United States Department of Agriculture

Monitoring Evaluation Report

for the Targhee National Forest

Forest Service | Targhee National Forest | February 2020

For More Information Contact:

Doug Herzog
1405 Hollipark Drive
Idaho Falls, ID 83401
208-557-5763

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Introduction

Purpose

The purpose of the monitoring evaluation report is to help the responsible official determine whether a change is needed in forest plan direction, such as plan components or other plan content that guide management of resources in the plan area. The monitoring evaluation report represents one part of the Forest Service's overall monitoring program for this national forest unit. The monitoring evaluation report is not a decision document—it evaluates monitoring questions and indicators presented in the Plan Monitoring Program chapter of the forest plan, in relation to management actions carried out in the plan area.

Monitoring and evaluation are continuous learning tools that form the backbone of adaptive management. This is our second written report of this evaluation since the Revised Targhee National Forest Plan was finalized. The full 2005-2018 monitoring report for the Targhee National Forest is available at https://www.fs.usda.gov/main/ctnf/landmanagement/planning.

How to Use this Report

This report is a tool and a resource for the Forest Service to assess the condition of forest resources in relation to Forest Plan direction and management actions. It is also a tool and a resource for the public to learn more about how the Forest Service is managing forest resources.

The monitoring evaluation report is designed to help the public, as well as Federal, State, local government, and Tribal entities anticipate key steps in the overall monitoring program. These steps include upcoming opportunities for public participation and how the public will be informed of those opportunities, and how public input will be used as the monitoring program progresses. The monitoring evaluation report is also intended to help people better understand reported results in relation to past monitoring reports, future monitoring reports and the broader-scale monitoring strategy that is issued at the Forest Service Regional level.

The Importance of Public Participation

We informed the public of the availability of the 2005-2018 monitoring report for the Targhee National Forest on February 26, 2020, through the Targhee public. This report includes the name and address of a Forest Service contact and the location to submit comments - comments-intermtn-caribou-targhee@usda.gov. These efforts help "to obtain public feedback on what the monitoring information suggests about the effectiveness of the land management plan" (Forest Service Handbook [FSH] 1909.12_42.14c).

Our intent for public participation is to provide full transparency by giving people access to all information that is developed through monitoring activities, and to obtain public feedback.

About Our Forest Plan Monitoring Program

Roles and Responsibilities

The Forest Plan Monitoring Program requires a coordinated effort of many people, from the people who collect the data, to the people outside the Forest Service who provide feedback and assistance, to the decision maker.

This report will be provided to Mel Bolling, Forest Supervisor who will use it to determine if changes to the Revised Forest Plan (RFP) and/or the Forest Plan Monitoring Program.

How Our Plan Monitoring Program Works

Monitoring and evaluation requirements have been established through the National Forest Management Act (NFMA) at 36 CFR 219. Additional direction is provided by the Forest Service in Chapter 30 – Monitoring – of the Land Management Handbook (FSH 1909.12).

The Targhee National Forest monitoring program was developed during the 1997 revision of the Land and Resource Management Plan. Monitoring questions and indicators were selected to inform the management of resources on the plan area and not every plan component was determined necessary to track [36 CFR 219.12(a)(2)]. See the Plan Monitoring Program at https://www.fs.usda.gov/detail/ctnf/landmanagement/planning/?cid=STELPRDB5116356 for discussion on how the monitoring questions were selected and consistent with the 1982 planning regulations 36 CFR 219.12.

In the context of forest planning there are three main monitoring goals:

- Are we implementing the Forest Plan properly? Are we meeting our management targets and project guidelines? (implementation monitoring)
- Are we achieving our Forest Plan management goals and desired outcomes? (effectiveness monitoring)
- Does our hypothesis testing indicate we may need to change the Forest Plan? (validation monitoring)

Implementation monitoring is important for tracking progress and accomplishments. However, it is effectiveness and validation monitoring that drive and support the adaptive management process. Effectiveness monitoring evaluates condition and trend relative to desired conditions. Validation monitoring tests hypotheses and provides information that might necessitate changes to desired conditions in the plan (e.g. is what we think the desired state should be really accurate?).

Providing timely, accurate monitoring information to the responsible official and the public is a key requirement of the plan monitoring program. This summary, along with the full 2005-2018 Monitoring Evaluation Report for the Targhee National Forest is the vehicle for disseminating this information.

Summary of Monitoring Results

Air Quality

Long-Term Visual Range in Class I and Class II Airsheds

Requirements

According to Chapter V of the RFP, this monitoring item was designed to establish baseline data for wilderness Class I and Class II airsheds. Time-exposure cameras were to be established at fixed photo points and aerosol particle evaluation conducted on days not meeting visual standards.

Results and Evaluation

Table 1: Monitoring results for long-term visual range in Class I and Class II airsheds

Monitoring Year	Type of Monitoring
2008	4 lichen plots were monitored: • 2 in the Jedediah Smith Wilderness • 1 in the Winegar Hole Wilderness • 1 on Teton Basin Ranger District
2011	5 lichen plots were monitored: • 1 on Palisades Ranger District • 3 on Teton Basin Ranger District • 1 on Ashton/Island Park Ranger District
2016	8 lakes in the Jedediah Smith Wilderness were monitoring for lake chemistry 2 ion exchange resin collectors were deployed during the summer of 2016
2017	5 lakes in the Jedediah Smith Wilderness were monitored for lake chemistry 9 lichen sites were monitored: • 2 in the Jedediah Smith Wilderness • 1 in the Winegar Hole Wilderness • 1 on Palisades Ranger District • 2 on Ashton/Island Park Ranger District • 3 on the Teton Basin Ranger District
2018	2 lakes in the Jedediah Smith Wilderness were monitored for lake chemistry

In addition to the monitoring completed by Forest Service personnel, the USGS has been performing snow chemistry sampling at Lionshead on the Ashton/Island Park Ranger District and at Teton Pass on the Teton Basin Ranger District for decades.

Soils

Hydrologic Disturbance in Watersheds

Requirements

The Targhee RFP established a guideline for total hydrologic disturbance in watersheds. The guideline states that "not more than 30% of any of the principle watersheds and their subwatersheds should be in a hydrologically disturbed condition at any one time" (RFP pg. III-10). Research across the western United States indicates that, a detectable increase in water yield typically occurs if vegetation removal within a watershed exceeds 30 percent. The guideline was intended to identify those watersheds where overall watershed and stream channel stability could be degraded by the cumulative effects of activities within the watershed.

This particular monitoring item is designed to validate the 30 percent guideline level. According to the RFP, bank stability is compared to the level of hydrologic disturbance in five principle watersheds: 10, 11, 12, 13 and 25.

Results and Evaluation

As stated in the 1997 to 2004 monitoring report and still pertinent to this reporting period, "As stated above, the purpose of this monitoring item is to flag watersheds where changes in flow regimes could be sufficient to initiate stream channel adjustments. While this concept is well-intended, the actual application of the monitoring cannot be effectively evaluated in watersheds 10, 11, 12 and 13. This is because watersheds 10, 11, 12 and 13 are in a geological area termed the "caldera." This area is a collapsed volcanic structure, approximately 18 miles by 23 miles in diameter with a relatively flat relief. Due to the porous nature of the geologic material, water tends to infiltrate into the subsurface rather than flow over the surface within stream channels. The number of stream channels within the area is limited, with most valley bottoms consisting of dry swales rather than defined stream channels."

Cannot properly validate the 30 percent threshold therefore should discontinue trying to monitor. The 30 percent Forest Plan guideline (p III-10) is an applicable cumulative effects analysis element that is analyzed at the project level for each affected watershed at the 5th and 6th Hydrologic Unit Codes (HUC) scales and should be retained as a Forest Plan guideline.

Woody Residue Needs for Soil and Wildlife

Requirements

One goal of the RFP is to sustain long-term soil productivity by retaining fine organic matter and woody residue in activity areas. The RFP set minimum levels of woody residue that must remain on-site after activities are completed. This monitoring item is designed to measure pre- and post-activity levels of woody debris to determine if the guideline levels are being followed, and if the guideline is effective in helping to meet long-term productivity goals. An interdisciplinary team is to collect woody debris data prior to and following project analyses for each ecological subsection.

Results and Evaluation

Since different needs exist for soil quality and wildlife habitat, these items are monitored and evaluated separately. The RFP established a guideline for dead and down material for wildlife as follows: "On at least 60 percent of the forested acres of each analysis area, an average of 21 logs per acre should be left consisting of logs in decomposition classes 1, 2, and 3 where they exist (USFS 1979). Unmanaged stands, or stands where management did not include the removal or piling of down material, meet forest-wide

guidelines for down woody material." The reasoning is that even though natural levels of down woody material vary over time and by habitat type (Targhee National Forest 1982), natural levels are considered adequate for soil quality, wildlife habitat and existing native species. In addition, Forest personnel are not going to inventory and manipulate the natural levels of down woody material in unmanaged stands.

Soils

Table 2: Monitoring results for Woody Residue Needs for Soils and Wildlife

Monitoring Year	Type of Monitoring
2005	2 activity areas were monitored 2 of the 2 were in compliance with the plan
2006	2 activity areas were monitored 2 of the 2 were in compliance with the plan
2007	3 activity areas were monitored 2 of the 3 were in compliance with the plan
2008	1 activity area was monitored The area was in compliance with the plan
2016	1 activity area was monitored • The area was in compliance with the plan
2017	2 activity areas were monitored 2 of the 2 were in compliance with the plan
2018	3 activity areas were monitored 1 of the 3 activity areas were in compliance with the plan; fixes planned

Detrimental Soil Disturbance

Requirements

The purpose of monitoring soil quality characteristics is to determine whether soil conservation practices, mitigation measures and RFP, and Regional Standard(s) and Guideline(s) have effectively limited detrimental changes in soil properties and provided for long-term productivity of the soils; if not what changes can be made to ensure site productivity is sustained/maintained. It is not practical to monitor effectiveness on all projects. The goal is to collect information from representative projects that provide high quality data that can be extrapolated to future projects. The RFP directs Forest personnel to monitor detrimental disturbance annually on representative sites where various land treatments have occurred. Detrimentally disturbed soil is soil that has been displaced, compacted, puddled, or severely burned.

Results and Evaluation

Table 3: Monitoring results for detrimental soil disturbance

Monitoring Year	Number of Areas Monitored	Number of Areas in Compliance
2005	1	1

2006	4	4
2007	4	4
2008	5	5
2009	2	2
2012	1	1
2017	1	1
2018	3	3

Fine Organic Matter Retention

Requirements

One of the goals for the soil resource is to sustain long-term soil productivity. The Targhee RFP includes several monitoring items to measure impacts on soil productivity. Those items include monitoring detrimental soil disturbance by observing structure soil for characteristics of compaction, soil core sampling for bulk density changes (an indicator of compaction), line transects and ocular estimates for ground cover, line transects for severely burned soil and woody debris.

The RFP includes a guideline that fine organic matter should be retained over at least 50 percent of the area within forested ecosystems. In non-forested ecosystems, 65 percent ground cover should be maintained. The Monitoring Plan recommends the soil scientist annually sample representative sites where various land treatments have occurred. Fine organic matter residue has been monitored in conjunction with the other soil monitoring items discussed in the previous two sections. The following is a summary of five soil parameters monitored in 2004: detrimental compaction, fine organic matter, severely burned soils, detrimental displacement and woody debris. These parameters were monitored on a variety of Forest management activities including timber sales, prescribed fire, summer residence home areas and livestock grazing allotments.

Results and Evaluation

Table 4: Monitoring results for fine organic matter retention

Monitoring Year	Number of Areas Monitored	Number of Areas in Compliance
2005	3	1
2006	4	4
2007	3	3
2008	4	2
2009	9	9
2010	1	1

2011	1	1
2012	9	9
2013	3	3
2014	1	1
2016	3	3
2017	4	4
2018	5	5

Fisheries, Water, and Riparian Resources

Improvement of Water Quality Limited Streams

Requirements

This validation monitoring item was designed to answer whether streams can be removed from the State's list of Water Quality Limited Segments (WQLS). The Forest hydrologist is to measure the constituent(s) of concern on each WQLS and, if necessary, their tributaries and watersheds. This information would then be used to update the State's WQLS list. Streams should be surveyed several times each summer.

