United States Department of Agriculture

Biennial Monitoring Evaluation Report

Boise National Forest

Fiscal Years 2022-2023

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Cover photo: Anderson Dam Road looking towards barrow pits at sage brush recovery.
Photo by Scott Bodle

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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
FSDMP – Forest Soil Disturbance Monitoring Protocol
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
HUC – Hydrologic Unit Code
IDEQ – Idaho Department of Environmental Quality
IDPR – Idaho Department of Parks & Recreation
IDT – Interdisciplinary Team
IHMA – Important Habitat Management Area
IMBCR – Integrated Monitoring in Bird Conservation Regions
INFRA – Infrastructure Database
ISRC – Integrated Resource Stewardship Contracts
HM – head months
MIM - Multiple Indicator Method
MIS – Management Indicator Species
ML – Maintenance Level
MMBF – Millions of board feet (timber)
NAGPRA – Native American Graves Protection and Repatriation Act
NEPA – National Environmental Policy Act
NFS – National Forest System
NRHP – National Register of Historic Places
NRIS – National Resource Inventory System
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
PVG - Potential Vegetation Group
RCA – Riparian Conservation Area
RD – Ranger District
RO – Regional Office
ROD – Record of Decision
ROS – Recreation Opportunity Spectrum
SHPO –State Historic Preservation Office
SOCC - Species of Conservation Concern
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
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 National Forest) 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 National Forest, Forest Plan was amended in 2010 to incorporate a 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) 2022-2023 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

For this report the Boise National Forest made changes 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.

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 National Forest found no need for changing the Forest Plan or management activities. However, the Forest identified a need to change to the monitoring program based on the Forest's capacity to collect and extrapolate data to interpret results for Indicator 1 of this question.

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

Vegetation Classification Mapping and Quantitative Inventory. (VCMQ), Forest Service Activities Tracking System (FACTS)

Results

This indicator was addressed in the FY18-FY19 report. It was noted that for future Forest Plan Monitoring, the Boise National Forest 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. Response to this question is being deferred until the Forest is able to collect necessary data and update changed conditions given the recent wildfires.

Indicator #2

Project acres meeting or contributing to the desired condition for snags, CWD and live vegetation.

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 overlapping treatment activities are often required to develop functioning desired conditions for snags, CWD, and live vegetation.

From 2022 through 2023, 51,437 acres of treatment activities contributing to the desired condition for snags, CWD, and live vegetation 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, 61,892 acres of treatment activities contributing to the desired condition for snags, CWD and live vegetation 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, riparian exclosure fences, pollinator habitat improvement, 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. Surveys, signage, public information, and other activities that do not directly contribute to improving snag, CWD and live 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 2022 through 2023, the Boise National Forest reported 5,797 acres of planned treatment areas burned in wildfire as a benefit on the forest.

During the period of fiscal years 2022-2023, four environmental analyses (NEPA decisions) were completed that authorized treatments that will contribute to improving snag, CWD, and live vegetation conditions: Trinity Fire Restoration (Mountain Home), Clear Creek Forest Health (Mountain Home), Skunk Creek (Cascade), and Upper South Fork Payette River Community Protection Project (Lowman).

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 National Forest found no need for changing the Forest Plan, management activities, or the monitoring program.

Indicator

Number of acres restored in PHMA, IHMA and GHMA

Data Source

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

Results

During the reporting period previous treatments to restore sage grouse habitat within the Pony Complex fire scar returned to standards that can support nesting habitat. Restoration activities occurring between 2014-2017 have grown back to sage brush stands of sufficient height and density to support nesting. Approximately 1600 acres primarily associated with the Dixie and Cat Creek leks was restored.

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. See Table 1 for number of acres of noxious weeds treated 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).

Table 1. Acres treated for noxious weeds in PHMA, IHMA, and GHMA

Year	Acres Treated
2020	5797.5
2021	2646.6
2022	1979.7
2023	1689.6

Figure 1. Picture of the Pony Fire October 2013. View of Dixie Creek from just east of 134C road. Volunteer planters from IDFG are planting bitterbrush and sage brush. Area is associated with the Dixie sage grouse lek.

Figure 2. Sagebrush recovery looking southwest from Anderson Dam Road.

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 National Forest found no need for changing the Forest Plan, management activities, or the monitoring program. Due to the staffing impacts from the 2024 fire occurrences on the Boise National Forest the Boise National Forest defers addressing this monitoring question to the 2026 Forest Monitoring Report.

Indicator #1

Acres of TEPCS habitat maintained or restored

Indicator #2

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

Data Source for both indicators

NRM and WIT.

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 National Forest found no need for changing the Forest Plan, management activities, or the monitoring program. Due to the staffing impacts from the 2024 fire occurrences on the Boise National Forest the Forest defers addressing Indicator #2 of this monitoring question to the 2026 Forest Monitoring Report.

Indicator #1

Population trend data for focal species in potential habitat

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 Forest Service Region 4 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, 2021-2023 Annual Reports

Results

Vegetation management actions are changing forested community structure and composition through harvest, reforestation, thinning and prescribed burning which affects distribution, abundance and quality of habitats for focal species and Species of Conservation Concern. Interim focal species (pileated woodpecker, white-headed woodpecker, black-backed woodpecker) appear to have a stable to slightly increasing population trend during the years they were monitored up to 2018. Looking at post 2018

monitoring using the new protocol it appears populations are stable but additional years of monitoring are needed to see trend data.

Background: A focal species is an indicator of ecological conditions for diversity of plant and animal communities. Focal species are to be selected because they are considered sensitive to changing ecological conditions and occur in habitats where the Forest anticipates implementing the greatest proportion of projects during the planning period. Consequently, they represent the ecological conditions of habitats where potential risks to fish and wildlife habitat sustainability and species persistence are likely to be highest.

Per the 1982 National Forest Management Act implementing regulations, three wildlife species, the white-headed woodpecker, black-backed woodpecker, and pileated woodpecker, were identified as terrestrial wildlife Management Indicator Species (MIS) in the Forest Plan (USDA Forest Service 2010a). In 2016, these three species were carried over as focal species for the Boise National Forest as it transitioned the monitoring plan to comply with the 2012 Planning Rule (USDA Forest Service 2016). MIS are similar to focal species but not identical. Use of the pileated woodpecker, white-headed woodpecker, and black-backed woodpecker as focal species is intended to be temporary until such time that a collaborative effort with Idaho Department of Fish and Game to develop a systematic approach for identify and prioritizing a more robust set of focal species can be undertaken (Seesholtz 2016 - Forest Supervisor Letter of Acceptance, May 9, 2016). Table 2 provides a brief description of habitat and management concerns for each current terrestrial wildlife focal species.

Table 2. Interim focal species for the Boise National Forest.

Name	Source Habitat Description	Management Concerns
Pileated Woodpecker	PVGs 2, 3, 5, 6, 8, and 9 Ponderosa Pine, Douglas Fir, Grand Fir, Aspen Large and Very Large tree size (>20”dbh) Canopy cover > 45%	Loss of large-diameter trees, large-diameter snags, and large down logs.
White-headed Woodpecker	PVGs 1, 2, 3, 5 and 6 Ponderosa Pine, Aspen Large and Very Large tree size (>20”dbh) Canopy Cover < 45%	Loss of large diameter ponderosa pines in low-elevation habitats, large diameter snags, and open canopy conditions.
Black-backed Woodpecker	PVGs 3, 4, 6, 7, 8, 9 and 10 Lodgepole Pine, Englemann Spruce-Subalpine Fir; Mixed Conifer; also Burned Ponderosa Pine, Douglas-fir Medium, Large and Very Large tree size (>10”dbh) Canopy Cover > 45% Post-fire forested habitat < 5 years old and > 189 acres in size	Salvage harvest; suppression of ecological role of fire, suppression of ecological role of endemic forest insects (i.e. mountain pine beetle).

