infestations treated each year will fluctuate due to environmental conditions that influence seed germination, wildfire disturbances, drought and other management activities or priorities.

Table 8. Infestation Treatment Acres

Year	Column 1: Acres treated of known infestations in management areas identified for eradication or control	Column 2: Acres treated of new invader species to the Forest	Column 3: Acres treated of new infestations
	This is the acreage sum from FACTS 'Acres of Invasive Treatments Accomplished' that were treated in 2018 and 2019	This is the acreage sum from FACTS and GIS for SUIDs* with new invader species identified in 2018 and 2019	This is the acreage sum from FACTS and GIS for treatment areas (SUIDs) that were newly created in 2018 and 2019
2018	9,106	0	2,799
2019	5,310	0	2,062

*SUID : SubUnit ID is a unique identification code assigned to each individual treatment activity area in FACTS.

The acres identified above in *Column 1* are less than previous years mainly because in previous years the Forest was treating many sites that experienced wildfires. It is common for treated acres to increase following wildfire disturbances, then decline 4-5 years following wildfire, once native vegetation re-establishes on the site.

Human Uses & Designations

Facilities

Monitoring Question #17

Is the transportation system providing recreational opportunities and safe and efficient public and agency access, and are they environmentally compatible?

Findings

The Boise NF found no need for changing the Forest Plan, management activities, or the Forest Plan monitoring program.

Indicator #4 (National Visitor Use Monitoring [NVUM] Survey) will be reported on a five-year monitoring cycle with results and findings reported in the monitoring report the year after the Boise NF receives the NVUM data. The NVUM Survey was completed in Fiscal Year 2019. The Boise NF will evaluate the results once received.

Maintenance of the transportation system is complex because it is partially accomplished through cooperation with other agencies (e.g. County and Highway districts), cost share cooperators (e.g. Idaho Department of Lands) and private landowners. In some cases, maintenance responsibilities are exchanged with other jurisdictions through maintenance agreements when such actions create efficiencies for both parties.

Figure 15. Entrance to the new Stack Rock Trailhead that was constructed in 2018 and 2019, Mountain Home Ranger District

The Forest's ability to maintain the road system depends on several factors, such as:

- Total miles of open roads;
- Allocated funding for road maintenance;
- Miles maintained through commercial activities, such as timber sale and stewardship contracts;
- Allocated funding for road improvement projects to support other resources;
- Road maintenance levels;
- Resource protection levels; and
- Recreation traffic levels.

Road maintenance budgets fluctuate year to year but have generally declined over the years. As timber sales have declined from the peak levels (from 1970s to 1990s), commercial user contributions to road maintenance have also declined.

However, traffic volumes on the Forest road system have steadily increased, which has increased the need for traffic-induced seasonal blading and long-term surface aggregate replacement. Local population growth has increased the burden on the Forest road system, while budgetary constraints have concentrated maintenance priorities on roads with the highest use and closer to urban areas.

A Forest Road Maintenance Plan is developed each year after meeting with District personnel to determine priorities. Generally, roads subject to the Highway Safety Act (maintained for passenger car vehicles) are given a higher priority. Critical health and safety work items are also assigned a higher priority than critical resource protection work items. The Maintenance Plan is subject to change as field conditions are continually being monitored by Forest staff.

Figure 16. Entrance to Grayback Gulch designated recreation area where the bridge was replaced in 2018, Idaho City Ranger District

Indicator #1

Miles of roads maintained by maintenance level

Data Source

Forest Service Infrastructure (NRM-INFRA) Roads Database Road Maintenance Plan and Accomplishments

Results

Roads under the jurisdiction of the Boise NF are classified according to Operational Maintenance Levels (ML). Nationally, the Forest Service defines five Operational Maintenance Levels: 1, 2, 3, 4, and 5. ML 1 roads are closed to motor vehicle use. ML 2 roads are maintained for high-clearance vehicles. ML 3, 4 and 5 roads are maintained for passage by standard passenger cars during the normal season of use.