Results and Evaluation

The States of Idaho and Wyoming are required, under Section 303(d) of the Clean Water Act, to identify all streams within their boundaries that do not support designated beneficial uses. Every two years, the state must evaluate its water quality data, and submit an updated impaired waterbody list to the Environmental Protection Agency (EPA) for approval through an Integrated Report 305(b). Idaho's most recent approved version is its 2016 Integrated Report. The 2016 report was submitted to EPA for review on November 9, 2018, and approved by EPA on June 25, 2019 (EPA Approval Letter). Wyoming's most recent is the 2016/2018 Integrated 305(b) and 303(d) Report, and approved by EPA on August 23, 2018 (EAP Approval Letter). The Integrated Report serves as a guide for developing and implementing water quality improvement plans (total maximum daily loads-TMDL) to protect water quality and achieve federal and state water quality standards. The State of Wyoming has not listed any streams on the Forest at the present time and only a few streams are listed below the Forest and are in the Salt River Sub-basin (HUC17040105). In 2016, an E. coli TMDL was completed for the impaired segment of the Salt River (WYSR170401050309_01) and Stump Creek (WYSR170401050203_01).

The State of Idaho has listed several streams within and adjacent to the Forest (interactive IDEQ map). Idaho DEQ has prepared Subbasin Assessments, total maximum daily loads (TMDLs) and 5-year Reviews to address impaired 303(d) listed water bodies (IDEQ Subbasin Assessment and TMDL Table). Those include Beaver-Camas Subbasin (17040214), Birch Creek Subbasin (17040216), Henry's Fork Upper & Lower Subbasins (17040202 & 17040203), Palisades Subbasin (17040104) Salt River Subbasin (17040105) and Teton River Subbasin (17040204).

The Idaho DEQ Beneficial Use Reconnaissance Program (BURP), combined biological monitoring and habitat assessment to determine the quality of Idaho's waters. The BURP is to help Idaho meet the requirements of the federal Clean Water Act by providing data to use in determining the existing uses and

beneficial use support status of Idaho's water bodies. DEQ's BURP process sends crews into the field to collect water temperature data, biological samples (e.g., fish, bacteria), chemical measures. The program has been implemented statewide since 1994. In addition to its own data collection efforts, DEQ also solicits and considers data submitted from outside sources such as the US Forest Service.

Year-round temperature monitoring of forest streams began in 2012 when 31 sites scattered throughout the forest were selected for a 5-year monitoring cycle. In 2014 an additional 38 sites were added. All available data was downloaded and analyzed in the fall of 2014 as part of the NorWeST Stream Temperature modeling exercise by the USGS et al. The 2012 sites were again downloaded in 2017 and new loggers were redeployed. This data along with any 2014 data were compared to state cold water criteria. Most streams across the forest with few exceptions met the cold water criteria of a daily average temperature of no greater than 19°C and a daily max of no greater than 22°C. However very few streams across all years surveyed met the salmonid spawning criteria (see caveat) of a daily average temperature of no greater than 9°C and a daily max of no greater than 13°C.

One caveat should be noted here is that for assessment purposes only, the water quality standards allow DEQ to consider the health of the biological community as measured by its Beneficial Use Reconnaissance Program. If bioassessment shows the stream to support cold water aquatic life and the frequency of exceedance of temperature criteria is 10% or less, DEQ defers to the bioassessment. So from a bioassessment standpoint most streams meet temperature standards for protection of aquatic life.

In 2019 the sites originally deployed in 2014 were downloaded once again and the data is yet to be analyzed. These sensors were not replaced. This data will be analyzed during the winter of 2019-20. All stream temperature data has been made available to IDEQ and is also available upon request from the Forest.

The Forest resource specialists have provided project accomplishments and data to IDEQ to assist in the preparation of Subbasin Assessments, TMDL development and 5 Year Reviews.

Application of Best Management Practices (BMPs)

Requirements

Monitoring compliance with BMPs is used to determine whether the BMPs are being applied on forest projects, primarily timber sales, and whether BMPs are adequate to maintain and improve water quality. Compliance findings are combined with the audits of timber sales required by an agreement with the State of Idaho through the Idaho Forest Practices Act (IFPA). BMP's are assessed for implementation and effectiveness. Implementation monitoring essentially asks: "Were BMP's implemented as stated in the NEPA document and in the Timber Sale Contract?" Effectiveness monitoring evaluates the overall effectiveness of any given BMP in controlling or maintaining water quality, aquatic and riparian attributes, and stream channel stability. "Has erosion been controlled and has sediment been delivered off-site to a stream course?" Even more importantly: "Have the designated beneficial uses of the water in affected stream courses been maintained?"

If a BMP is found to be ineffective or not as effective as desired or anticipated, then further evaluation is required to determine if the BMP was inadequate for a specific site condition, or if the BMP itself was inadequate over a large range of site conditions. If the latter situation occurred, then the practice would be brought to the review team, who, together, would examine the practice to determine if it needs to be modified or eliminated.

Results and Evaluation

Annual monitoring and evaluation is performed by the Forest as required by the National BMP monitoring program. Annual reports and summaries are filed with the region.

Table 5: Monitoring results for Application of Best Management Practices (BMPs)

Monitoring Year	Project/District	Notes
2005	Alpine Timber Sale/Palisades	BMPs effective & properly implemented - road reconstruction, road drainage, winter harvest operations
	East beaver C&S Allotment/Dubois	15 practices evaluated for Implementation & Effectiveness • 1 practice rated as "Improved Conditions" • 8 practices rated as "Adequate" • 1 practice rated as "Minor and temporary impacts" • 5 practices rated as a mix from "Major Impacts" to "Adequate Protection" based on location
	North Moody C&H Allotment/	15 practices evaluated for Implementation & Effectiveness • 1 practice rated as "Improved" • 13 practices rated as "Adequate" • 1 practice rated as "Minor and temporary impacts"
	Ripley Butte C&H Allotment/Ashton/Island Park	13 practices evaluated for Implementation & Effectiveness • 4 practices rated as a range from "Improved" to "Adequate", • 6 practices rated as "Adequate" • 3 practices rated as a range from "Minor and temporary impacts" to "Adequate"
2006	Cottonwood-East Camas Allotment S&G/Dubois	17 practices evaluated for Implementation & Effectiveness • 17 practices rated as "Adequate"
	Bootjack C&H Allotment/Ashton/Island Park	12 practices evaluated for Implementation & Effectiveness • 2 practices rated as a range of "Improved" to "Adequate" • 9 practices rated as "Adequate" • 1 practice rated as "Minor and temporary impacts"
	Canyon S&G Allotment/Teton Basin	16 practices evaluated for Implementation & Effectiveness • 1 practice rated as a range of "Improved" to "Adequate" • 12 practices rated as "Adequate"

		• 3 practices rated as "Minor and temporary impacts"
	Westlake C&H Allotment/Ashton/Island Park	17 practices evaluated for Implementation & Effectiveness • 17 practices rated as "Adequate"
	Williams Creek S&G Allotment/Palisades	15 practices evaluated for Implementation & Effectiveness • 12 practices rated as "Adequate" • 3 practices rated as "Minor and temporary impacts"
	Winslow Salvage Sale, Units 1, 3, 4, 5, 6, 7 & 9	BMPs were effectively applied and implemented. Recommend to consider predesignating skid trails in salvage operations.
2007	Meyers Creek S&G, Icehouse-Willow Creek S&G Allotment/Ashton/Island Park	23 practices evaluated for Implementation & Effectiveness • 20 practices rated as "Adequate" • 3 practices rated a range from "Minor and temporary impacts" to "Adequate"
	Pole Canyon Fuels Reduction Project/Teton Basin	
2008	Fritz Creek & Weber Creek Allotments/Dubois	
	Sheep Creek Summer Home and Mennonite Camp Hazardous Fuels Reduction Project/Palisades	BMPs were effectively applied and implemented
2009	Willow Creek Allotment/Dubois	
	Westside C&H Allotment/Teton Basin	
2010	Ripley Butte C&H Allotments/Ashton/Island Park	Median residual CAREX stubble height on HGL, Median residual CAREX stubble height in riparian areas/AIZs, riparian woody species use were chosen as Implementation Indicators. Bank Stability: • Median residual CAREX stubble height on HGL – 2 of 3 measurements met objectives • Median residual CAREX stubble height in riparian areas/AIZs – 1 of 2 measurements met objectives • Riparian woody species use – not met Bank Stability – 1 of 2 measurements met objectives
	Tom's Creek C&H Allotment/Ashton Island Park	11 practices evaluated for Implementation & Effectiveness • 7 practices rated as "Adequate"

		• 2 practices were rated as a range from "Minor and temporary impacts" to "Adequate" • 2 practices were rated as "Minor and temporary impacts"
	Willow Creek Allotment/Dubois	
2011	Leigh Creek, Game Creek & Darby Canyon Allotments/Teton Basin	Residual stubble height on hydric greenline (HGL), residual stubble height away from the HGL, i.e. AIZ stubble height and riparian woody plant species utilization were chosen as Implementation Indicators. All three indicators were met. No Effectiveness Monitoring occurred as part of this effort.
	Palisades Sheep Allotment/Palisades	Residual stubble height on hydric greenline (HGL), residual stubble height away from the HGL, i.e. AIZ stubble height and riparian woody plant species utilization were chosen as Implementation Indicators. All three indicators were met. No Effectiveness Monitoring occurred as part of this effort.
2014	Rainey Creek Dispersed Recreation Monitoring/Palisades	Dispersed Recreation Area (Rec_B). Implementation and Effectiveness were evaluated. • Implementation was rated as "No BMPs" • Effectiveness was rated as "Effective" • Composite rating of "No Plan"
2015	Lower Rainey, 002/Palisades	Grazing Management (Range_A). Implementation and Effectiveness were evaluated. • Implementation was rated as "Fully" • Effectiveness was rated as "Effective" • Composite rating of "Excellent"
	Buffalo Campground/Ashton/Island Park	Developed Recreation Sites (Rec_A). Implementation and Effectiveness were evaluated. • Implementation was rated as "No BMPs" • Effectiveness was rated as "Mostly" • Composite rating of "No Plan"
	Island Park Boat Ramp/Ashton/Island Park	Active Construction or Operation and Maintenance of Watercraft Launches (Rec_G). Implementation and Effectiveness were evaluated. • Implementation was rated as "No BMPs"

		• Effectiveness was rated as "Effective" • Composite rating of "No Plan"
	10.027, Road 027/Dubois	Road Operation and Maintenance (Road_C). Implementation and Effectiveness were evaluated. • Implementation was rated as "Mostly" • Effectiveness was rated as "Mostly" • Composite rating of "Good"
	Smith Canyon Fuels Reduction Timber Sale/Teton Basin	Ground-Based Skidding and Harvesting (Veg_A). Implementation and Effectiveness were evaluated. • Implementation was rated as "Mostly" • Effectiveness was rated as "Marginal" • Composite rating of "Fair"
	Frog Pond Spring, tributary to West Indian Creek/Dubois	Operation and Maintenance of Spring Source Facilities (WatUses_B). Implementation and Effectiveness were evaluated. • Implementation was rated as "Fully" • Effectiveness was rated as "Effective" • Composite rating of "Excellent"
2016	BPA Powerline, Section 9/Palisades	Completed Construction or Operation and Maintenance of Pipelines, Transmission Lines, and Rights-of-Way (FAC_C). Implementation and Effectiveness were evaluated. • Implementation was rated as "Fully" • Effectiveness was rated as "Not" • Composite rating of "Poor"
	Darby Canyon Road, 012/Teton Basin	Completed Road Decommissioning (Road_F). Implementation and Effectiveness were evaluated. • Implementation was rated as "Marginal" • Effectiveness was rated as "Effective" • Composite rating of "Good"
	Jesse Horton/Teton Basin	Operation and Maintenance of Diversions and Conveyances (WatUses_E). Implementation and Effectiveness were evaluated. • Implementation was rated as "Marginal" • Effectiveness was rated as "Effective" • Composition rating of "Good"
2017	Idaho Power Company: Big Grassy/Dubois	Completed Construction or Operation and Maintenance of Pipelines, Transmission Lines and Rights-of-Way (Fac_C). Both Implementation and Effectiveness were evaluated. • Implementation was rated as "Marginal"