Survey protocol

From 2004 to 2018 the Forest followed an established survey protocol to monitor trend for white-headed woodpeckers and pileated woodpeckers, described in Nutt (2012). In 2010 when the Boise Forest Plan was amended, the black-backed woodpecker was added as a management indicator species. By 2013 a survey methodology to monitor trend in black-backed woodpeckers on the Forest was in place (Miller and Pollock 2013). From 2013 to 2018, two methodologies were implemented annually between mid-April and mid-July.

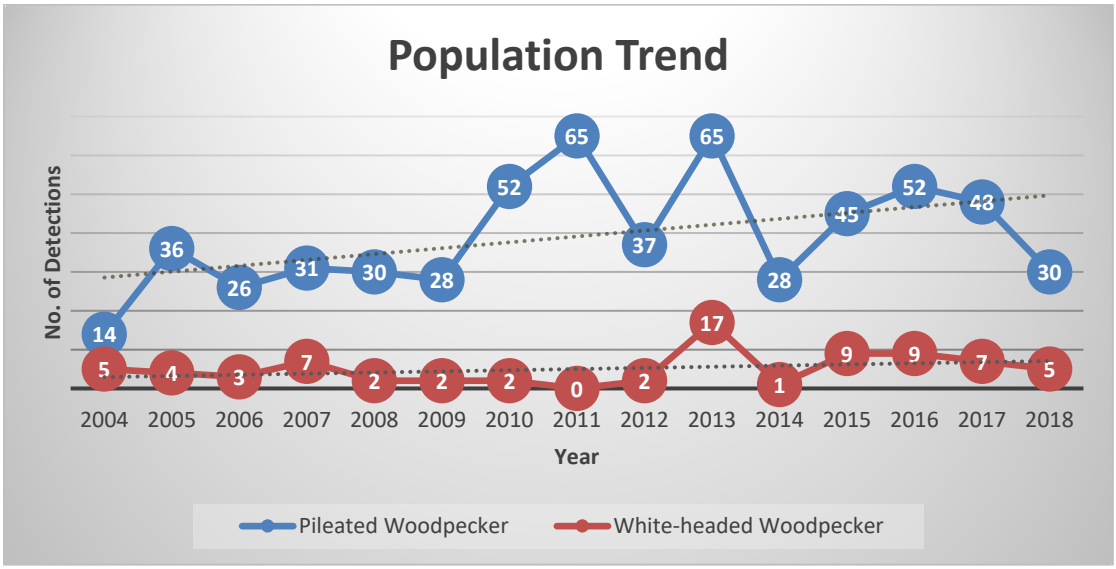
To improve efficiency and the ability to detect species' population trends, a new protocol to monitor all three woodpecker species was developed in partnership with the Intermountain Bird Observatory (Miller and Carlisle 2019). The first year of implementation for the new protocol was 2019. The new protocol was implemented in 2021-2023 as well. Surveys were not conducted in 2020.

Trend results from 2004 to 2018

Trend results from 2004 to 2018 for white-headed and pileated woodpeckers are shown in Figure 3. The number of birds detected each year is identified within each circle. Trends are stable to slightly increasing. Fifty monitoring transects/500 survey points were established on the Forest in 2004 to monitor pileated woodpeckers and white-headed woodpeckers. There are 10 transects or 100 points per Ranger District. Forest surveys were conducted on foot on Forest roads or trails, in early spring (April-May) during the species' breeding season to improve detection of individuals.

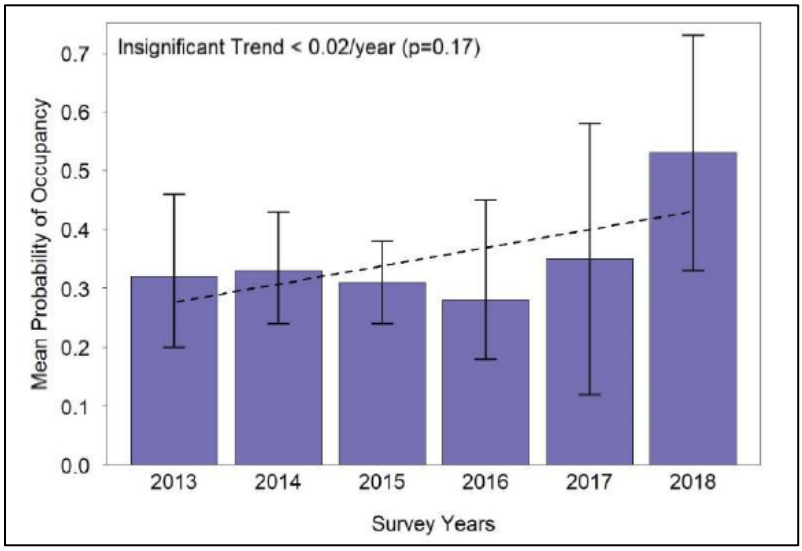
Although 15 years of data were collected (through 2018), population trend data for both species should be interpreted with caution. Fifteen years is not a very long data set to establish trend. Detection rates for white-headed woodpeckers have been low the entire period.

Figure 3. White-headed Woodpecker and Pileated Woodpecker Population Trends 2004-2018 - Boise National Forest.



Trend results for black-backed woodpeckers from 2013 to 2018 are shown in Figure 4. The overall probability of occupancy across the Forest showed no statistically significant trend even though it slants greatly upward (Miller and Carlisle 2018). Each year twenty monitoring transects were surveyed in moderate and high severity portions of fires which have burned within the last ten years. Transects would be added or dropped over the years as fires would age out of the survey and new fires got added. As with the pileated woodpecker and white-headed woodpecker surveys, these surveys were conducted on foot on Forest roads or trails, but later in the year, in late June to mid-July during the species' breeding season to improve detection of individuals.

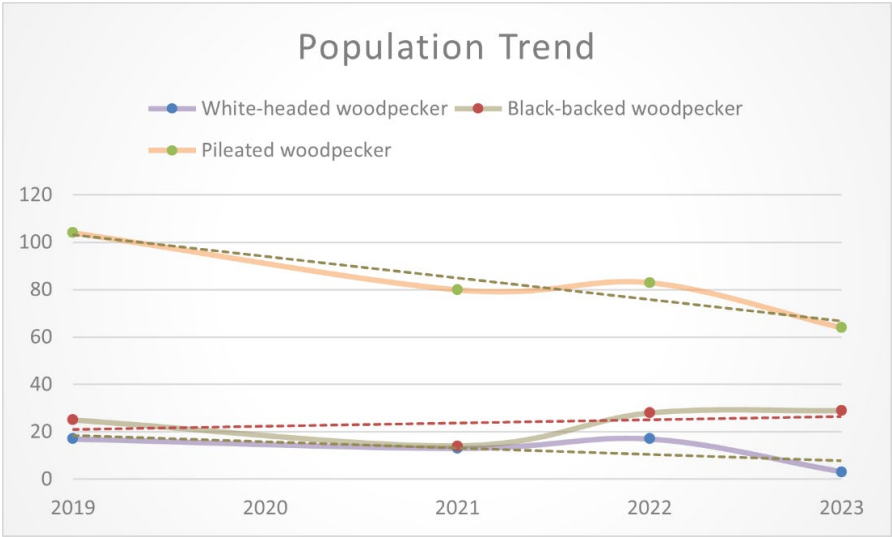
Figure 4. Black-backed Woodpecker Trend and Comparison of Mean Probability of Occupancy - Boise National Forest.