Table 9. Total Miles of Roads by Operational Maintenance Level (ML) under the Jurisdiction of the Boise NF

ML5	ML4	ML3	ML2	MIL1[x]
0	14	503	2,597	1,556

[X] ML1 roads are closed to motorized traffic and in a state of storage. Road maintenance level 1 is defined in the FSH 7709.59, sec. 62.32 as: "These are roads that have been placed in storage between intermittent uses. The period of storage must exceed 1 year. Basic custodial maintenance is performed to prevent damage to adjacent resources and to perpetuate the road for future resource management needs. Emphasis is normally given to maintaining drainage facilities and runoff patterns. Planned road deterioration may occur at this level."

Table 10. Accomplishments by Road Maintenance Level (ML) (in miles)

Fiscal Year (FY)	ML5	ML4	ML3	ML2	ML1
2018	0	7.4	277	446	27.9
2019	0	7.5	374	478	6.9

Indicator #2

Miles of road decommissioned

Data Source

Forest Service Watershed Improvement Tracking database

Background

The Forest Service continually evaluates the road system needed to achieve the desired conditions in the Forest's 2010 Land and Resource Management Plan: promote ecosystem health; address public safety and efficiency of operations in an environmentally sensitive manner within current and anticipated funding levels; and provide for a safe and cost-effective transportation system that provides access for the use and enjoyment of NFS lands. Roads not likely needed for future use are decommissioned or converted to other uses through project level NEPA decisions. Unauthorized and/or abandoned roads are also decommissioned (if warranted).

Results

For fiscal years 2018 and 2019, the Boise NF reported accomplished road decommissioning for:

- Fiscal Year 2018: 12.8 miles of non-system roads; and
- Fiscal Year 2019: 10.74 miles of non-system roads.

Indicator #3

Miles of trail maintained

Figure 17. Day hiking within the Trinity Mountain area located on the Mountain Home Ranger District

Data Source

Forest Service Infrastructure (INFRA) Trails Database

Results

There are 2,009 miles of National Forest System trails on the Forest. In Fiscal Year 2018, 872 miles were maintained and 40% met agency standards. In 2019, 818 miles were maintained and 41% met agency standards. According to the Government Accountability Office, the Forest Service nationally is only able to maintain about 25% of National Forest System Trails to agency standards.

Indicator #4

National Visitor Use Monitoring Survey Percent Satisfaction Index for facilities, road conditions, trail conditions, and services provided

Background

The Boise National Forest completed the National Visitor Use Monitoring Survey in Fiscal Year 2019. Survey results are in the process of synthesis and are not yet available for the Forest to use. Information on this indicator will be assessed in the Forest Plan monitoring report once results are made available.

Monitoring Question #18

Do potable water systems meet federal, State, and local requirements?

Findings

The Boise NF found no need for changing the Forest Plan, management activities, or the Forest Plan monitoring program.

Indicator

Water quality monitoring results and condition surveys

Data Source

Infrastructure (INFRA) Water Systems Database and Water Sampling Module

Results

All the water systems in operation during fiscal years 2018 and 2019 were sampled per all applicable requirements. Occasionally water systems are closed for extended periods due to active fire and fire restoration activities for public safety. Sanitary surveys are performed once every 5 years on every system.

For systems with initial positive coliform samples, the Boise NF addressed potential sanitary concerns and repeat coliform samples came back negative.

Table 11. Water System Samples and Surveys by Fiscal Year

Fiscal Year	Systems Open	Total Coliform Samples	Positive Coliform Samples	Repeat Coliform Samples	Nirtite Samples	Nitrate Samples	Sanitary Surveys Conducted
2018	79	492	19	19	5	36	6
2019	79	352	15	15	1	53	0

Figure 18. Hand pump at the Trinity East Campground located on the Mountain Home Ranger District

Recreation

Monitoring Question #19

Are recreation activity levels changing, and are shifts occurring between types of activities and locations of recreational use?