		• Effectiveness was rated as "Effective" • Composite rating of "Good"
	Darby Creek, Unit 2/Teton Basin	Completed Grazing Management (Range_A). Both Implementation and Effectiveness were evaluated. • Implementation was rated as "Fully" • Effectiveness was rated as "Effective" • Composite rating of "Excellent"
	Grand Targhee Resort, Blackfoot Lift/Teton Basin	Completed Ski Area Construction or Reconstruction (Rec_H). Both Implementation and Effectiveness were evaluated. • Implementation was rated as "Marginal" • Effectiveness was rated as "Mostly" • Composite rating of "Fair"
	South Side of Hinkley Creek/Palisades	Completed Dispersed Recreation Area (Rec_B). Both Implementation and Effectiveness were evaluated. • Implementation was rated as "Mostly" • Effectiveness was rated as "Not" • Composite rating of "Poor"
2018	Hinkley Creek/Palisades	Completed Dispersed Recreation Area (Rec_B). Both Implementation and Effectiveness were evaluated. • Implementation was rated as "Mostly" • Effectiveness was rated as "Not" • Composite rating of "Poor"
	Bear Creek/Palisades	Completed Dispersed Recreation Area (Rec_B). Both Implementation and Effectiveness were evaluated. • Implementation was rated as "Mostly" • Effectiveness was rated as "Not" • Composite rating of "Poor"
	West Threemile Creek, 1191/Dubois	Completed Motorized or Nonmotorized Trail Operation & Maintenance (Rec_D). Both Implementation and Effectiveness were evaluated. • Implementation was rated as "Mostly" • Effectiveness was rated as "Not" • Composite rating of "Poor"
	FS Road 10181/Dubois	Completed Road Operation & Maintenance (Road_C). Both Implementation and Effectiveness were evaluated. • Implementation was rated as "No BMPs" • Effectiveness was rated as "Effective" • Composite rating of "No Plan"

In 2016 Idaho DEQ reported on the ninth quadrennial statewide Forest Practices Water Quality Audit (Idaho 2016 Interagency Forest Practices Water Quality Audit). The purpose of the audit was to assess compliance with the "Rules Pertaining to the Idaho Forest Practices Act" (IDAPA 20.02.01) under Idaho Code §38-13. The federal timber land demonstrated the highest rates of compliance at 97% in 2016 and the Forest had 3 timber sales in that audit (Smith Canyon, Twin Creek and Williams Bear). Other audits were conducted in 2004, 2008 and 2012 with federal compliance at 100%, 98% and 99% respectively.

Native Cutthroat Trout Habitat Features

Requirements

The Targhee Forest Plan directs Forest personnel to monitor native cutthroat trout habitat features. This validation monitoring has demonstrated that the expected values for water temperature and width/depth ratio for a given Rosgen stream type represent good habitat conditions for native cutthroat trout at the watershed scale. It has also shown that those expected values or conditions are attainable.

According to the RFP, there are three phases to this monitoring item:

- Phase 1: Within all native trout watersheds, assess the population status of native cutthroat trout populations as to presence/absence, relative abundance, presence of other salmonid species, and level of hybridization.
- Phase 2: Where populations of native cutthroat trout exist, measure and record physical habitat features listed on page III-11 of the Forest Plan.
- Phase 3: Compare, at the watershed scale, the recorded values for water temperature and width/depth ratio to the values on the table on page III-11 of the Forest Plan.

Results and Evaluation

This monitoring element was completed in 2012.

Vegetation

Timber Volume Removed from Unsuitable and Suitable-Unscheduled Lands

Requirements

Each project level NEPA analysis is to be reviewed to see if any unsuitable and suitable, but unscheduled lands, are proposed for timber harvest. The RFP put a ceiling on timber removed from unsuitable and suitable-unscheduled lands of 20 million board feet per decade.

Results and Evaluation

This item has been monitored each year and the volumes are archived in the Periodical Timber Sale Accounting Report (PTSAR) as well as the Timber Information Manager (TIM) database. From 1997 – 2004 approximately 1.09 MMBF was harvested from unsuitable and suitable-unscheduled lands. The table below shows the volume harvested by Fiscal Year.

Table 6: Timber volume removed from unsuitable and suitable-unscheduled lands

Fiscal Year	Harvest Volume U/S-U MMBF
1997-2004	1.090

2005	0.019
2006	2.349
2007	0.835
2008	0.021
2009	0.214
2010	0.257
2011	0.026
2012	0.000
2013	0.000
2014	0.470
2015	0.000
2016	0.650
2017	0.000
2018	0.000

From 1997 to 2007, approximately 4.293 MMBF was harvested off unsuitable and suitable unscheduled lands. This is below the 20 MMBF allowed in the Forest Plan. From 2008 to 2018 approximately 1.638 MMBF was harvested off unsuitable and suitable unscheduled +4.293lands. In total, from 1997 to 2018, approximately 5.931 MMBF of timber has been harvested off unsuitable and suitable unscheduled lands. The majority of timber harvests were from special use areas such as powerlines, campgrounds, summer homes, highway corridors, etc.

Pest Increase in Managed Stands

Requirements

By reviewing the annual pest activity survey maps, the Forest silviculturist can determine the effectiveness of vegetation management activities in reducing incidences of insects and diseases. Areas with recent timber management activities should be the priority for review. This monitoring is a requirement of the National Forest Management Act (NFMA).

Results and Evaluation

This monitoring has been done each year, using maps provided by the Forest Health Protection Group from Rocky Mountain Research Station. Information of aerial detection maps can be found at http://www.fs.usda.gov/main/r4/forest-grasslandhealth.

Recent timber sales that have occurred since 2005 were Pole Canyon and Smith Canyon timber sales on Teton Basin Ranger District and Calamity and Sheep Creek timber sales on Palisades Ranger District. Within treated stands tree densities and species composition was changed to reduce the susceptibility and risk to pest. Some western spruce budworm activity is occurring next to the Calamity Timber Sale area but at this time there is no management concerns. The Meadow Creek, Big Horn Estates, and Porcupine timber sales on the Ashton show no incidences of insects and disease. Each of these projects were designed to reduce densities and enhance aspen. These timber sales were implemented between 2016 and 2018. It appears there is very little pest activity and no management is necessary.

At this time, it appears treated areas are effective in maintaining low incidences of insect and disease damage.

Ute Ladies'-Tresses Population

Requirements

This monitoring item is designed to assess the effectiveness of standards and guidelines for livestock grazing and other activities for protection of this threatened plant. Population trends are to be measured at least once a year using a grid system or other transects in known population areas. Habitat changes should be mapped and human activities recorded.

Results and Evaluation

The Bureau of Land Management completes this annual monitoring requirement. At the time of publishing this report, the information had not been received by the BLM to report.

Vegetation Structure, Composition, and Distribution of Sagebrush/Grassland Habitats

Requirements

This monitoring item measures progression toward the desired mix of age classes in big sagebrush stands. Ocular estimation and/or line intercept transects are to be used to determine the canopy class distribution of sagebrush in watersheds and subwatersheds.

Results and Evaluation

Existing vegetation classification, mapping, and quantitative inventory (VCMQ) products for the Caribou-Targhee NF and the Curlew NG were developed to help the Forest better understand the vegetation types, structural classes, and canopy cover distributions at a Forest-wide extent. These products were developed in a collaborative effort involving the Caribou-Targhee NF, Remote Sensing Applications Center (RSAC), Intermountain Regional Office (RO), and the Interior West Forest Inventory and Analysis (WFIA) program. Final map products align with the Existing Vegetation Classification, Mapping, and Inventory Technical Guide (Nelson et al. 2014). The vegetation maps comprise of 27 vegetation types, nine canopy cover classes, and six tree size classes. An accuracy assessment was completed to help users quantify the reliability of the map products and support management decisions that use this information.

Shrub Canopy Cover includes:

SC2: 15-24%

SC3: 25-49%

SC4: 50%+

Total Shrubland= 197,808 acres

Wildlife

Cavity Nesters

Requirements

Population trends and habitat changes (snags per 100 acres) are to be monitored annually in the timber management prescription areas. This information is needed to evaluate the effectiveness of snag retention standards for timber harvest prescription areas.

Results and Evaluation

Population Monitoring

Population trend monitoring using point count surveys was completed from 2014-2017 through a Challenge Cost Share agreement with the Intermountain Bird Observatory at Boise State University.

Table 7: Number of times woodpecker species were detected during monitoring activities between 2014 and 2017.

Species	# Detected 2014	# Detected 2015	# Detected 2016	# Detected 2017
American Three-toed Woodpecker	14	13	8	7
Black-backed Woodpecker	4	4	1	1
Downy Woodpecker	4	13	5	1
Hairy Woodpecker	24	33	20	29
Lewis's Woodpecker	0	3	0	0
Northern Flicker	86	67	104	92
Red-naped Sapsucker	45	102	98	107
Williamson's Sapsucker	57	63	61	52
Unknown Sapsucker/Woodpecker	41	48	41	8

Table 8: Percent of grids each woodpecker species was detected on during monitoring activities between 2014 and 2017.

Species	% of Grids Detected On 2014	% of Grids Detected On 2015	% of Grids Detected On 2016	% of Grids Detected On 2017
American Three-toed Woodpecker	13	33	10	12

Black-backed Woodpecker	10	8	3	2
Downy Woodpecker	3	28	10	2
Hairy Woodpecker	29	43	31	41
Lewis's Woodpecker	0	5	0	0
Northern Flicker	67	65	74	67
Red-naped Sapsucker	35	65	62	63
Williamson's Sapsucker	39	60	54	39

Table 9: Summary and comparison of forest-wide rates of probability of detection by species among years.

Species	p – Silent 2014	p – Silent 2015	p – Silent 2016	p – Silent 2017	p – Broadcast 2014	p – Broadcast 2015	p – Broadcast 2016	p – Broadcast 2017
American Three-toed Woodpecker	0.59	0.00	0.03	0.26	0.79	0.88	0.55	0.79
Black-backed Woodpecker	----	----	----	----	----	----	----	----
Downy Woodpecker	----	0.08	----	----	----	0.79	----	----
Hairy Woodpecker	0.15	0.18	0.11	0.20	0.48	0.59	0.57	0.42
Lewis's Woodpecker	----	----	----	----	----	----	----	----
Northern Flicker	0.23	0.11	0.23	0.18	0.46	0.45	0.61	0.54
Red-naped Sapsucker	0.37	0.18	0.12	0.24	0.66	0.67	0.57	0.61
Williamson's Sapsucker	0.27	0.09	0.11	0.18	0.58	0.61	0.52	0.68

Table 10: Summary and comparison of forest-wide rates of occupancy by species among years.

Species	Ψ × Θ 2014	Ψ × Θ 2015	Ψ × Θ 2016	Ψ × Θ 2017
American Three-toed Woodpecker	0.05	----	0.01	0.03
Black-backed Woodpecker	----	----	----	----
Downy Woodpecker	----	0.04	0.01	----
Hairy Woodpecker	0.10	0.14	0.04	0.06

Lewis's Woodpecker	----	----	----	----
Northern Flicker	0.35	0.41	0.35	0.32
Red-naped Sapsucker	0.21	0.25	0.24	0.35
Williamson's Sapsucker	0.15	0.20	0.13	0.12

$\Psi \times \Theta$= Probability of the species being present on the landscape

Standing Dead Tree Habitat

Requirements

This effectiveness monitoring was designed to determine the degree to which wildlife requirements are being met by standing dead and replacement trees. Systematic sampling is to be done in project areas prior to and following analyses. The monitoring should include site, stand, and landscape conditions.

Results and Evaluation

The monitoring item duplicated the Cavity Nesters Monitoring item.

Grizzly Bear Population and Grizzly Bear Habitat Improvement

Requirements

Population trends and habitat changes are to be monitored annually in the Grizzly Bear Management Units (BMUs) and Subunits. The population trend information is primarily gathered by the Interagency Grizzly Bear Study Team and the U.S. Fish and Wildlife Service for the entire Yellowstone Recovery Area. Habitat monitoring is done by the Ranger Districts.

This habitat improvement item is designed to measure the improvement in quality of grizzly bear habitat on the Forest and to determine how much Forest habitat contributes to habitat quality in the entire Greater Yellowstone Area. The change in habitat quality will be measured using a variety of parameters, including road and trail access, vegetation manipulations, and human activities. From this updated information, Forest biologists would run the cumulative effects model on each of the five grizzly bear subunits.

Results and Evaluation

The grizzly bear population on the Forest is part of the Yellowstone Grizzly Bear Ecosystem (YGBE) as defined in the Grizzly Bear Recovery Plan (U.S. Fish and Wildlife Service 1993). This monitoring and evaluation displays information about population distribution and habitat on the Targhee National Forest.