Trend results from 2019 to 2023

Results for the first 4 years of surveys following the new protocol are shown in Figure 5. The 2023 survey period proved highly challenging due to weather impacts. Late snows and rain events limited access to many survey grids and points. Many roads were lost to flooding and repairs were not completed until July/August in some cases. The first three years averaged 345 points per year and 45 survey grids while only 288 survey points were accessible in 2023. The monitoring protocol has a minimum of 40 survey grids to be surveyed each year. In 2023 only 37 grids were accessible and surveyed. As stated above population trends require long-term monitoring. Although shown in Figure 5, the 2023 data is unreliable for looking at trends due to limited sampling at this time. Based on the data we have dating back to 2004 it is believed populations for all three species are stable. Even with low detections for 2023 the numbers are consistent with detection numbers using the old sampling protocol. Black-backed woodpecker results were consistent through all years. This is likely due to the later sampling period for this species which allowed for access to survey grids consistent with the average annual number of previous years.

Figure 5. Species counts during annual monitoring of focal species.



Indicator #2

Acres treated within focal species habitat

Data Source

FACTS, WIT (MIS used as proxy until the Forest identifies focal species per the 2012 Planning Rule.)

Results

Due to the staffing impacts from the 2024 fire occurrences on the Boise National Forest the Boise National Forest defers addressing this monitoring question to the 2026 Forest Monitoring Report.

Indicator #3

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

Data Source

Planning, Appeals and Litigation System (PALS) Database and NEPA Decision Documents for vegetation management projects signed in fiscal years 2022 and 2023.

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 2022 and 2023 were reviewed to determine what proportion included restoration of habitat for TEPCS species in the Purpose and Need. There were **4** vegetation management decisions made during this reporting period and **3** included language in the Purpose and Need to restore habitat for TEPCS species (Table 3). This is **75 percent** of vegetation management project decisions in the FY22 and FY23 reporting period.

Table 3. Vegetation management projects with decisions in FY22 or FY23.

Vegetation Management Project	Date Signed	Unit	P&N included TEPCS Habitat Restoration
Clear Creek Forest Health	08/2022	Mountain Home RD	No
Skunk Creek	03/2022	Cascade RD	Yes
Trinity Ridge Reforestation	04/2022	Mountain Home RD	Yes
Upper South Fork Payette River Community Protection Project	09/2023	Lowman RD	Yes

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.

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 National Forest defers addressing this monitoring question. Priority watershed stratification needs to be updated before this question can be fully addressed. The update is currently scheduled to occur in FY26.

Monitoring Question #6

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

Findings

The Boise National Forest found no need for changing the Forest Plan or management activities. However, the Forest identified a need to change to the monitoring program based on the Forest's capacity to collect and extrapolate data to interpret results for this question.

This question has not been fully addressed since its establishment in 2016. There is a need to replace the question and indicator with a more appropriate question/indicator. The current indicator only works for tracking the special forest products for which personal use/free use permits are issued. The Boise National Forest only issues personal use/free use permits for firewood and Christmas trees; products such as mushrooms and huckleberries, etc. are not tracked. In addition, the Forest does not have any baseline or foundational information to which to compare the number of personal use/free use permits issued to assess whether Forest visitors are overharvesting.

The Boise National Forest defers addressing this monitoring question.

Monitoring Question #7

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

Findings

The Boise National Forest found no need for changing the Forest Plan or management activities. However, the Forest identified a need to change to the monitoring program based on the Forest's capacity to collect and extrapolate data to interpret results for this question.

The previous question was narrow and used a one-time data source. Without replication of the study in winter recreation it is not possible to determine long term trends on impacts. The proposed new question looks at a national long-term analysis that shows trends in populations and species diversity.

> *This question has been updated to read: Has human activity affected species diversity and/or populations across the Boise National Forest?*

Indicator

Population trends and species diversity on the Boise National Forest.

New Data Source

Current monitoring with Integrated Monitoring in Bird Conservation Regions (IMBCR) has 47 species with reliable estimates. Sampling started in 2014 and will continue to be collected annually. 2024 marks the first 10 years of data collection and provides enough information to start showing trends. Big game populations are monitored annually or biannually by IDFG and herd trends for GMU's overlapping the Boise National Forest are readily available to show if numbers are being maintained at/above/below objectives and cause of impacts on herd numbers are addressed.

Results

The Forest defers addressing this monitoring question to the 2026 Forest Monitoring Report.

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 National Forest found no need for changing the Forest Plan, management activities, or the monitoring program.

Indicator

Wildland fire and/or management-ignited fire acres burned in WCS priority watersheds contributing to desired conditions

Data Source

NRM, FACTS database, prescribed fire and wildfire acres activity codes.

Results

In 2022 and 2023 approximately 9,032 acres of from the Four Corners wildfire contributed WCS priority watershed desired conditions. Prescribed fire/management ignited fires in WCS priority watersheds contributed to approximately 5,626 acres towards desired conditions. These activities included understory, broadcast, jackpot, and pile burns.

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 National Forest found no need for changing the Forest Plan, management activities, or the 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 National Forest and are being treated with hazardous fuels reduction treatments, such as prescribed burning, non-commercial thinning, yarding, mechanical piling, and hand piling. The Boise National Forest implemented planned WUI treatments for the following acres by fiscal year:

- FY22: 2,802 acres
- FY23: 22,258 acres

Aquatic Ecosystems

Monitoring Question #10

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

Findings

The Boise National Forest found no need for changing the Forest Plan or management activities. However, the Forest identified a need to change to the monitoring program based on the Forest's capacity to collect and extrapolate data to interpret results for this question.

The indicators and methods for this monitoring question have been updated to reflect the progress in data collection methods and database information. Because this indicator will now be reported on a 4-year cycle, starting with 2022, this year's report focuses on establishing a baseline from which future comparisons can be made.

Indicator #1

Applicable National Core Best Management Practice (BMP)

Data Source

BMP Monitoring Database

Results

Eight BMP monitoring activities designed under the Forest Service National BMP Monitoring program were completed in FY22. These activities are documented in the National BMP Monitoring database. Implementation scores range from "No BMPs" to "Fully" and effectiveness scores range from "Not" to "Effective". All implementation activities received a composite score of Good or Excellent.