Findings

The Boise NF found no need for changing the Forest Plan, management activities or the Forest Plan monitoring program.

Indicator #1

Project-specific changes to the Recreation Opportunity Spectrum (ROS)

Data Source

NEPA decision documents for pertinent projects implemented in fiscal years 2018 and 2019

Results

No project-specific changes occurred to the Recreation Opportunity Spectrum (ROS) in fiscal years 2018 or 2019.

Indicator #2

National Visitor Use Monitoring results by activity

Background

The Boise National Forest completed the NVUM Survey in Fiscal Year 2019. Survey results are in the process of synthesis and are not yet available for the Forest to use. Information on this indicator will be assessed in the Forest Plan monitoring report once results are made available.

Economic, Cultural & Social Environment

Social & Economic

Monitoring Question #20

Is the Forest meeting the expected outcomes as by-products of restoration?

Findings

The Boise NF found no need for changing the Forest Plan, management activities or the Forest Plan monitoring program.

Indicator #1

Amount of commercial and non- commercial wood products provided Allowable Sale Quantity (ASQ) and Total Sale Program Quantity (TSPQ)

Data Source

Timber Information Manager (TIM) applications databases

Results

Results are found below in Table 11.

Table 12. Amount of Commercial/Non-Commercial by Wood Product and Fiscal Year

Commercial/Non-Commercial Wood Product	Unit of Measure *	Fiscal Year 2018 Quantity	Fiscal Year 2019 Quantity
Sawtimber	MMBF	17.8	5.8
Commercial Fuelwood	MMBF	0..7	0..6
Non-Commercial Fuelwood	MMBF	6.7	7.0

*MMBF = million board feet

Indicator #2

The number of a suite of contracting tools and agreements utilized to allow for implementation of restoration activities.

Data Source

Internal Forest Service Contracting records

Results

In fiscal years 2018 and 2019, the Boise NF employed traditional timber sale contracting, Good Neighbor Authority (GNA) agreements, and stewardship contracts to implement management

activities that offer economic development and local community opportunities while maintaining and restoring the ecological integrity of the forests.

Table 13. Number of Implementation Tools Employed for Economic Development and Ecological Restoration

Contract Type	Fiscal Year 2018 Quantity	Fiscal Year 2019 Quantity
Commercial Timber Sale	27	13
Good Neighbor Authority (GNA)	0	2
Stewardship	0	0

In fiscal year 2019, the Boise NF offered one (1) stewardship contract but was unable to award this stewardship contract due to lack of interest from potential purchasers.

Indicator #3

Acres treated that contribute to achievement of desired restoration conditions

Data Source

Natural Resource Manager (NRM), Forest Service ACtivities Tracking System (FACTS) Database

Results

In Fiscal Years 2018 and 2019, the BNF reported **50,754 acres** of restoration related treatments as **completed**. Completed acres are reported when work is finished on the ground, or for reforestation, when stands are certified as successfully stocked (typically within 5 years of planting).

During this same period, the BNF reported **45,998 acres** of restoration related treatments as **accomplished**. Accomplished acres are reported when contracts are awarded, but before work has been completed on the ground. If work is not done with a service contract, agreement, or timber sale (e.g. using workforce for prescribed burning), then it is reported as accomplished and completed in the same year. For reforestation, acres are reported as accomplished when the contract is awarded/trees are planted (occurs in same year), not when stands are reported as successfully stocked (certified-planted) – this helps avoid duplication in reporting.

Salvage harvesting was not included as a restoration action, nor was wildfire, even if portions of the fire resulted in resource benefits. Natural ignition wildfire acres reported in FACTS for FY18 and FY19 totaled 27,848 acres.

Monitoring Question #21

Are current allotment management strategies effective in meeting or moving toward desired vegetation, ground cover, and soil stability conditions for non-forested vegetation types?

Findings

The Boise NF found no need for changing the Forest Plan, Management Activities, or the Forest Plan monitoring program.