Grizzly Bear Distribution on the Targhee National Forest

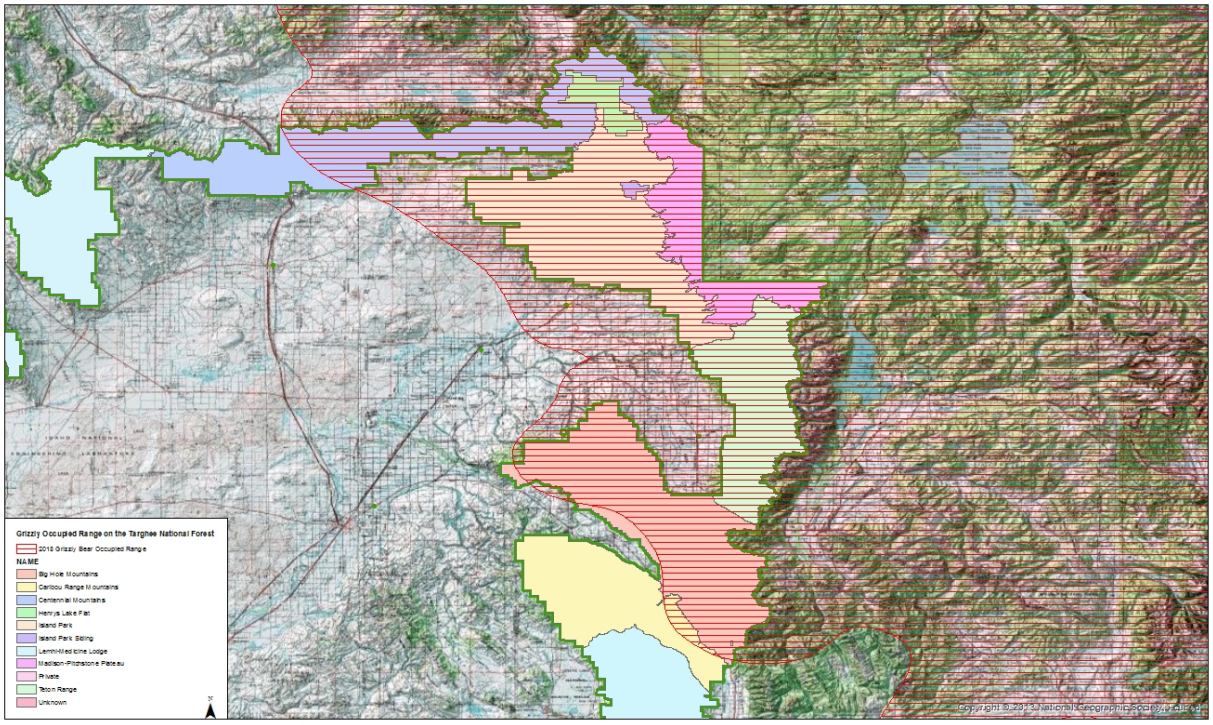

Figure 1: Grizzly bear distribution on the Targhee National Forest as of 2018.

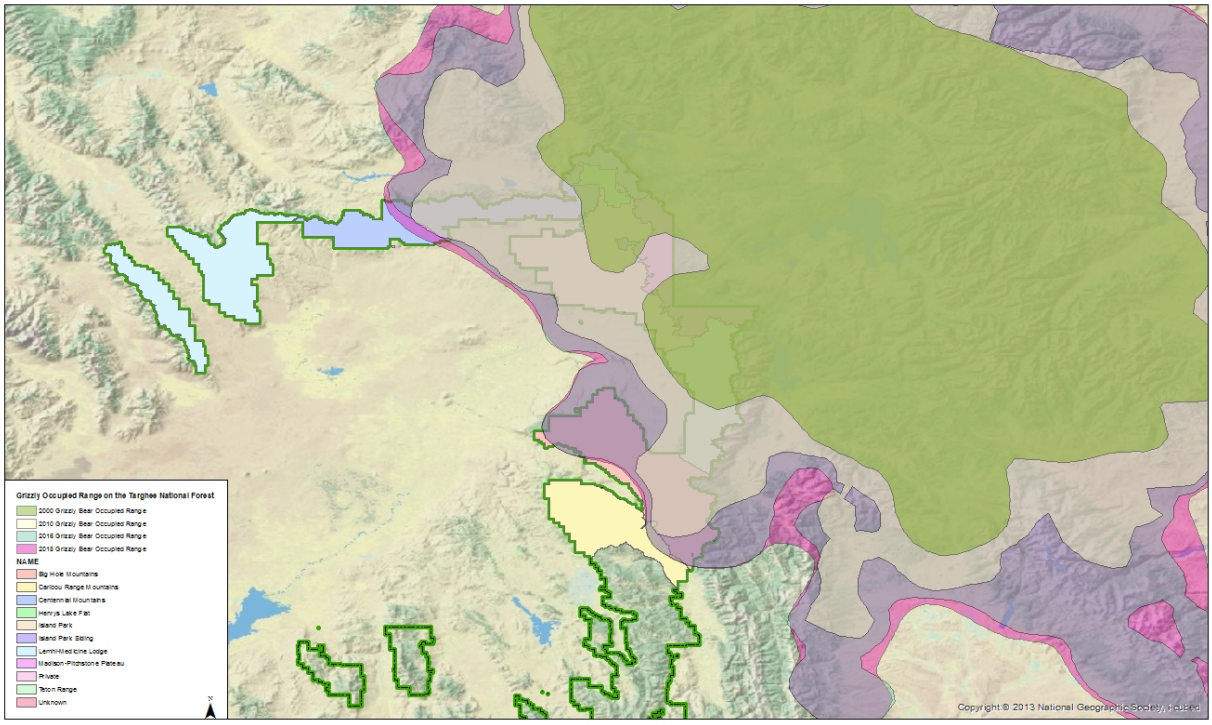

Figure 2:Change is grizzly bear occupied range on the Targhee National Forest from 2000-2018.

Grizzly bear distribution has expanded since the last monitoring report completed in 2004. It is estimated that as of 2018, grizzly bear occupied habitat encompasses all the Henry's Lake Flat, Island Park, Island Park Siding, Madison-Pitchstone, and Teton Range Subsections, nearly all of the Big Hole Mountains Subsection, half of the Centennial Mountains Subsection, and a small portion of the eastern portion of the Caribou Range Mountains Subsection.

Female Grizzly Bears with Young

Monitoring the distribution of females with young (cub, yearling, or two-year old) by Bear Management Unit (BMU) is a recovery task identified in the Grizzly Bear Recovery Plan (USFWS 1993). Part of the recovery requirements state that within a 6-year span, sixteen of the eighteen BMUs must be occupied by a female with young, and no two adjacent BMUs may be unoccupied (USFWS 1993). This monitoring demonstrates the distribution of the reproductive cohort within the grizzly bear recovery area. It is used as a predictor of the future distribution of the population. Observations of females with young are to be confirmed by documented reports of the Interagency Grizzly Bear Study Team. Table 11 displays the BMUs occupied by verified female grizzly bears with young on the Targhee National Forest from 2005 to 2016. On the Targhee National Forest, the Henry's Lake BMU has had the highest occupancy rate for females with young (12 of 12 years), followed by the Bechler/Teton (10 of 12 years) and Plateau BMUs (9 of 12 years).

Table 11: BMUs, that include portions of the Targhee National Forest, that were occupied by verified female grizzly bears with young

Bear Management Unit	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Years Occupied
Henry's Lake	X	X	X	X	X	X	X	X	X	X	X	X	X	X	14
Plateau	X		X	X	X	X			X	X	X	X	X	X	11
Bechler/Teton	X	X	X	X	X	X	X		X	X		X		X	11

Grizzly Bear Mortality

Table 12: Human-caused mortalities of grizzly bears on the Targhee National Forest from 2006-2018 (IGBST 2006-2018)

Known Mortality Date	Sex	Age Class	Location	Loss
7/20/2018	M	Subadult	Mill Creek, CTNF, ID	Known, human caused, management removal for bold behavior and obtaining unsecured anthropogenic food reward.
4/29/2018	Unk	Cub	Survey Draw, CTNF, ID	Probable, likely natural, cub of radio-collared female lost between 4/20 and 5/19. Mortality date and location are approximate.
7/16/2016	M	Adult	Moose Creek, CTNF, ID	Known, human-caused, management capture and removal for sheep depredations.
5/5/2016	M	Adult	Timber Creek, CTNF, ID	Known, mistaken identity kill by black bear hunter
9/27/2015	M	Subadult	Howard Creek, CTNF, ID	Known, human-caused, road kill
Spring 2014	M	Subadult	Spruce Creek, CTNF, ID	Known, natural, bear had been caught in snow slide
10/10/2009	M	Adult	Rock Creek, CTNF, ID	Known, human-caused, mistaken identity kill of bear #629 by black bear hunter.
8/31/2008	M	Subadult	Rock Creek, CTNF, ID	Known, human-caused, bear #595 was found dead by hunter. Bear had been handled on 8/24/2008. Capture related, significant infection at the injection site. Bear was collared.

8/2/2008	M	Adult	Thirsty Creek, CTNF, ID	Known, human-caused, bear #563 was found dead via telemetry. Bear had been handled on 8/24/2008. Likely capture related, similar to #595. Bear was collared.
8/19/2007	M	COY	Lucky Dog Creek, CTNF, ID	Known, human-caused, management removal (live to San Diego Zoo) for nuisance activity and food rewards by mother (#502).
8/18/2007	F	Adult	Lucky Dog Creek, CTNF, ID	Known, human-caused, management removal (live to Washington State University) for numerous nuisance activity, food rewards, and property damage. Two COY (#G123 and #G124) also removed.
8/17/2007	M	COY	Lucky Dog Creek, CTNF, ID	Known, human-caused, management removal (live to San Diego Zoo) for nuisance activity and food rewards by mother (#502).
8/4/2006	M	Subadult	Warm River, CTNF, ID	Known, human-caused, bear #535 died in an undetermined manner after handling. Under investigation.

Grizzly Bear/Livestock Incidents

A total of 26 livestock-grizzly bear conflicts were reported inside the Primary Conservation Area (PCA) on Grazing allotments administered by the Targhee National Forest during the period 2005-2016. The Targhee National Forest currently administers grazing permits on 7 cattle and 1 active sheep allotment inside the PCA. All the conflicts occurred on two cattle allotments. No sheep-grizzly bear conflicts were reported during the 12-year period (Landenburger et al. 2017)).

Table 13 lists domestic sheep allotments within the BMUs on the Forest and shows their current status. All, but one of the allotments within the Primary Conservation Area (PCA) were closed by 2008. There were no domestic sheep-grizzly bear incidents reported on the remaining active domestic sheep allotment, Meyers Creek, between 2005 and 2016.

Table 13: Domestic sheep-grizzly bear depredation incidents reported on Targhee National Forest grazing allotments inside the Primary Conservation Area during 2005–2016.

Bear Management Subunit	Allotment Name (FS#)	Status
Bechler-Teton 1	Badger/Jack Pine (518)	Closed 2001
	Green Mountain (534)	Closed 2001
Henrys Lake 1	Blue Creek (217)	Closed 2004
	Carrot Canyon/Taylor (218)	Closed 2004
	Coffeepot (219)	Closed 1999
	Hotel Creek (22)	Closed 2004
	Icehouse/Willow Creek (223)	Closed 2008
	Meyers Creek (225)	Active
	Sawtell (227)	Closed 1999
	Snyder Creek (228)	Closed 2004
	West Lake (230)	Closed 2004

Table 14 lists the domestic cattle allotments within the BMUs on the Forest, shows their current status, and lists the years with documented grizzly bear/cattle incidents for each allotment. Seven active cattle allotments occur within the BMUs on the Forest. Grizzly bear incidents occurred on two of these allotments, one is located in Henrys Lake BMU, and one is located on the westslope of the Tetons in the Bechler-Teton BMU. Twenty-five of the 26 cattle depredation incidents occurred on the Squirrel Meadows allotment on the Bechler-Teton #1 bear management subunit of the Bechler-Teton BMU. Conflicts on the Squirrel Meadows allotment accounted for the loss or injury of 17 calves or yearlings, 5 adult cows, 2 heifers, and 2 steers. The remaining depredation incident occurred when one calf was killed in 2010 on the Bootjack cattle allotment in the Henrys Lake #1 subunit. Four incidents lead to the capture and relocation of the depredating bear to another portion of the Forest. Six capture efforts were unsuccessful. No grizzly bear mortalities resulted inside the PCA from grazing conflicts on these allotments (Landenburger et al. 2017).

Table 14: Cattle-grizzly bear depredation incidents reported on Targhee National Forest grazing allotments inside the Primary Conservation Area during 2005–2016.