Table 4: Best management practices (BMP) monitoring for the Forest Plan (FY22)

Site	Evaluation Type	Date	Implementation	Effectiveness	Composite
Bannock 1, Unit 10	Both implementation and effectiveness	07/19/2022	Marginal	Effective	Good
Bannock 1, Unit 10a	Both implementation and effectiveness	07/19/2022	Marginal	Effective	Good
Bannock 1, Unit 1	Both implementation and effectiveness	07/19/2022	Marginal	Effective	Good
Cottonwood Tussock, Unit 5	Both implementation and effectiveness	08/02/2022	Marginal	Effective	Good
Cottonwood Tussock, Unit 8	Both implementation and effectiveness	08/02/2022	Marginal	Effective	Good

Willow South GNA, Unit 2	Both implementation and effectiveness	08/03/2022	Mostly	Effective	Excellent
Willow South GNA, Unit 4	Both implementation and effectiveness	08/03/2022	Mostly	Effective	Excellent
Tripod Tussock, Unit 12	Both implementation and effectiveness	08/02/2022	Mostly	Effective	Good

Indicator #2

Watershed Condition Class

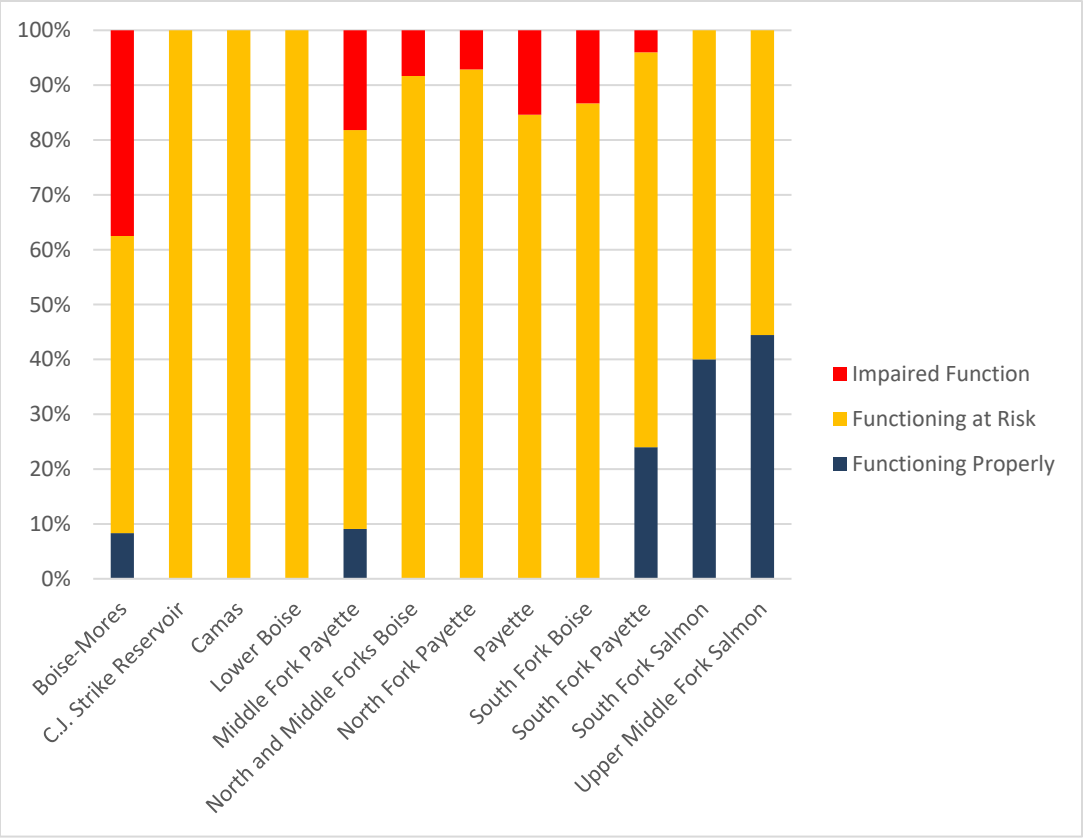
Data Source

The Watershed Condition Class dataset (USDA Forest Service 2011a; 2011b) reflects the degree to which past activities have affected watershed function and frames the existing condition of the affected environment. Watershed Condition Class data are summarized for each sub-basin in Figure 6 below. Figure 6 helps illustrate the proportion of each sub-basin that has impaired function, is functioning at risk, or is functioning properly, as defined by the Watershed Condition Framework. When aggregated to the forest level, 21 percent of sub-basins are functioning properly, 72 percent are functioning at risk, and 7 percent have impaired function.

Results

See also “Results” for Monitoring Question #12, Background and Indicator #1.

Figure 6. Watershed condition class by sub-basin



Indicator #3

IDEQ 2022 Integrated Report: Beneficial uses support status.

Data Source

Water quality data from the 2022 Integrated Report 305(b) of the Idaho Department of Environmental Quality (IDEQ) was used to make estimates of functioning condition across the project area. Numerous streams are impaired for sediment across the forest. Translated to the sub-basin scale, Table 5 provides estimates of functioning condition based on the proportion of streams within the sub-basin that are impaired for sediment/siltation. A sub-basin is estimated to be 'functioning properly' if all streams within the sub-basin are meeting water quality standards for sediment. A sub-basin is estimated to be 'functioning at risk' if between 90 percent and 100 percent of streams are meeting water quality standards for sediment, and 'impaired function' if less than 90 percent of streams are meeting water quality standards for sediment.