For future Forest Plan Monitoring, the Boise NF found it appropriate to continue to report the results for this monitoring question's Indicator #1 on a two-year monitoring cycle. For future Forest Plan Monitoring, the Boise NF found it appropriate to report the results for this monitoring question's Indicator #2 (long-term Allotment Trend monitoring) on a two-year monitoring cycle with results and findings reported in the monitoring report the year after the Boise NF receives the monitoring data.

Indicator #1

Number of grazing authorizations provided annually and over a 10-year period

Data Source

Forest Service Infrastructure (INFRA) database and a data response from each Ranger District

In order to identify the number of grazing authorizations provided annually and over a 10-year period, the Annual Grazing Statistical Forest/Grassland report was generated from INFRA. From the Statistical Report, the Total National Forest System (NFS) Authorized Head Months (HMs) was used to compare each year, instead of number of grazing authorizations, which usually remain fairly constant.

Results

The fluctuation seen in the Authorized HMs is usually due to annual variations in climate, resulting in drought conditions or excess forage availability, as well as wildfire followed by non-use for resource protection. Often Authorized HMs may fluctuate due to permittees requesting non-use for personal convenience due to livestock market variability.

The decline in HMs between 2013 and 2017 is due primarily to the catastrophic wildfires that have occurred across the Boise National Forest.

Table 14. Total NFS Authorized HMs by Year

	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Total NFS Authorized HMs	68,053	70,729	57,746	59,625	65,119	58,173	65,262	69,906	72,031	74,110

Indicator #2

Percentage of upland and riparian sites monitored that have a long-term trend at meeting or moving toward meeting desired future conditions

Data Source

Forest Service Infrastructure (INFRA) database and a data response from each Ranger District

Results

In 2018 and 2019 eight of the eleven Nested Frequency Sites that were re-examined showed either a static or upward trend. One new site was established on the Rattlesnake Allotment, which has no trend data available yet. Six photo points were re-examined in 2018 on the Boise Basin S&G Allotment which also showed an upward trend in vegetative cover.

While Ranger District staff monitor and collect livestock use data annually on grazing allotments, trend data is not generally collected every year. Trend is a long-term measurement that is monitored and compared over a long period of time. Allotment trend sites are usually monitored once in a 10-year period; however, it is not uncommon for measurements to be collected more often (3-5 years), or less often (15-20 years). Therefore, there may be Forest Plan reporting periods where no trend sites were monitored, or periods where several sites were monitored. The trend numbers generated for each Forest Plan reporting period are unique to that reporting period and cannot be compared over time. Trend monitoring may include nested frequency, Multiple Indicator Measurements (MIM), soil cover, photo points, etc.

Monitoring Question #22

What is the visitor satisfaction on National Forest System (NFS) lands?

Findings

The Boise NF determined that this question may be answered in a future report.

Indicator

National Visitor Use Monitoring (NVUM) visitor satisfaction

Background

The Boise National Forest completed the National Visitor Use Monitoring Survey in Fiscal Year 2019. Survey results are in the process of synthesis and are not yet available for the Forest to use. Information on this indicator will be assessed in the Forest Plan monitoring report once results are made available.

Tribal Interests & Rights

Monitoring Question #23

Are tribal interest and rights identified through consultation being addressed?

Findings

The Boise NF found no need for changing the Forest Plan, management activities or the Forest Plan monitoring program.

Indicator #1

Challenges to addressing tribal interests and rights identified are reviewed with tribal representatives through the agreed upon consultation forum to determine opportunities to improve consultation processes to better achieve desired outcomes.

Data Source

Tribal Consultation Protocols, Tribal Letters and Government-to-Government Meetings

Results

The Forest has consultation protocols with the three Tribes that have expressed interests and rights on the Boise NF: the Shoshone-Paiute, Shoshone-Bannock, and Nez Perce Tribes. Fifteen (15) informal and formal government-to-government consultation meetings were conducted with two tribal governments during fiscal years 2018 and 2019. During these meetings information was presented on seventy-one (71) projects. Items of tribal interest and rights were identified and discussed at these meetings and tribal comments were taken into consideration during the decision-making process. Additionally, project information was sent to two tribal governments, per Forest tribal consultation protocols, on thirty-eight (38) projects during the reporting period.