Bear Management Subunit	Allotment Name (FS#)	Status	Years with Cattle / Grizzly Bear Incidents													
			05	06	07	08	09	10	11	12	13	14	15	16	17	18
Bechler-Teton 1	Fall River Ridge (302)	Active	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Squirrel Meadows (303)	Active	3	--	3	2	4	5	--	7	--	--	--	1	1	--
	Tepee Creek (509)	Active	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Henrys Lake 1	Bootjack (201)*	Active	--	--	--	--	--	1	--	--	--	--	--	--	--	--
	High Five (203)	Active	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Meadow Creek (2614)	Vacant 2007	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Red Rock (233)	Closed 2012	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	West Lake (206)	Active	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Henrys Lake 2	Garner Canyon (235)	Closed 2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Twin Creek (205)	Closed 2001	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Plateau 1	Toms Creek (236)	Active	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 15: Livestock-grizzly bear depredation incidents and subsequent management actions reported on Targhee National Forest grazing allotments inside the Primary Conservation Area during 2005–2016.

Allotment (Bear Management Subunit)	Date	Incident	Resolution
Bootjack (Henrys Lake 1)	8/15/2010	Grizzly bear killed 1 calf	Investigated
Squirrel Meadows (Bechler-Teton 1)	9/2/2005	Adult male grizzly bear killed 1 domestic calf	Bear captured and relocated
	9/6/2005	Adult male grizzly bear injured 1 domestic calf	Bear captured on 9/10/05 and relocated
	9/9/2005	Adult male grizzly bear injured 1 domestic calf	Bear captured on 9/10/05 and relocated
	9/23/2007	Grizzly bear killed 1 cow	No action

	9/24/2007	Grizzly depredated 1 yearling heifer	Investigated
	9/24/2007	Grizzly depredated 1 yearling heifer	Investigated
	7/10/2008	Adult grizzly bear killed 1 large calf	Investigated
	8/25/2008	Grizzly bear killed 1 yearling heifer	Investigated
	7/8/2009	Adult male grizzly bear killed a 900-pound steer	Bear captured and relocated
	7/24/2009	Adult male grizzly bear killed 1 steer	Snares set, no capture
	9/6/2009	Grizzly bear killed 1 heifer	Investigated
	9/6/2009	Grizzly bear killed 1 calf	Investigated
	7/30/2010	Grizzly bear killed 1 cow	Investigated
	7/31/2010	Grizzly bear killed 1 cow	Investigated
	8/1/2010	Grizzly bear killed 1 cow	Investigated
	8/2/2010	Grizzly bear killed 1 cow	Investigated
	8/18/2010	Grizzly bear killed 1 steer calf	Investigated
	7/3/2012	Grizzly bear killed 1 yearling heifer	Investigated
	7/5/2012	Grizzly bear killed 1 yearling steer	Investigated, snares set, no capture
	7/7/2012	Grizzly bear killed 1 heifer and injured 1 yearling heifer	Investigated
	7/9/2012	Grizzly bear killed 1 calf	Investigated, snares moved, no capture
	7/10/2012	Grizzly bear killed 1 yearling	Investigated, snares moved, no capture
	7/12/2012	Grizzly bear killed 1 yearling steer	Investigated, snares set, no capture
	7/14/2012	Grizzly bear killed 1 yearling steer	Investigated, snares set, no capture
	8/9/2016	Grizzly bear killed 1 calf	Investigated

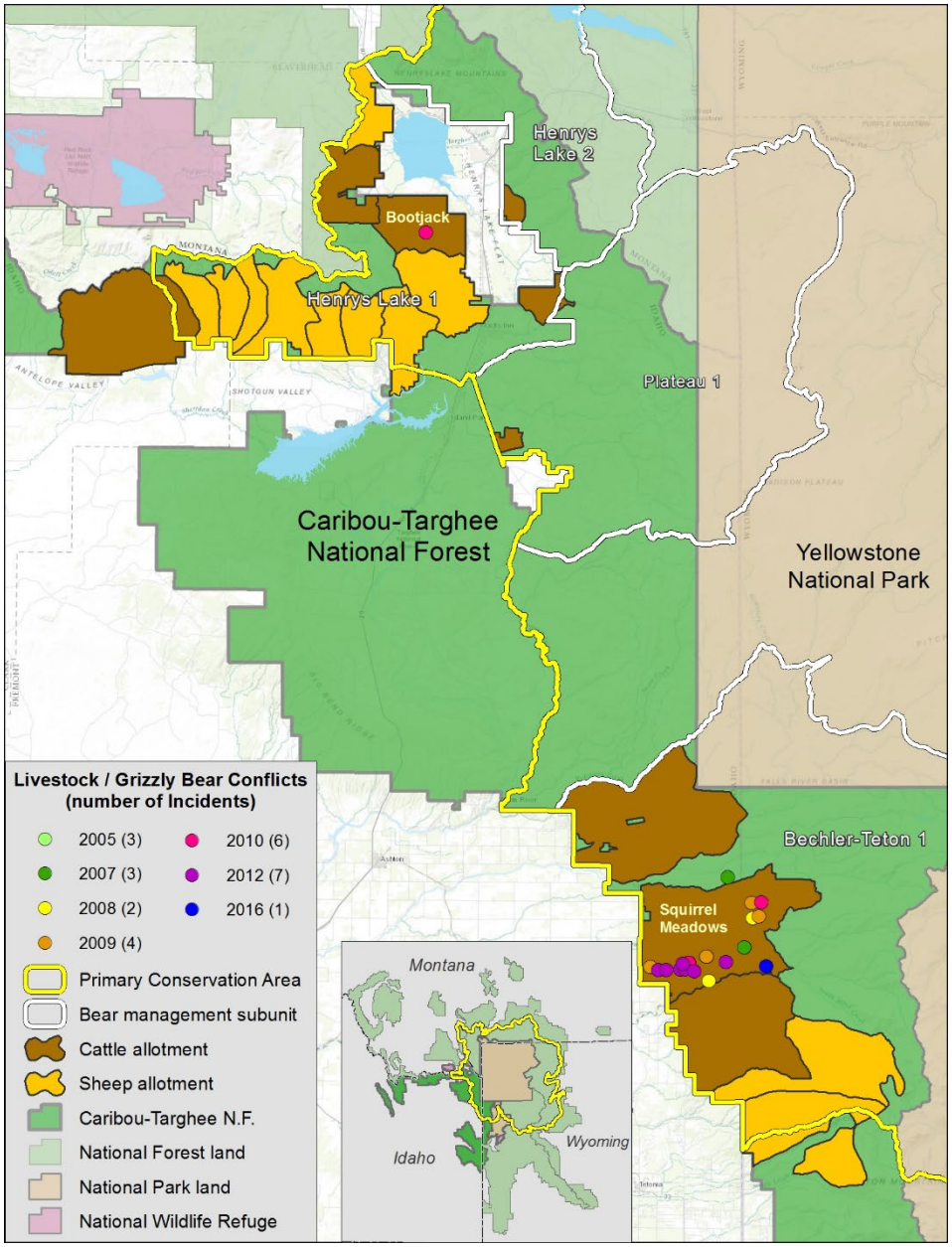

Figure 3: Spatial and temporal distribution of livestock-grizzly bear depredation incidents and subsequent management actions reported on Targhee National Forest grazing allotments inside the Primary Conservation Area during 2005–2016.

Motorized Access Management within the BMUs

Motorized access management was the major management concern for grizzly bear habitat during the Forest Plan revision. The RFP established new motorized access standards for the portions of the BMUs that occur on the Targhee National Forest. In the 1999 Open Road and Open Motorized Trail Analysis EIS (Travel Plan 2) access standards did not change, but several changes were made regarding which roads would be open, restricted, or decommissioned.

Sanitation Accomplishments

For the grizzly bear recovery zone, The Forest has a food storage order requiring all food and other grizzly bear attractants to be properly stored so that bears cannot obtain access to them. The food storage order applies to all Caribou-Targhee lands within the recovery zone, except for the MS 3 area in Island Park.

The Forest has cooperated with the Idaho Department of Fish and Game (IDFG) and County Commissioners in an education program to inform the private land owners of how to live safely in grizzly bear country.

Status of the Grizzly Bear Population in the Greater Yellowstone Area

The grizzly bear was designated as threatened under the Endangered Species Act in the conterminous United States on July 28, 1975. In 2005, the USFWS proposed designating the Greater Yellowstone Ecosystem Population of grizzly bears as a Distinct Population Segment (DPS) and also proposed delisting the species from the Federal List of Endangered and Threatened Wildlife. The final delisting was published in the Federal Register on March 29, 2007 stating that the Greater Yellowstone Ecosystem Population of grizzly bears was recovered. In 2007, the U.S. Fish and Wildlife Service de-listed the Yellowstone Distinct Population Segment of grizzly bears because the population had met all recovery plan goals. However, in 2009, the Federal District Court in Missoula re-listed the Yellowstone grizzly bear by court order because the decline of whitebark pine stands may be a threat to the grizzly bear in the Yellowstone Ecosystem. In 2017, the grizzly bear was once again delisted, but the Service's June 30, 2017 final rule delisting the Greater Yellowstone Ecosystem grizzly bear population was vacated and remanded by the court on September 24, 2018. Therefore, grizzly bears throughout the lower 48 states are listed as threatened, except where designated as an experimental population.

Bald Eagle Nesting Population

Requirements

This monitoring was established to record the occupancy and productivity of the known bald eagle territories on the Forest and the relationship of this trend to habitat changes. Cooperative monitoring with IDFG, Wyoming Game and Fish Department (WYGF), Bureau of Land Management, U.S. Fish and Wildlife Service, and private individuals would be conducted annually (as it has for over one decade). All known territories are to be monitored each year.

Results and Evaluation

The Targhee NF is within the Greater Yellowstone (GY) bald eagle management zone as outlined in the Pacific States Bald Eagle Recovery Plan. According to the Recovery Plan, the habitat management goal for the portion of the GY zone that includes the Targhee NF is to have twenty-three nesting territories. To measure progress toward this goal, cooperative bald eagle territory monitoring has been

conducted every year since 1981. The recovery goal for this area was met in 1988. The population has continued to increase, and in 2016, approximately ninety-one nesting territories had been documented in this area. Out of the ninety-one known territories, forty-two of those either have nests located on NFS Lands or nesting territories that fall within the Targhee National Forest boundary (Table 16).

Table 16: Bald Eagle Nesting Success, 1981-2004. Key to table: '*'= Active or Occupied, Unknown Number of Young; '?'= Unknown Nesting Activity; '-'= Territory not known in survey year.

Territory Name	Territory Number	Number of Advanced Young Each Year													
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
UPPER HENRY'S FORK SNAKE RIVER															
Pine Haven	18-IC-02	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Box Canyon	18-IC-03	1	1	2	2	0	1	0	0	0	0	1	1	1	0
Coffee Pot	18-IC-04	0	0	1	0	2	2	0	1	2	0	0	2	0	0
Bishop Lake	18-IC-05	1	0	1	0	0	0	0	0	0	2	1	1	0	0
Lucky Dog	18-IC-07	0	0	0	0	0	0	0	0	0	?	0	0	0	0
Staley Springs/Targhee	18-IC-09	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Moonshine	18-IC-11	0	0	1	1	2	2	0	1	0	0	0	0	0	0
Last Chance	18-IC-12	2	0	0	0	1	1	0	0	0	1	2	1	1	2
I.P. Bills	18-IC-13	0	2	0	0	2	1	0	0	0	2	0	1	2	0
Flat Rock	18-IC-14	1	0	1	0	0	1	1	2	1	1	2	0	0	0
Riverside	18-IC-15	0	0	0	0	0	0	0	?	*	?	0	*	?	?
Snake River Butte	18-IC-16	2	1	2	0	0	0	0	0	0	0	0	0	0	0
Upper Mesa Falls	18-IC-19	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Middle Reservoir	18-IC-20	0	1	2	0	2	2	2	2	2	2	0	0	0	0
Duck Creek	18-IC-22	-	-	-	-	-	-	-	-	-	1	1	1	1	0
Meadow Creek	18-IC-23	-	-	-	-	-	-	-	-	-	-	-	-	1	0
SOUTH FORK SNAKE RIVER															
Spaulding Ranch	18-IS-40	2	1	0	1	1	0	2	2	3	1	1	2	2	0
Fall Creek Falls	18-IS-68	-	-	-	-	-	-	-	-	-	3	3	3	1	2
PALISADES RESERVOIR AREA															
Hoffman East	18-IS-01	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Williams Creek	18-IS-02	0	1	2	0	0	0	1	1	0	2	1	3	0	0

Van Point North	18-IS-03	2	2	0	0	0	0	0	0	0	0	0	0	0	0
Edwards Creek	18-IS-17	2	0	0	0	2	1	0	0	0	1	1	0	0	1
King Creek	18-IS-18	0	0	2	2	2	0	0	0	0	0	2	0	0	1
Hoffman/McCoy	18-IS-28	2	0	1	0	2	2	2	1	0	0	1	0	0	1
Van Point South	18-IS-29	0	2	1	0	2	1	0	1	1	0	0	2	2	2
Sulphur Bar	18-IS-52	-	-	-	-	0	2	1	0	0	0	0	1	1	0
Burns Creek	18-IS-53	-	-	-	-	2	1	1	2	2	2	0	0	0	0
Trout Creek	18-IS-56	-	-	-	-	-	0	0	0	0	0	1	2	1	0
TETON RIVER															
Trail Creek/Teton Springs	18-IS-44	-	-	1	1	0	0	0	0	2	0	0	2	0	2
TOTALS															
Total Advanced Young		16	12	17	7	20	17	10	13	13	18	17	22	13	9
Territories Occupied and/or Active		21	22	23	22	25	26	26	25	26	26	28	28	28	28

Table 16 illustrates the nesting success from 2005-2018, in terms of number of advanced young birds documented at each nesting territory that falls within the Targhee National Forest boundary. Nesting success has been variable between years. The lowest nesting success occurred in 2008 and 2018, with 7 and 9 advanced young respectively, and the highest in 2009 and 2016, with 20 and 22 advanced young respectively.