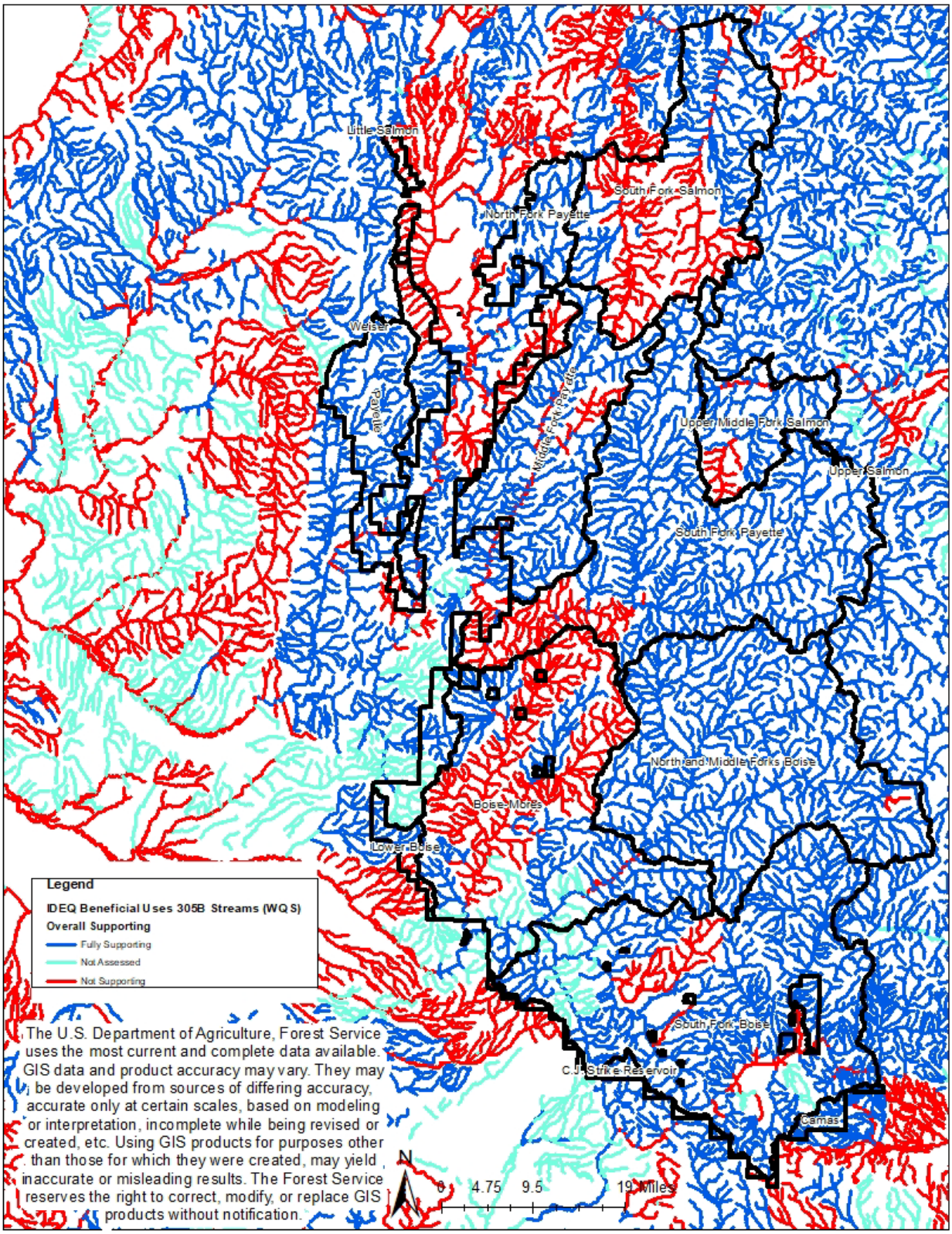
Results

Table 5. Estimates of existing functioning condition for sediment/siltation of project sub-basins

Hydrologic Unit Code 8	Name	Sediment Estimate of Functioning Condition*	Percent of IDEQ stream miles meeting IDEQ standards for sediment/siltation
17050112	Boise-Mores	Impaired Function	78
17040220	Camas	Impaired Function	61
17050114	Lower Boise	Impaired Function	71
17050121	Middle Fork Payette	Functioning At Risk	97
17050111	North and Middle Forks Boise	Functioning Properly	100
17050123	North Fork Payette	Impaired Function	85
17050122	Payette	Functioning At Risk	97
17050113	South Fork Boise	Functioning Properly	100
17050120	South Fork Payette	Functioning At Risk	98
17060208	South Fork Salmon	Functioning At Risk	94
17060205	Upper Middle Fork Salmon	Functioning At Risk	97

**Functioning Properly= 100 percent unimpaired for sediment/siltation; Functioning at Risk = 90-100 percent unimpaired for sediment/siltation. Impaired Function = less than 90 percent unimpaired for sediment/siltation*

Figure 7. Streams supporting beneficial uses. Data Source: Idaho Department of Environmental Quality (2022).



Monitoring Question #11

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

Findings

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

Indicator #1

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 2022 and 2023.

Results

The Boise National Forest reviewed project lists with Decision Documents to determine which were implemented in fiscal years 2022 and 2023 and, of those implemented, which project activities occurred within RCAs. The review process assessed whether design features with actions in RCAs were successfully implemented and effective in avoiding or reducing impacts to RCA function and process. Activities identified to occur within known threatened/endangered occupied habitats that were reviewed for successful implementation include special uses, mineral exploration, vegetation management (timber sales – precommercial thinning), fuels (prescribed fire and thinning, and watershed restoration (road decommissioning and culvert replacement for aquatic organism passage).

For projects in fiscal years 2022 and 2023, the Boise National Forest delineated RCA buffers per the Forest Plan and passed them through a Forest Plan consistency checklist to avoid or minimize 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 (prescribed fire, precommercial thinning and commercial timber sales) activities had limited ground disturbance in the outer margins of RCAs, and it is expected that these actions will result in improved riparian function and ecological process in the long-term. Watershed restoration activities are specifically designed to restore riparian function and ecological process while all remaining special uses and mineral exploration projects were designed to maintain watershed condition indicators and riparian function and ecological processes.

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 National Forest found no need for changing the Forest Plan, management activities, or the 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 2022 and 2023, 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 2022 and 2023, occurred in ACS and WARS high priority 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. With these considerations, only one project was implemented during this reporting period that addressed management area objectives in ACS priority subwatershed (Table 6).

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 2022 and 2023 the Boise National Forest implemented a total of 149.7 miles (2022 – 81.04 miles, 2023 – 68.76 miles) of streams restored or enhanced (Table 6) with one project implemented within an ACS priority watershed (1.9 miles). Most restoration work during the reporting period was comprised of planting projects.

Table 6. Projects by fiscal year with stream miles restored or enhanced

FY22 Projects			
Project	**ACS Priority**	**Watershed Restoration Priority**	**Stream Miles Restored or Enhanced**
Pioneer Fire Reforestation	Yes	Active Moderate	49
Scriver Creek AOP	No	Active High	15
East Fork Burnt Log AOP	yes	Active High	5.5
Cold Creek	No	Passive High	3.3
Edna Creek Planting	No	Active Moderate	1.8
Grimes Creek Planting	No	Active Low	1
Clear Creek Planting	No	Passive High	1
Tributary to Cold Creek AOP	No	Passive High	1.8
Tributary to Bear Valley Creek	No	Passive High	0.5
South Fork Salmon River Road Decommissioning and Planting	No	Active High	0.15

High Fork TS Decommissioning	No	Active Low	1.63
Upper Edna Creek AOP	No	Active Moderate	0.06
Lower Edna Creek AOP	Nio	Active Moderate	0.05
Whoop Um Up Trail Bridge	No	Active Moderate	0.15
Lost Horse Meadow Riparian Thinning	No	Active Moderate	0.1
Total Stream Miles Restored or Enhanced			81.04
FY23 Projects			
Project	ACS Priority	Watershed Restoration Priority	Stream Miles Restored or Enhanced
East Forst Fir Creek AOP	No	Active High	2.5
South Fork Salmon River Trail Bridge	No	Active High	10.7
Elk Creek Planting	No	Active Low	2.4
Crooked River Planting	Yes	Active Moderate	15.4
Lodgepole Trail Bridge	No	Active Moderate	0.5
Two Bit Creek AOP	No	Active High	1.76
Ten Mile Creek Trail Bridge	No	Active High	12.4
Roaring River Trail Bridge	Yes	Passive Moderate	6.1
Bull Creek Trail Bridge	Yes	Passive High	11.3
Banner Creek Planting	Yes	Active Moderate	3.4
Lost Man Reforestation	No	Active Low	2.3
Total Stream Miles Restored or Enhanced			68.76

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 National Forest found no need for changing the Forest Plan, management activities, or the monitoring program.

Background

The Boise National Forest selected bull trout as an aquatic management indicator 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.

Direction for management indicator species comes from 36 CFR 219.19. Specifically, direction states that species shall be selected because their population changes are believed to indicate the effects of

management activities; “Population trends of the management indicator species will be monitored and relationships to habitat changes determined”. To address this direction, monitoring for management indicator species must establish the trend of the species in relation to habitat changes caused by management activities.

For aquatic species, trend is typically monitored using relative abundance estimates over time in a select set of streams. However, the challenge with abundance data is that it is often influenced by sampling error and natural inter-annual variation in abundance (Platts and Nelson 1988; Maxell 1999; Ham and Pearsons 2000; Dunham et al. 2001). Previous work on bull trout and other salmonids highlight several limitations to monitoring abundance for detecting trends, including: 1) low statistical power (Maxell 1999; Ham and Pearsons 2000); 2) errors in estimating abundance (Dunham et al. 2001; Peterson et al. 2004); 3) high natural variability in populations (Platts and Nelson 1988); 4) lack of a connection between abundance and habitat (Fausch et al. 1988); and 5) the high cost of estimating population abundance using rigorous methods, such as mark-recapture. Given these well-known limitations, an alternative trend monitoring approach was needed.