Cultural Resources

Monitoring Question #24

Are cultural resources and historic properties being managed to standard?

Findings

The Boise NF found no need for changing the Forest Plan, management activities or the Forest Plan monitoring program.

Background

The purpose of the Heritage Program is to find, protect, and manage the most valuable cultural and historic properties under our care. FSM 2360 – Heritage Program Management, provides direction for achieving this through planning and collaboration with stakeholders, finding and protecting the most important resources, and providing opportunities for the public to learn about the prehistory and history evident on NFS lands. There are seven performance indicators used to monitor annual accomplishments for managing these properties, as described below.

Indicator #1

Presence of a Heritage Program Plan (A comprehensive plan that consists of a cultural resource overview, predictive model, monitoring plan, Native American Graves Protection and Repatriation Act (NAGPRA) protocol, looting and vandalism protocol, and emergency response protocol)

Data Source

Natural Resource Manager (NRM) Heritage Database

Results

The Boise NF maintains two of the seven elements of a comprehensive plan: the cultural resources overview and site predictive model.

Indicator #2

Inventory of National Forest System (NFS) Lands (Survey of NFS lands for cultural resources)

Data Source

NRM Heritage Database

Results

In 2018 and 2019, the Boise NF completed NHPA Section 110 inventories on 3,536 and 1,918 acres, respectively, of National Forest System (NFS) lands on the Idaho City Ranger District. These inventories focused on documenting the cultural landscape created by historical placer and dredge mining in Boise Basin.

Indicator #3

National Register of Historic Places (NRHP) evaluations (Cultural resources [i.e. unevaluated sites] are evaluated for NRHP eligibility)

Data Source

NRM Heritage Database

Results

The Boise NF has documented over 2,000 sites since 1976. The majority have not been evaluated for their National Register of Historic Places (NRHP) eligibility, which is important for managing these sites. In 2018, the Boise NF consulted with the Idaho State Historic Preservation Office (SHPO) on the NRHP eligibility of two sites, which were determined to be eligible for the NRHP. In 2019, The Boise NF consulted with SHPO on two sites, which were determined not eligible for the NRHP.

Indicator #4

Priority Heritage Assets (PHA) Condition Assessments (Historic properties of distinct public value are PHAs and have current condition assessments less than five years old)

Data Source

NRM Heritage Database

Results

No condition assessments on PHAs were completed in 2018. In 2019, condition assessments were completed for six PHAs. Eight more PHAs, all archeological collections, have been added to the PHA list since the Boise NF completed the last biennial report.

Indicator #5

Cultural Resource Stewardship (Activities that physically protect historic properties)

Data Source

NRM Heritage Database

Results

There were no stewardship projects in 2018. In 2019, preservation maintenance (new wood shingle roofs) was completed on Danskin Peak Lookout and Trinity Mountain Lookout.

Indicator #6

Opportunities for Study and/or Public Use (Conservation education and the scientific study and/or interpretation of historic properties)

Data Source

NRM Heritage Database

Results

In 2018, Heritage Program staff engaged in ten public outreach events. Staff participates annually in the Basin School District's Idaho Center for Outdoor Education (ICOE), whose mission is to engage children in Idaho City schools in educational exercises in a natural environment. Other events included two tours of the Pon Yam Store (a Chinese merchant's shop) in Idaho City, and participation in Idaho Public Television's Idaho Experience program premiere of "Forgotten Neighbors, Idaho's Chinese Immigrants." For this event, staff created a new exhibit in the Pon Yam Store highlighting the evidence for Chinese foodways found during archeological excavations in the building. Other public outreach events consisted of a presentation to the Mountain West Outdoor Club on hiking opportunities to historic lookouts on the Boise NF, one presentation and two posters at the Idaho Archeological Society Conference, and one poster presentation at the Northwest Anthropological Conference, held in Boise Idaho.