Nesting success has been more variable from Targhee NF nests than from other nests. Targhee nests occur at higher elevations than the other nests. Monitoring reports have documented that nesting success is lower when cold wet springs occur, particularly in the higher elevations (Whitfield 1999).

Even though nesting success has been variable, the net results indicate stable population. Because adult bald eagles are long-lived and have low mortality, the annual variability in nesting success is not a negative factor (Mark Orme, personal communication). At the present time, Forest biologists are unable to predict when the available bald eagle habitat will be fully occupied, resulting in no further increases in the bald eagle population.

The standards and guidelines in the RFP limit human disturbance around nesting zones and do not allow forest activities that could damage habitat. The number of territories in the Greater Yellowstone management zone and on the Forest continues to increase. Productivity has fluctuated over the past two decades, but the net result is still an increasing population. The critical factors in bald eagle production appear to be spring weather and water levels in the nesting season. The annual variability in bald eagle production also may be due, in part, to the saturation of available habitat by adult bald eagles as the overall nesting population continues to grow (Whitfield 1998). Forest management activities are not impairing the viability of the bald eagle on or adjacent to the Targhee National Forest.

Gray Wolf Population

Requirements

In cooperation with the US Fish and Wildlife Service and wolf monitoring teams, all verified wolf sightings and reports of wolf pack activity are to be recorded and investigated. This information is to be used to measure wolf population trends and the impacts of habitat management on that trend. Where packs are established, activities would be monitored to insure they are in compliance with RFP standards and guidelines.

Results and Evaluation

The portion of the Forest that is east of Interstate 15 was within the Yellowstone Non-essential Experimental Population Area (also referred to as the Yellowstone Wolf Recovery Area) and the portion of the Forest that is west of Interstate 15 was within the Central Idaho Non-essential Experimental Population Area (also referred to as the Central Idaho Wolf Recovery Area) until 2007 when these two Population Areas were combined with others to form the Northern Rocky Mountain (NRM) Distinct Population Segment (DPS). This DPS encompasses the eastern one-third of Washington and Oregon, a small part of north-central Utah, and all of Montana, Idaho, and Wyoming.

This population was initially delisted in 2009, but the delisting decision was litigated, and ESA protections were reinstated. The species was again delisted in 2011 in all portions of the Distinct Population Segment except Wyoming. The delisting of the wolf in Wyoming was re-instated in 2017.

The requirements of section 4(g) (Endangered Species Act 1988 reauthorization) were triggered by this delisting and the Service worked closely with state wildlife agencies in the development and implementation of a post de-listing monitoring plan.

Idaho continued to monitor the wolf population for 5 years post-delisting per Section 4(g) of the Endangered Species Act 1988 reauthorization. At the end of 2015, it is estimated that there were 1,704 wolves in 282 packs with 95 breeding pairs within the NRM DPS. Between 2005 and 2015, there have been 10 known wolf packs that have formed in the Idaho portion and three known packs in the Wyoming portion of the Targhee NF. Wyoming continues to complete post de-listing monitoring.

Prior to May 2016, the primary objective for monitoring of wolves in Idaho was to assess population characteristics relative to delisting criteria. Monitoring is now designed to assess the population relative to criteria in the 2002 Wolf Plan and to inform harvest and other management decisions.

Table 17: Idaho Wolf Pack Survey Data 2005-2015.

Pack Name / Survey Year	Min Estimated Pack Size	Min Number Pups Produced (Died)	Documented Mortalities	Known Dispersed	Breeding Pair
Biscuit Basin Pack (AIP/TB)					
2015	-	2(2)	-	0	Unknown
2014	-	1(1)	-	0	Unknown
2013	4	-	-	0	No
2012	9	3	-	0	Yes
2011	-	-	-	0	No
2010	2	2	-	0	Yes
2009	4	2(1)	-	0	No
2008	7	-	-	-	No
2007	5	2	-	-	Yes
2006	-	-	-	-	-
2005	7	2	1	-	Yes
Bishop Mountain Pack (D/AIP)					
2015*	0				
2014	-	-	-	1	Unknown
2013	6	1(1)	-	0	No
2012	5	1	-	0	No
2011	-	-	-	0	No
2010	4	3	-	0	Yes
2009	5	1	-	0	No
2008	5	4	0	0	Yes
2007^{+}	-	-	0	0	-
2006	-	-	-	-	-
2005^{+}	4	-	-	-	-
Bitch Creek Pack/Coyote Meadows (AIP/TB)**					
2017	4	-	2	-	-
2015	-	-	-	0	Unknown
2014	-	2(2)	-	0	Unknown
2013	5	-	-	0	No

2012	6	2	-	0	Yes
2011	4	2	-	0	Yes
2010	-	5	-	0	Yes
2009	7	2	-	0	Yes
2008	5	2	2	0	Yes
Fogg Butte Pack (AIP)					
2015	7	3	-	0	Yes
2014	10	2	-	0	Yes
2013	9	3(3)	-	0	No
2012	7	-	-	0	No
2011	-	1(1)	-	0	No
2010	-	-	1	-	No
2009	7	3	-	0	Yes
Four Eyes Pack (D)					
2016	5	-	-	-	Unknown
2015	-	-	-	-	Yes
2014	4	-	-	-	Unknown
2013	-	-	-	0	No
2012	-	2(2)	-	0	No
2011	6	-	-	-	Unknown
2010	6	-	1	-	Unknown
Henry's Lake (AIP)					
2013*	0				
2012	10	3	-	0	Yes
2011	4	2	-	0	Yes
2010	-	2	-	0	Yes
2009	6	0	-	0	No
2008[+]	7	-	-	-	-
Jefferson Pack (AIP)					
2015[+]	-	-	-	-	-
Madison Pack (AIP)					
2015	-	-	-	0	Unknown
2014	-	1(1)	-	0	Unknown
2013	8	2	-	0	Yes
2012	9	4(1)	-	0	Yes
2011	-	-	-	-	-
Pine Creek Pack (TB/P)					
2015	-	-	-	0	Unknown
2014	-	-	-	0	No
2013	4	11(10)	-	0	No
2012	6	-	-	0	No

2011	-	0	-	0	-
Pleasant Valley Pack (D)					
2015	4	-	-	-	Unknown
2014*	0				
2013	-	-	-	0	No
2012	4	2	-	0	Yes
2011	-	1(1)	-	0	No
Price Creek Pack (D)					
2016	6	-	7	-	Yes
2015	-	-	-	-	-
2014	6	-	3	-	-
2013	-	-	-	-	-
2012	3	-	6	-	-
2011	5	-	1	-	-
Tex Creek Pack (P)					
2015*	0				
2014	-	3(3)	-	0	No
2013	2	-	-	0	No
2012	1	2	-	0	No
White Owl Pack (TB/P)					
2015[+]	-	-	-	-	-

*Pack Terminated
** Pack began denning in WY and WY assumed management; pack given a different name by WY
[+]Suspected Pack
-No Data

Table 18: Wyoming Wolf Pack Survey Data 2005-2017.

Pack Name / Survey Year	Min Estimated Pack Size	Documented Mortalities	Known Dispersed	Missing
Bechler Pack (AIP)				
2017	8	-	-	-
2016	9	-	-	-
2015	6	-	-	-
2014	10	-	-	-
2013	11	-	-	-
2012	10	2	-	-
2011	4	-	-	-
2010	11	-	-	-
2009	6	1	-	-
2008	9	1	-	-
2007	11	-	-	-
2006	13	-	-	-
2005	9	-	-	-
Chagrin River Pack (TB/P)				

2017	7		1	1
2016	6	-	-	-
2015	6	1	-	-
2014	2	-	-	-
2013	5	-	-	-
2012	6	2	-	-
2011	7	1	-	-
2010	8	-	-	-
2009	7	-	-	-
2008	5	-	-	-
Dog Creek (P)				
2017	3	-	-	-
2016	2	-	-	-
2015	2	-	-	-
2014	0	-	-	-
2013	0	4	-	-
2012	3	1	1	-
2011	6	4	-	-
2010	10	-	-	-
2009	6	5	-	-
2008	6	1	-	-

-No Data

Peregrine Falcon Nesting Population

Requirements

Cooperative monitoring of the occupancy and productivity of known peregrine falcon nest sites and territories is to be done to determine its relationship with habitat changes. This is to be conducted annually.

Results and Evaluation

Peregrine falcons are distributed throughout North America and are increasing steadily after a drastic decline in the 1950s and 1960s due to the pesticide DDT. In 1977, a recovery plan for the peregrine was developed. One of the reclassification objectives was to have a minimum of seventeen breeding pairs in Idaho, producing an average of 1.25 young each year. In 2004, twenty-six occupied territories were documented in Idaho, producing an average of 1.6 young per occupied territory and 2.3 young per successful territory (Sallebanks 2004; Johnston et al. 2003). In the spring of 2000, the peregrine falcon was removed from the Endangered Species List.

Current monitoring efforts of peregrine falcon eyries on the Targhee National Forest have been sporadic due to higher priority monitoring and lack of personnel to fully complete monitoring requirements at all known eyries located on the forest. IDFG completes peregrine falcon monitoring every third year throughout the state. Additionally, WYGF biologists have monitored peregrine eyries on the Targhee National Forest almost on a yearly basis. Table 19 displays the occupancy and

productivity data obtained from both the Targhee National Forest, IDFG, and WYGF personnel between 2005 and 2018. As shown in the table, occupancy at some territories was not determined in some years, likely due to surveys not being done. Therefore, occupancy and productivity could be higher than what is reported in the table.

According to the analysis for the RFP, human-caused disturbance or habitat alterations close to an active peregrine nest are the greatest potential hazard currently. RFP standards and guidelines were developed to minimize this potential. Peregrines have successfully fledged young in the known territories since the revision of the Forest Plan; this success leads Forest biologists to assume Forest Plan standards and guidelines are adequately protecting the eyries. Furthermore, forest management activities have not prevented an increase in the number of occupied territories on the Forest.