The alternate approach to abundance monitoring for bull trout is monitoring the spatial patterns of occurrence (distribution) through time. Monitoring distributions can be particularly appropriate for bull trout because bull trout have very specific habitat requirements. Specifically, bull trout distribution is limited to cold water (Dunham et al. 2003), and suitably cold habitats are often patchily distributed throughout river networks (Poole et al. 2001). Dunham and Rieman (1999) found that bull trout populations in the Boise River basin are linked closely to available habitat “patches” or networks of cold water. A patch is defined for bull trout as the contiguous stream areas believed suitable for spawning and rearing (Rieman and McIntyre, 1995). Rieman and McIntyre (1995) analyzed bull trout in the Boise River and found occurrence to be positively related to habitat size (stream width) and patch (stream catchment) area, as well as patch isolation and indices of watershed disruption. Patch size (area) was the single most important factor determining bull trout occurrence.

The Boise National Forest used criteria similar to those used by the Rocky Mountain Research Station in the Boise and Payette subbasins. Patches initially were defined based on major physical gradients (patch size as it related to stream size and elevation). Patches were identified as the catchments above 1,600 meters and delineated from U.S. Geological Survey 10 m Digital Elevation Models (DEM). The 1,600 m elevation was used because Rieman and McIntyre (1995) observed juvenile bull trout (<150 mm) in streams at or above this elevation in the Boise Basin. Small (< 150 mm) bull trout were found at elevations as low as 1,520 m, but the frequency of occurrence increased sharply at about 1,600 m (Rieman and McIntyre 1995; Dunham and Rieman 1999).

Subwatersheds that were above 1,600 m, but less than 500 hectares, were also not included because they rarely supported perennial streams large enough to support bull trout. Watson and Hillman (1997) found bull trout only in streams greater than two meters in width, even with free access to many smaller habitats within occupied patches. Studies in western Montana (Rich 1996) and southwest Idaho (Rieman and McIntyre 1995; Dunham and Rieman 1999) show bull trout are less likely to occur in streams less than two meters in width. The Boise National Forest used the assumption that patches less than 500 hectares would have streams with a wetted width smaller than two meters.

Once bull trout patches were identified, they were classified into four categories to further focus sampling efforts over the life of the Forest Plan. These categories included: (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 less than 150 millimeters) as indicated by past surveys (last seven 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 seven years; (Strata 3 - Unsuitable) patches that have been surveyed, baseline conditions (i.e. stream temperature, too steep of gradient, 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.

Observations used to define patch boundaries were based on the more restricted movements of small (less than 150 millimeter) bull trout. Although some bull trout may exhibit seasonal movements from natal habitats to wintering or foraging areas (e.g. larger rivers, lakes, or reservoirs), fidelity to the natal environments is likely during spawning and initial rearing. Because spawning salmonids home to natal streams and even reaches (Quinn 1993), occupied patches separated by thermally unsuitable habitat are likely to represent populations with some reproductive isolation.

Indicator

Watershed Condition Indicators tracked for selected aquatic focal species:

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

Data Sources

Annual Management Indicator Species monitoring, Aquatic Survey Database and Environmental DNA

Results

The Boise National Forest found it appropriate to continue to answer this monitoring question on a *two-year* monitoring cycle. 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 is approximately seven years for one monitoring cycle, however each year additional patches are sampled within each subbasin.

The Boise National Forest 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 2023) and 2009 (the first year the Boise National Forest obtained baseline conditions for all 179 bull trout patches) as well as the last reporting period (2021).

Monitoring bull trout patches across the Boise National Forest since 2009 suggest occupied bull trout patches have increased from 57 Strata 1 patches in 2009 compared to 65 strata 1 patches in 2023. Below is a summary and trend of each subbasin (Hydrologic Unit Code, HUC-8) (Table 7).

Boise River Basin

North and Middle Forks Boise subbasin (HUC-17050111): There are 45 bull trout patches within the North and Middle Forks Boise subbasin of which there were 13 strata 1 patches in 2009 and 17 strata 1 patches in 2023. There is an improving trend of bull trout patch occupancy since 2009 and an improving trend since the last reporting period (2021) in the North and Middle Forks Boise subbasin.

Boise-Mores subbasin (HUC-17050112): There are 14 bull trout patches within the Boise-Mores subbasin of which there was one stratum 1 patch in 2009 and 2 strata 1 patches in 2021. There is an improving trend of bull trout patch occupancy since 2009, but no change in strata since the last reporting period (2021) in the Boise-Mores subbasin.

South Fork Boise subbasin (HUC-17050113): There are 27 bull trout patches within the South Fork Boise subbasin of which there were 4 strata 1 patches in 2009 and 3 strata 1 patches in 2023. There is a declining trend of bull trout patch occupancy since 2009 and no trend or the amount of bull trout patches has remained the same since the last reporting period (2021) in the South Fork Boise subbasin.

Payette River Basin

South Fork Payette subbasin (HUC-17050120): There are 40 bull trout patches within the South Fork Payette subbasin of which there were 13 strata 1 patches in 2009 and 14 strata 1 patches in 2023. This is an improving trend of bull trout patch occupancy since 2009 and an improving trend for the amount of bull trout patches since the last reporting period (2021) in the South Fork Payette subbasin.

Middle Fork Payette subbasin (HUC-17050121): There are 12 bull trout patches within the Middle Fork Payette subbasin of which there were 3 strata 1 patches in 2009 and 3 strata 1 patches in 2023. There is no trend as the number of bull trout patch occupancy since 2009 remained the same and the amount of bull trout patches has remained the same since the last reporting period (2021) in the Middle Fork Payette subbasin.

Payette subbasin (HUC-17050122): There are 5 bull trout patches within the Payette subbasin of which there were 4 strata 1 patches in 2009 and 2 strata 1 patches in 2023. There is a declining trend of bull trout patch occupancy since 2009, however the amount of bull trout patches has remained the same since the last reporting period (2021) in the Payette subbasin.

North Fork Payette subbasin (HUC-17050123): There is 1 bull trout patch within the North Fork Payette subbasin of which there was one stratum 1 patch in 2009 and 1 stratum 1 patch in 2023. There is no change of the trend of bull trout patch occupancy since 2009 and an improving trend in bull trout patches since the last reporting period (2021) in the North Fork Payette River subbasin.

Upper Middle Fork Salmon subbasin (HUC-17060205): There are 11 bull trout patches within the Upper Middle Fork Salmon subbasin of which there were 8 strata 1 patches in 2009 and 11 strata 1 patches in 2023. There is an improving trend of bull trout patch occupancy since 2009 and an improving trend since the last reporting period (2021) in the Upper Middle Fork Salmon River subbasin.

South Fork Salmon subbasin (HUC-17060208): There are 24 bull trout patches within the South Fork Salmon subbasin of which there were 10 strata 1 patches in 2009 and 12 strata 1 patches in 2023. There is an improving trend of bull trout patch occupancy since 2009, however the amount of bull trout patches has remained the same since the last reporting period (2021) in the South Fork Salmon River subbasin.

Table 7. Bull trout patch trends summarized by subbasin.