The Boise NF has a challenge cost share agreement with the University of Idaho (UI) to analyze, prepare for permanent curation, and report out on the results of archeological excavations on the Forest. This agreement is instrumental for reducing the backlog of archeological collections requiring treatment pursuant to federal regulations for the care of these collections. The agreement also provides work experience and professional opportunities for students pursuing degrees and careers in historic preservation. Three UI students made professional contributions (presentations and poster sessions) regarding their work on Boise NF collections to the Northwest Anthropological Conference.

In 2019, Heritage Program staff engaged in eight public outreach events. In addition to participation in ICOE and one tour of the Pon Yam Store, staff focused on three projects involving Forest Service retirees who spent time on the Boise NF and a longtime resident of Boise Basin with knowledge of dredge mining in the area. Staff also worked with a Boise State University student and the Idaho City Historical Foundation to develop interpretive products for the Boise Basin Museum. Other public outreach events consisted of a presentation on the archeology of Long Valley, Idaho to the Selway Bitterroot Frank Church Foundation at the McCall Public Library, and a presentation to the Boise Exchange Club on the history of the Boise Ridge Road.

Indicator #7

Volunteer Hours (Volunteer participation on historic preservation projects)

Data Source

NRM Heritage Database

Results

In 2018, Student volunteers from Boise State University and the University of Idaho contributed 635 hours to historic preservation projects on the Boise NF. Students worked on archeological collections and interpretive exhibits associated with the legacy of Chinese immigrants in Boise Basin.

In 2019, volunteers contributed 413 hours to historic preservation projects on the Boise NF. These projects included the oral history contributions of FS retirees, the contributions of a BSU student working on an exhibit, and the contributions of a professional archeologist to cultural resources surveys on the Cascade and Emmett Ranger Districts.

Conclusion

Table 15 summarizes the findings for each question and indicator, as well as the anticipated frequency of answering the question and/or indicator.

Table 15. Summary of monitoring evaluation findings for all monitoring questions

Monitoring Question/Indicator	Summary of Findings	Anticipated Frequency of Answering
Question 1	No need for change	Every 10 years, or following large scale uncharacteristic disturbance events exceeding 250,000 acres
Question 2	No need for change	Every 2 years
Question 3	May need to change management activities	Every 2 years

Monitoring Question/Indicator	Summary of Findings	Anticipated Frequency of Answering
Question 4	No need for change	To be determined
Question 5	No need for change	To be determined
Question 6	May be addressed in 2022; may need to change monitoring program	To be determined
Question 7	May need to change management activities	To be determined
Question 8	May be addressed in 2022	Every 5 years
Question 9	No need for change	Every 2 years
Question 10	May be addressed in 2022	Every 4 years
Question 11	No need for change	To be determined
Question 12, Indicators	No need for change	Every 2 years
Question 13	No need for change	Every 2 years
Question 14	No need for change	Every 6 years, though it may be answered more frequently
Question 15, Indicators	May be addressed in 2022	Every 2 years
Question 16, Indicators 1-3	No need for change	Every 2 years
Question 17, Indicators 1-3	No need for change	Every 2 years
Question 17, Indicator 4	No need for change	Every 5 years
Question 18	No need for change	Every 2 years
Question 19, Indicators 1 & 2	No need for change	Every 5 years, following National Visitor Use Monitoring report
Question 20	No need for change	Every 2 years
Question 21, Indicators 1 & 2	No need for change	Every 2 years; Indicator #2 answered in the monitoring report following receipt of long-term Allotment Trend reporting
Question 22	May be addressed in 2022	Every 5 years, following National Visitor Use Monitoring report
Question 23	No need for change	Every 2 years
Question 24, Indicators 1-7	No need for change	Every 2 years

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