Table 19: Known Peregrine Falcon Territories that are within or Immediately Adjacent to the Targhee National Forest 2005-2018

Territory	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
02i886021	U	U	U	U	U	U	U	U	-	-	U	-	-	
03i896033	OA/2	OA/2	OA/1	OA/0	-	-	-	OA/1	-	-	O	-	-	
04i906043	-	OA/1	OA/0	U	U	-	-	U	-	-	U	-	-	
06i906063	OA/2	OA/1	-	OA/2	U	-	-	U	-	-	U	-	-	
10i916072	OA/2	OA/1	-	OA/3	OA/1	-	-	OA/0	-	-	O	-	OA/?	OA/?
14i936103	OA/1	OA/0	-	OA/1	OA/3	-	-	OA/3	-	-	OA/3	-	-	O
25i996151	-	OA/1	-	-	OA/2	-	-	OA/3	-	-	O	-	-	
33i036121	OA/2	U	U	U	U	-	-	U	-	-	U	-	-	
34i036131	OA/3	OA/3	-	U	U	-	-	OA/0	-	-	OA/1	-	-	
38i066151	-	-	OA/2	OA/2	*	-	-	U	-	-	U	-	-	
40i076171	-	-	OA/0	U	U	-	-	U	-	-	U	-	-	
41i076181	-	-	-	-	U	-	-	-	-	-	-	-	-	
43i071021			OA/1	OA/1	OA/1	-	-	OA/2	-	-	-	-	-	
01w041556	OA/2	OA/3	OA/3	O	OA/1	-	O	O	-	O	O	-	U	-
02w041556												OA/3	-	-
Total Occupied Territories	6	7	5	6	4	-	-	6	-	-	5	-	1	1
Total Young Produced	12	9	4	9	7	-	-	9	-	-	-	-	-	-

***U** = Territory unoccupied*
***O** = Territory Occupied*
***OA/# =** Territory occupied by a pair, nest active, and the number of young fledged*
***OA/? =** Territory occupied by a pair, nest active, but unknown productivity*
***-** = Unknown occupancy (in most cases because surveys were not done)*

Furbearer Populations

Requirements

Winter track survey routes in each ecological subsection are to be established and at least half read each year to measure population trends of pine marten, fisher, and wolverine. Because wolverine and fisher have natural limited distribution and low population densities on the Forest, additional monitoring methods are used such as recording sightings, and cooperating with studies. Results of the additional monitoring methods are also reported here.

Winter track survey routes also provide information on a few other species, such as weasels, coyotes and fox, red squirrels, snowshoe hares, bobcats, mountain lions (cougars), mink and river otter, cottontail rabbits, and forest grouse. Information on these species is ancillary information gathered with the winter track survey routes, and number of detections are summarized in Table 20.

Many of these species are associated with forested habitats, especially mature, late seral, and old growth forest habitats. Changes in mature, late seral, and old growth forest habitats are documented in other areas of the monitoring report, such as the insect and disease, fire, vegetation, and timber management sections. Habitat for species associated with late seral forests is also discussed in that section.

Results and Evaluation

Table 20 provides a summary of all documented detections on all winter track survey routes completed from 2005-2018. Completion of winter track survey routes has been sporadic on the Targhee National Forest due to inadequate field conditions and more often lack of personnel (i.e., the need for a minimum 2 surveyors per route) to fully complete monitoring requirements.

Table 20: Summary of Winter Track Survey Route Data from 2005-2018

Year	Total Miles Surveyed	Wolf	Coyote	Fox	Canine	Cougar	Bobcat	Lynx	Feline	Marten	Fisher	Wolverine	Weasel	Mink	Otter	Snowshoe Hare	Cottontail	Squirrel	Grouse	Other Prey
2005	238.6	1	126	19	151	1	3	0	0	193	0	0	420	1	0	421	139	1123	48	122
2006	150.6	0	106	1	264	2	7	0	0	158	0	0	251	0	1	529	42	632	20	118
2007	53.3	0	58	0	54	1	0	0	2	23	0	0	82	0	0	8	1	81	8	46
2008	102.2	0	8	6	289	3	10	0	5	34	0	0	144	0	0	265	9	549	53	17
2009	100	6	22	8	121	0	0	0	1	67	0	1	105	0	0	361	28	528	33	135
2010	86.1	0	68	0	18	0	0	0	0	52	0	0	46	0	1	50	0	273	12	0
2011	74.3	0	38	1	31	0	0	0	4	50	0	0	92	1	0	163	2	252	25	7
2012	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2013	7.2	0	38	0	0	0	0	0	0	8	0	0	49	0	0	3	0	49	1	0
2014	64.6	0	1	3	47	0	0	0	0	60	0	0	62	0	1	194	0	623	146	0
2015	33	1	7	0	25	0	0	0	0	35	0	0	56	0	0	71	1	121	19	0
2016	39.6	0	9	0	85	0	0	0	0	41	0	0	61	0	0	144	5	128	17	3
2017	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2018	9.5	0	23	0	0	0	0	0	0	0	0	0	43	0	0	0	0	8	6	50

Pine Marten

Marten are associated with conifer forest habitat. Marten tracks have been documented on all the winter track survey routes, indicating that they are well distributed through 6 ecological subsections. Marten were detected only one time between 2005-2018 on the Fall/June Creek survey route (in the Caribou Range Mtns Subsection).

Most of these routes include areas of past timber harvesting, and four of the routes occur in areas where the lodgepole pine timber harvest salvage program occurred from the 1970s to the early 1990s. The track data shows that marten distributions have not changed due to past timber harvesting.

Wolverine

Wolverine tracks were documented on only one winter track survey route between 2005 and 2018. This route was the South Leigh/Kiln Creek Route in the Teton Range Subsection. Since the early 1960s, the Forest has recorded locations of wolverine sightings. These sightings provide a good overview of the distribution of wolverines on the Forest. Sighting data shows that wolverines occupy the Lemhi/Medicine Lodge Ecological Subsection, the Centennial Mountain Ecological Subsection and the Teton Range Ecological Subsection. The highest number of locations has occurred in the Centennial Mountain Ecological Subsection and the Teton Range Ecological Subsection (Targhee National Forest-Process Paper D 1997, Caribou-Targhee National Forest 2000).

Fisher

No fisher tracks were observed between 2005 and 2018 on any winter track survey routes.

Goshawk Population

Requirements

To measure the population trend and its relationship to habitat changes, a minimum of fifteen goshawk nesting territories are to be surveyed each year. Surveys record adult occupancy, productivity, human activities and habitat parameters. This data is to be analyzed to determine if RFP standards and guidelines are effectively protecting the northern goshawk.

Results and Evaluation

The type of monitoring for goshawks is designed to measure population trends of goshawks and relationships to habitat changes. The method is to randomly sample, at a minimum, 15 goshawk nesting territories each year. This strategy was implemented until 2013 when it was decided that monitoring would occur on each planning unit (Caribou and Targhee) every other year as opposed to every year. Table 21 shows goshawk nest occupancy, activity and productivity on the Targhee National Forest since 2005. There are years in which only occupancy was determined, and nest success was not due to lack of time to revisit nest sites, or inability to locate the nest of the year.

Patla (2000) describes the difficulty of monitoring goshawk territories. Goshawk pairs that attempt to lay eggs but have a failure, leave the nest area early in the breeding season. Estimating occupancy status of territories where eggs were not laid may require regular visits to the nest area three weeks prior to and one week after egg laying. Since between 50 and 71 percent of territorial pairs move to alternate nests each year, searching for pairs outside of known nest areas is required in the nestling and fledgling periods and results in the largest investment of time for the monitoring program. Searches within a 1-kilometer radius of known nest trees are needed to locate 90-95 percent of alternate nests (Reynolds et al. 2005).

Table 21: Northern Goshawk Nest Occupancy, Activity, and Productivity on the Targhee National Forest

Targhee NF	2005	2006	2007	2008	2009	2010	2011	2012	2014	2016[2]	2018	Mean
# Territories Monitored	16	16	16	16	16	16	16	16	16	7	13	15
# Occupied Territories	7	8	5	9	10	8	4	8	9	2	6	7.5
% Occupied	44%	50%	31%	56%	63%	50%	25%	50%	56%	29%	46%	45%
# Successful Territories[1]	1	5	2	2	6	5	1	5	5	1	1	3.1
% Successful Territories	14%	63%	40%	22%	60%	63%	25%	63%	55%	50%	17%	43%
# Fledglings Produced	3	11	5	5	12	10	2	12	8	3	1	6.5
# Fledged/Occupied Territory	0.43	1.38	1	0.55	1.20	1.25	0.50	1.50	0.88	1.5	0.17	0.94
# Fledged /Successful Territory	3.0	2.2	2.5	2.5	2.0	2.0	2.0	2.4	1.6	3.0	1	2.2

[1]Successful territories are those that fledged at least one nestling

[2]Most of the 2016 data cannot be located and therefore, this year represents an incomplete data set that has been skewed based on the small number of territories on which data could be found.

[*]Switched in 2013 to every other year monitoring, thus no data exists for 2013 and 2015.

Table 22: Targhee National Forest Northern Goshawk Territory Data

Targhee National Forest	2005	2006	2007	2008	2009	2010	2011	2012	2014	2016[1]	2018
Total Known Territories	53	53	53	53	53	53	53	57	57	59	63
Territories Added	0	0	0	0	0	0	0	4	0	0	7
Territories Deleted	0	0	0	0	0	0	0	0	0	0	4
Territories Monitored	16	16	16	16	16	16	16	16	16	7	13
Percent Territories Monitored	30%	30%	30%	30%	30%	30%	30%	28%	28%	12%	21%
Territories Occupied	7	8	5	9	10	8	4	8	9	2	6
Percent Monitored that were Occupied	44%	50%	31%	56%	63%	50%	25%	50%	56%	29%	46%
Active Nests	1	5	4	4	7	6	1	5	5	1	3
Percent Monitored Territories with Active Nests	6%	31%	25%	25%	44%	38%	6%	31%	31%	14%	23%
Percent Occupied Territories with Active Nests	14%	63%	80%	44%	70%	75%	25%	63%	56%	50%	50%
Fledglings	3	11	5	5	12	10	2	12	8	3	1
Fledglings per Active Nest	3.00	2.20	1.25	1.25	1.71	1.67	2.00	2.40	1.60	3.00	0.33
Fledglings per Monitored Territory	0.19	0.69	0.31	0.31	0.75	0.63	0.13	0.75	0.50	0.43	0.08

[1]Most of the 2016 data cannot be located and therefore, this year represents an incomplete data set that has been skewed based on the small number of territories on which data could be found.

*Switched in 2013 to every other year monitoring, thus no data exists for 2013 and 2015.

As of 2018, there are a total of 63 known territories on the Targhee National Forest. One new territory was discovered in 2017 during project level surveys and was subsequently added to the list of nests to be monitored for Forest Plan monitoring in 2018. In 2018, 4 of the new territories were newly discovered, found during project related surveys, while the other 4 were split off a known territory due to distance of nest clusters (greater than one mile). Territories deleted from monitoring were: two territories that had previously been burned and were deemed no longer suitable, and two territories that were located on private land adjacent to the Forest boundary.

The Revised Forest Plan states that the threshold or indicator that management might need to be changed or altered is whether there is a sustained downward trend of adult territory occupancy after a period of four years. Many factors could influence goshawk territory occupancy and reproductive success over time including; annual climate fluctuations, spring moisture, prey cycles and availability, natural disturbance regimes, management actions, predation and mortality. Since no climate, prey or mortality data is collected we assume that occupancy fluctuations over time can be indicative of our management actions without considering other factors. Based on these data, it can be inferred that management activities on the Targhee National Forest are being implemented in such a way that goshawk habitat and populations can be sustained over time.

Forest Owl Population

Requirements

To measure population trends of boreal, great gray, and flammulated owls, a minimum of ten miles of winter calling transects is to be set up in each ecological subsection. Standard survey methods have been used by Forest employees for several years. Habitat changes in the vicinity of the calling transects will be recorded and relationships between the two analyzed.

Results and Evaluation

Forest owl (great gray owl, boreal owl, and flammulated owl) monitoring transects established seven ecological subsections on the Forest were monitored somewhat sporadically in the years 2005-2018. The results of this monitoring are shown in Table 23, Table 24, Table 25, Table 26, Table 27, Table 28, and Table 29. A summary of the data for each species from the monitoring transects follows the tabular data.

As shown in the tables below, occupancy was not determined on several of the transect routes in some years, likely due to surveys not being completed. For safety reasons, surveyors need to go out in pairs to complete owl transects, and it is often difficult to find a survey partner for night work and this is the main reason surveys for the owl species have not been completed as thoroughly. Therefore, occupancy could be higher than what is reported in the tables.