Basin / Subbasin	2009[1]			**Last reporting cycle 2021**			2023			Trend	
	Strata 1	Strata 2	Strata 3	Strata 1	Strata 2	Strata 3	Strata 1	Strata 2	Strata 3	Since 2009	Since last reporting cycle
Boise Basin											
Boise Mores	1	4	9	2	5	7	2	5	7	+	ø
South Fork Boise	4	11	12	3	11	13	3	9	15	-	ø

North Middle Fork Boise	13	18	14	16	13	16	17	11	17	+	+
Payette Basin											
Payette	4	0	1	2	2	1	2	2	1	-	ø
South Fork Payette	15	20	5	13	18	9	14	17	9	-	+
Middle Fork Payette	3	3	6	3	2	7	3	2	7	ø	ø
North Fork Payette	1	0	0	0	1	0	1	0	0	ø	+
Salmon Basin											
South Fork Salmon	10	5	9	12	3	9	12	3	9	+	ø
Middle Fork Salmon	9	1	1	11	0	0	11	0	0	+	ø

[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 National Forest found no need for changing the Forest Plan, management activities or the Forest Plan monitoring program. See Monitoring Question 10.

Work in the priority watershed, Scriver Creek, is almost complete. The last projects, 3 aquatic organism passage (AOP) structures, are scheduled to be completed in 2026. Once those are complete, the watershed condition class can be re-evaluated.

Productivity of the Land

Soils

Monitoring Question #15

Is the Forest maintaining or restoring soil quality?

Findings

The Boise National Forest found no need for changing the Forest Plan or management activities. However, the Forest identified a need to change to the monitoring program based on the Forest's capacity to collect and extrapolate data to interpret results for this question. The current Indicator #3 - Applicable National Core Best Management Practices was deemed to not be the best method for responding to the question.

A new data source was added for the 2024 report. Forest Soil Disturbance Monitoring Protocol (FSDMP) (Page-Dumroese et al. 2009) is a statistically validated soil disturbance monitoring protocol developed by USDA researchers. This protocol looks at all the relevant variables linked to soil health in an actively managed forest. With these data, we can discern levels of DD and TSRC, as well as see indicators of soil forming processes. Because this indicator encompasses all the variables assessed in past monitoring reports, FSDMP takes the place of past soil indicators, such as BMP monitoring

Indicator #1

Amount of activity area in detrimental soil disturbance (DSD) condition (annual review of selected projects)

Indicator #2

Acres of Total Soil Resource Commitment (TSRC) added or restored (annual review of selected projects))

Data Source for both indicators

NEPA decision documents: Fawn Tussock, Skunk Creek, Clear Creek Forest Health Project, Sinker Creek - Boise Ridge Forest Health Project, Upper South Fork Payette River Community Protection Project.

Forest-wide FSDMP data collected in ground-based harvest units by forest personnel from 2017-present.

Results

Planning analysis of recent NEPA projects gives a look at what level of soil disturbance is expected from projects in the planning analysis and the expected mechanisms. This indicator looks at the percent DD and TSRC expected in the project planning effort and the primary mechanism of effect (ground-based harvest, prescribed fire, etc.). Proposed activities are first evaluated for consistency with applicable Forest Plan standards and guidelines and then monitored to ensure the physical, biological, and chemical components necessary for soil quality are maintained or, where needed, restored to move toward desired conditions.

Management activities can directly or indirectly influence soil quality, either temporarily or over short- or long-term timeframes. Forest management activities that often raise concerns for soil quality are vegetation treatments, such as commercial timber harvest and associated implementation activities (e.g. road construction, reconstruction and/or decommissioning), prescribed fire, and livestock grazing allotments. While it is common for vegetation management activities to directly impact soil quality, most effects are limited to temporary or short-term timeframes while providing conditions to support desired vegetation growth and to minimize effects of naturally occurring wildland fires over the long term. In the case of livestock grazing, detrimental effects to soil quality seldom occur from authorized livestock grazing across the majority of the allotment. Localized detrimental impacts do occur where livestock concentrate (near water, shipping corrals, etc.); however, these disturbances generally do not exceed 15 percent as defined by Forest Plan Standard SWST02.

Forest plan guidelines for detrimental disturbance (DD) and total soil resource commitment (TSRC) were being met for projects designed and implemented during this monitoring period. Forest soil disturbance monitoring measured DD in ground-based harvest units across the forest (post-harvest). Monitoring found a median existing DD of 2% across all units measured. TSRC has not increased forest wide. Indicators of soil forming processes, such as ground cover and forest floor depth were within a standard deviation of undisturbed forest.

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 National Forest 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

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 National Forest 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 National Forest 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 National Forest GIS data sets.

Figure 8. Dalmation toadflax (*Linaria dalmatica*), an Idaho noxious weed known to occur on the Boise National Forest. This photo is taken before the plant is in flower.

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	Indicator 1: Acres treated of known infestations in management areas identified for eradication or control	Indicator 2: Acres treated of new infestations	Indicator 3: Acres treated of new invader species to the Forest
	This is the acreage sum from FACTS 'Acres of Invasive Treatments Accomplished' that were treated in 2022 and 2023	This is the acreage sum from FACTS and GIS for treatment areas (SUIDs*) that were newly created in 2022 and 2023**	This is the acreage sum from FACTS and GIS for SUIDs with new invader species identified in 2022 and 2023
2022	3,219	2,621	0***
2023	3,559	3,211	0***

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

**Determining acres for newly created treatment SUIDs is the best way to estimate acres treated of new infestations but will also capture older infestations in which new treatments and SUIDs were created.

***No new invader species were treated in 2022 or 2023 as compared to previous years.

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 National Forest found no need for changing the Forest Plan, management activities, or the Forest Plan monitoring program.

Indicator #1

Miles of roads maintained by maintenance level

Data Source

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

Results

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.

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
- 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.

A Forest Road Maintenance Plan is developed each year after meeting with district personnel across the Forest 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 9. Road grading and aggregate placement on NFSR #698

Figure 10. Asphalt maintenance on NFSR #614

Roads under the jurisdiction of the Boise National Forest 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 Boise National Forest jurisdiction

ML5	ML4	ML3	ML2	ML1
0	17	513	2,632	1,560

Query or snapshot of road system on 06/06/2024.

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”. While road maintenance accomplishments naturally vary from year to year due to staffing levels, equipment availability and funding, extent of work required by road, and dynamic priorities, it should be noted that the substantial increase of ML 2 miles maintained in 2023 was due to special Wildfire Crisis Strategy funding that the Forest received to conduct road maintenance in order to facilitate access for fuels treatments in the Southwest Idaho Landscape. This funding was used to award and implement a road maintenance contract which focused on ML 2 roads in areas where the Southwest Idaho Landscape and Wildland Urban Interface overlapped.

Table 10. Accomplishments by road maintenance level (ML) (in miles)

Fiscal Year	ML5	ML4	ML3	ML2	ML1
2022	0	0.6	210	84.4	0
2023	0	0.9	200.8	593	0

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

Boise National Forest reported accomplished road decommissioning for:

- FY22: 0.0 miles of non-system roads
- FY23: 0.0 miles of non-system roads

Indicator #3

Miles of trail maintained

Data Source

Forest Service Infrastructure (INFRA) Trails Database

Results

According to the Government Accountability Office, the Forest Service nationally is only able to maintain about 25% of National Forest System Trails to agency standard. There are 2,009 miles of National Forest System trails on the Forest. In 2022, 257 miles were maintained and 12% met agency standards. In 2023, 344 miles of the trails maintained were maintained by partners and volunteers.

Indicator #4

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

Data Source

National Visitor Use Monitoring Report (NVUM). Data gathered on a 5-year cycle.

Results

The National Visitor Use Monitoring Report (NVUM) for the Boise National Forest was completed FY24. The results are being analyzed and will be available mid-year 2025.

Monitoring Question #18

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

Findings

The Boise National Forest 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 2022 and 2023 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 National Forest 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	Nitrite Samples	Nitrate Samples	Sanitary Surveys Conducted
2022	80	310	8	6	0	47	40
2023	80	249	15	12	0	31	15

Figure 11. Installing potable water storage tank in 2022 at Third Fork Project Camp, Emmett Ranger District, 2022

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 National Forest 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 decisions

Results

No NEPA decision occurred in FY24 that changed ROS on the Boise National Forest.

Indicator #2

NVUM results by activity.

Data Source

Every 5 years, following National Visitor Use Monitoring Report (NVUM)

Results

The National Visitor Use Monitoring Report (NVUM) for the Boise National Forest was completed FY24. The results are being analyzed and will be available mid-year 2025.

Economic, Cultural & Social Environment

Social & Economic

Monitoring Question #20

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

Findings

The Boise National Forest 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 12.

Table 12. Amount of commercial/non-commercial wood product by fiscal year

Commercial/Non-Commercial Wood Product	Unit of Measure *	FY22 Quantity	FY23 Quantity
Sawtimber	MMBF	11.2	24.8
Commercial Fuelwood & Other Products	MMBF	0.9	0.1
Non-Commercial Fuelwood	MMBF	5.2	6.5

*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 2022 and 2023, the Boise National Forest 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 contracting tools employed for economic development and ecological restoration

Contract Type	FY22 Quantity	FY23 Quantity
Commercial Timber Sale	7	7
Good Neighbor Authority (GNA)	3	6
Stewardship	0	1

In fiscal year 2022 and 2023, the Boise National Forest offered two (2) large Integrated Resource Stewardship Contracts (IRSC), within the Southwest Idaho wildfires Crisis Landscape. One contract was awarded with the other receiving no bids.

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 2022 and 2023, the Forest reported 43,397 **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 Forest reported **42,610 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.

Completed acres have exceeded accomplished acres by approximately 2%. This indicates that work is being completed on the ground.

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 National Forest found no need for changing the Forest Plan, Management Activities, or the Forest Plan monitoring program.

Indicator #1

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

Data Source

Forest Service Infrastructure (INFRA) database, Rangeland Information Management System (RIMS) 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 and the grazing authorizations User View report for 2022-2024 was generated from INFRA and RIMS respectively. From the Statistical Report and grazing authorization user view report, the total National Forest System authorized head months (HMs) was used to compare each year, instead of number of grazing authorizations, which usually remain 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 2015 and 2017 was due primarily to the large wildfires that occurred across the Boise National Forest during those years. .

Table 14. Total authorized head months (HMs) by year

	2023	2022	2021	2020	2019	2018	2017	2016	2015
Total Authorized HMs	67,635	69,144	74,970	65,370	68,053	70,729	57,746	59,625	65,119

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 Rangeland Information Management System (RIMS) database and a data response from each Ranger District.

Results

In 2022 and 2023 two MIM (Multiple Indicator Method) sites and one nested frequency plot were examined. In 2022, one MIM site on the High Valley C&H allotment was established in a riparian area where beaver damn analogues were established, however, due to being the initial year, a trend could not be established. In addition, one nested frequency plot on the Ola C allotment was measured and showed a static trend compared to previous years data. In 2023, one MIM location on the Tripod C&H allotment was read in a different reach then was previously established. The data collected was recorded but no trend was established as prior data was collected on a different reach of the stream.

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, soil cover, photo points, etc.

Monitoring Question #22

What is the visitor satisfaction on National Forest System lands?

Findings

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

Indicator #1

What is the visitor satisfaction on National Forest System lands?

Data Source

Every 5 years, following National Visitor Use Monitoring Report (NVUM)

Results

The National Visitor Use Monitoring Report (NVUM) for the Boise National Forest was completed in fiscal year 24. The results are being analyzed and will be available mid-year 2025.

Tribal Interests & Rights

Monitoring Question #23

Are tribal interest and rights identified through consultation being addressed?

Findings

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

Indicator

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 National Forest: the Shoshone Paiute, Shoshone Bannock, and Nez Perce Tribes. Consultation was conducted according to these protocols.

In addition to these protocols, the Boise National Forest was active in achieving the goals of the Forest Service Tribal Action Plan (published 2022). Outside of formal consultation, the forest and Shoshone-Paiute Tribes entered into a partnership (FY 2023) to provide training and experience for tribal members to implement the Wood for Life Program, helping to provide firewood for upcoming winter seasons on the Duck Valley Reservation. A similar arrangement is being worked on with the Shoshone-Bannock Tribes as well. In FY 2023 the forest entered into an agreement with the Shoshone-Paiute tribes to develop interpretive site panels at several recreation sites across the forest that honor the long human history and use of those sites. All this work helps lead to stronger bonds between the forest and tribal partners.

Cultural Resources

Monitoring Question #24

Are cultural resources and historic properties being managed to standard?

Findings

The Boise National Forest 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 cultural and historic properties; assets eligibility for inclusion to the National Register and/or important to the tribes. FSM 2360 – Heritage Program Management, provides direction for achieving this through planning and collaboration with stakeholders, finding and protecting these 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 National Forest 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 Lands (Survey of National Forest Service lands for cultural resources)

Data Source

NRM Heritage Database

Results

In 2022 and 2023, the Boise National Forest inventoried 951 and 1,089 acres, respectively, of National Forest System lands on the Cascade, Emmett, Idaho City, Mountain Home, and Lowman Ranger Districts.

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 National Forest 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 2022 and 2023, the Boise National Forest consulted with the Idaho State Historic Preservation Office (SHPO) on the NRHP eligibility of thirteen unevaluated sites which were determined to be ineligible.

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

In 2022 and 2023 the Heritage program focused on assemblage PHAs. Several thousand historical documents, maps, photographs, publications, and aerial images were inventoried and assessed resulting in the preparation of thirty-five boxes of historical documents for transfer to the National Archives in addition to 35 boxes of Heritage Program consultation records. The collection associated with Danskin Rock shelter (PHA) was fully inventoried, assessed, and transferred to the Western Repository in 2023. The collection consists of over 30,000 cultural materials in thirty-one museum quality archival collection storage boxes.

Indicator #5

Cultural Resource Stewardship (Activities that physically protect historic properties)

Data Source

NRM Heritage Database

Results

In 2022, general and preservation maintenance was completed on the Atlanta Ranger Station, and Stolle and Johnson Creek Guard Stations.

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 2022 and 2023 the Forest participated in four annual public education and outreach activities including the Boise National Forest All Employee Day, Idaho Center for Outdoor Education Day, Idaho City fourth grade rendezvous, and the Idaho Archaeological Society Archaeological Fair. Additional 2022 activities included the Idaho City Smoke Jumper reunion and National History Day. In 2023 the Forest also hosted several virtual presentations in May for Idaho Archaeology and Historic Preservation Month. Through partnerships with the University of Idaho, there were numerous opportunities for presentations about Boise National Forest historic preservation work at professional conferences including the Northwest Anthropological Society and Society for East Asian Anthropology.

Indicator #7

Volunteer Hours (Volunteer participation on historic preservation projects)

Data Source

NRM Heritage Database

Results

In 2022 and 2023, volunteers contributed approximately 240 hours to the Historic Landmark RS site steward program and National Register of Historic Places documentation and evaluation of the Lucky Peak Nursery.

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