Table 23: Centennial Mountains Owl Transect Route Results

Ecological Subsection	Transect Name	2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected
Centennial Mountains	Cottonwood Loop	1	**GGOW BOOW**	1	**BOOW**	0	-	0	-	1	**BOOW GGOW** NSWO	2	**BOOW** NSWO	1	**BBOW** GHOW	0	-	1	**BOOW**	1	**GGOW BBOW**	1	**GGOW BOOW**	0	-	0	-	0	-
	Stoddard-Van Noy	1	**GGOW**	0	-	3	**BOOW GGOW** GHOW NSWO	3	**BOOW**	0	-	2	NSWO **GGOW**	3	NSWO **GGOW**	2	GHOW NSWO	1	**GGOW**	1	**BOOW GGOW** NSWO	1	GHOW **GGOW** NSWO NOPO	1	**BOOW**	0	-	0	-
	Three Mile-Corral-Rattlesnake	1	GHOW **GGOW**	0	-	1	-	1	-	0	-	2	**BOOW** NOPO LEOW	0	-	2	**BOOW** NSWO LEOW	2	GHOW	1	**BOOW** NSWO	1	**BOOW** NSWO	0	-	0	-	0	-
	East Sawtell	0	-	0	-	1	**BOOW**	0	-	1	**BOOW GGOW**	1	**GGOW**	1	**BOOW**	0	-	1	**BOOW**	1	NOPO	1	**BOOW**	1	-	0	-	0	-
	Willow Creek	0	-	1	-	1	GHOW **GGOW BOOW**	0	-	1	**GGOW**	0	-	0	-	0	-	1	NSWO **GGOW BOOW**	1	**GGOW BOOW**	1	Unk NSWO **BOOW**	1	**BOOW**	0	-	0	-

Table 24: Madison-Pitchstone Owl Transect Route Results

Ecological Subsection	Transect Name	2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected
Madison-Pitchstone	Lower Black Canyon	1	**BOOW**	0	-	1	**BOOW**	0	-	1	NSWO **GGOW BOOW**	1	**BOOW GGOW**	0	-	0	-	1	NSWO **BOOW GGOW**	1	**BOOW GGOW** NSWO	1	**BOOW GGOW**	1	-	0	-	0	-

Table 25: Island Park Owl Transect Route Results

Ecological Subsection	Transect Name	2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected
Island Park	Green Canyon	0	-	2	NOPO **BOOW GGOW**	1	**BOOW GGOW**	0	-	1	**BOOW GGOW**	1	**BOOW** NSWO	1	**GGOW**	0	-	1	NOPO **BOOW**	1	**BOOW**	1	WESO **GGOW**	1	**BOOW** NSWO	0	-	0	-
	Chick Creek Flat	2	**BOOW GGOW**	1	**GGOW**	2	**BOOW GGOW**	1		2	**BOOW**	1	-	1	-	0	-	1	-	0	-	1	**BOOW** NSWO	1	-	0	-	0	-

	Marysville Hill	0	-	0	-	0	-	0	-	1	NSWO	1	**BOOW**	0	-	0	-	0	-	1	NSWO	1	NSWO **BOOW**	1	NSWO	0	-	0	-
	Black Springs	2	**BOOW GGOW** NOPO	3	**BOOW GGOW** NSWO	0	-	0	-	2	**BOOW**	1	-	1	**GGOW** Unk	0	-	1	NOPO **BOOW**	1	**BOOW** NSWO	2	NSWO **BOOW**	1	NSWO **BOOW GGOW**	0	-	0	-

Table 26: Teton Range Owl Transect Route Results

Ecological Subsection	Transect Name	2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected
Teton Range	Dry Ridge	0	-	1	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
	Bustle Creek	2	GHOW NSWO Unk	2	GHOW	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	1	**BOOW** NSWO	0	-	0	-	0	-

Table 27: Lemhi Medicine Owl Transect Route Results

Ecological Subsection	Transect Name	2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected
Lemhi-Medicine Lodge	Italian Canyon	0	-	0	-	0	-	0	-	0	-	2	Unk NSWO LEOW	1	GHOW	2	NSWO **BOOW**	2	-	1	-	1	LEOW **BOOW**	1	LEOW	0	-	0	-

Table 28: Big Hole Mountains Owl Transect Route Results

Ecological Subsection	Transect Name	2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected
Big Hole Mountains	Kelly-Table Rock	2	**GGOW FLOW** NSWO	2	**GGOW** NSWO	1	**FLOW** NSWO	2	-	2	-	0	-	0	-	0	-	3	-	0	-	1	**FLOW GGOW** NSWO	1	**FLOW GGOW**	1	-	2	**FLOW**
	Fleming Canyon	2	GHOW NSWO **FLOW**	1	**FLOW**	1	**FLOW** NSWO	1	**FLOW** NSWO	1	**FLOW**	1	**FLOW** Unk	0	-	0	-	1	**FLOW** NOPO	0	-	1	**FLOW**	1	**FLOW**	1	**FLOW**	2	**FLOW** LEOW GHOW
	Alpine-Long Spring	3	**GGOW FLOW** NSWO	2	**FLOW** NSWO	1	**FLOW** NSWO	1	**FLOW**	2	**FLOW** NOPO	0	-	0	-	0	-	3	**FLOW**	2	**FLOW**	1	**FLOW**	1	-	1	**FLOW**	0	-
	Swan Valley-Sheep-Sawmill	3	LEOW GHOW NSWO **FLOW**	2	**GGOW** NSWO **FLOW** GHOW	3	-	2	**FLOW** NSWO	4	NSWO **FLOW** GHOW	1	**FLOW** NSWO	0	-	0	-	0	-	2	**FLOW**	4	NSWO **FLOW** GHOW	1	**FLOW**	2	**FLOW**	0	-
	Lower Rainey	2	**FLOW**	1	NSWO	1	-	1	-	2	**FLOW** NSWO	0	-	0	-	0	-	1	-	1	-	1	**FLOW** GHOW	1	GHOW	1	-	2	**GGOW**
	Moody Swamp	1	**BOOW** NSWO	1	-	0	-	1	-	1	NSWO	0	-	0	-	0	-	0	-	1	-	0	-	0	-	0	-	0	-
	Mike Spencer	1	**FLOW** NSWO	1	**FLOW**	1	**FLOW** NSWO	1	-	1	**FLOW** NSWO	1	-	0	-	0	-	3	**FLOW** Unk	0	-	2	**FLOW GGOW** NSWO	1	Unk	2	-	2	-
	Horseshoe-Packsaddle	0	-	2	NSWO GHOW LEOW	0	-	1	-	0	-	0	-	0	-	0	-	1	-	1	-	1	**GGOW FLOW**	1	-	1	NSWO	0	-

Table 29: Caribou Mountains Owl Transect Route Results

Ecological Subsection	Transect Name	2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018	
		Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected	Times Run	Species Detected
Caribou Mountains	Hoffman-McCoy	2	NSWO GHOW	2	NSWO GHOW	2	-	1	-	1	-	1	GHOW	0	-	0	-	0	-	2	GHOW NSWO	2	**FLOW**	1	NSWO	0	-	2	**FLOW**
	Calamity	2	NSWO GHOW	2	NSWO GHOW **FLOW**	2	NSWO	1	NSWO GHOW	2	NSWO	0	-	0	-	0	-	0	-	2	-	3	NSWO GHOW **FLOW**	2	NSWO GHOW	1	**FLOW**	1	GHOW
	Long Gulch-Little Box	2	**FLOW** NSWO	1	**FLOW** NSWO	1	NSWO	2	**FLOW** NSWO	0	-	0	-	0	-	0	-	0	-	2	NSWO GHOW **FLOW**	2	NSWO **FLOW**	1	-	1	NSWO	1	**FLOW**

Great Gray Owls

- Great gray owls have been documented in four of the seven ecological subsections of the Forest.
- 16 monitoring routes have been run at the proper times (late February through April) for great gray owls. Great Gray owls have been found on 10 of these routes (63 percent of the routes).
- Great gray owls have large territories, and it is possible to miss an owl on one or two surveys because it may be in another area of its territory. On the routes where two or more surveys have been done in a single year, the data shows that owls can be missed on one or more surveys but are found on another survey during the same year. This illustrates that each route should have at least three surveys done each year to more accurately document the presence of great gray owls.
- Great gray owls are occasionally documented on monitoring routes run for flammulated owls. This has occurred on five routes in the Big Hole Mountains Subsection (Kelly-Table Rock, Alpine-Long Springs, Swan Valley-Sheep-Sawmill, Lower Rainey, and Mike Spencer).
- The monitoring data shows that great gray owls are distributed in four ecological subsections, and they are persistent on nearly all the monitoring routes they have been detected on. The monitoring data indicates a stable population.

Boreal Owls

- Boreal owls have been documented in six out of the seven ecological subsections of the Forest. They have not been documented in the Caribou Mountains Subsection.
- There are 16 monitoring routes that have been run at the proper times (late February through April) in the six ecological subsections with boreal owls. Boreal owls have been found on 13 of these routes (81 percent of the routes). The only route without boreal owls is the Marysville Hill route.
- Boreal owls have large territories, and it is possible to miss an owl on one or two surveys because it may be in another area of its territory. On the routes where two or more surveys have been done in a single year, the data shows that owls can be missed on one or more surveys but are found on another survey during the same year. This illustrates that each route should have at least 3 surveys done each year to more accurately document the presence of boreal owls.
- The monitoring data shows that boreal owls are distributed in six ecological subsections, and they are persistent on nearly all the monitoring routes they have been detected on. The monitoring data indicates a stable population.

Flammulated Owls

- Flammulated owls have been documented in just two of the seven ecological subsections of the Forest, which is the smallest distribution of the three forest owl species. Those two subsections are the Big Hole Mountains and Caribou Mountains subsections.
- Flammulated owls are migratory and do not return to this area until late in the spring. There are 10 monitoring routes that have been run at the proper times (May, June and early July) in

the two ecological subsections with flammulated owls. Flammulated owls have been found on 10 of these routes (91 percent of the routes).

- Flammulated owls have much smaller territories than boreal owls and great gray owls, but the data shows that it is still possible to miss an owl on one or two surveys. On the routes where two or more surveys have been done in a single year, the data shows that owls can be missed on one or more surveys but are found on another survey during the same year. This illustrates that each route should have at least 3 surveys done each year to more accurately document the presence of flammulated owls.
- The monitoring data shows that flammulated owls are distributed throughout two ecological subsections, and they are persistent on all monitoring routes they have been detected on. The monitoring data indicates a stable population.

Trumpeter Swan Nesting Population

Requirements

Occupancy of suitable nesting habitat and productivity of swan pairs found is to be recorded annually in trumpeter swan nesting habitat. Highest priority is given to the ponds and lakes identified in the RFP standards and guidelines. This monitoring item would determine if the standards and guidelines are adequate to protect this management indicator species. The ponds and lakes identified in the RFP are: Boundary Pond, Swan Lake, Lily Pond, Hatchery Butte, Railroad Pond, Mesa Marsh, Bear Lake, Upper Goose Lake, Long Meadows, Thompson Hole, Twin Lakes, Chain Lakes, Widgit Lake, Rock Lake, Indian Lake, Putney Meadows, and Unnamed Pond. The survey protocol involves two or three visits to a site each year. An early spring check determines the presence of a pair, after that checks are made to document nest incubation and cygnet production.

Results and Evaluation

From 2005-2018, a total of 53 lakes and ponds were monitored for trumpeter swan occupancy and production (Table 30) through a challenge-cost share agreement with The Trumpeter Swan Society (TTSS) and later with Northern Rockies Conservation Cooperative (NRCC), a Memorandum of Understanding with IDFG, data sharing with WYGF, as well as through volunteer work by Idaho Master Naturalists.

Current objectives for the minimum breeding pairs of trumpeter swans in the Tri-state region are to have ten pairs on the Targhee portion of the Caribou-Targhee National Forest (Maj and Shea 1996). Forest biologists determined that to reach this number, more sites would need to be managed for nesting swans. The RFP designated 17 sites which would receive swan management emphasis. These 17 sites are part of the total monitoring effort on the Targhee between 2005 and 2018. Of the 17 sites designated, nine have had breeding pairs and two others have been occupied by pairs where breeding activity was not observed between 2005 and 2018. On sites not designated in the RFP, there were an additional 12 sites with breeding pairs and an additional two sites occupied by pairs where breeding activity was not observed. In total between 2005 and 2018, there have been 21 sites occupied by breeding pairs and four sites occupied by non-breeding pairs in one or more years (Table 30). An average of 7.7 sites were occupied between 2005 and 2018. The highest occupancy occurred in 2006 when 11 sites were occupied by pairs. Conversely, the lowest occupancy year was in 2012 when only five sites were occupied by pairs. From 2005-2018, the data shows there has not been a significant overall increase or decrease in site occupancy by pairs.

Between 2005 and 2018, only thirteen sites produced cygnets (Table 30). Just five of the 53 monitored sites account for 82 percent of the total cygnets hatched and 90 percent of the total cygnets fledged, with two sites being the most productive, those being Mesa Marsh and Swan Lake at Highway 20.

The Trumpeter Swan Society/NRCC/IDFG/WYGF monitored the 53 sites, via a fixed-wing aircraft, three times during the year typically in May, July and September, therefore it is possible on some years breeding attempts that failed early could have been missed and the number of breeding pairs could have been higher.

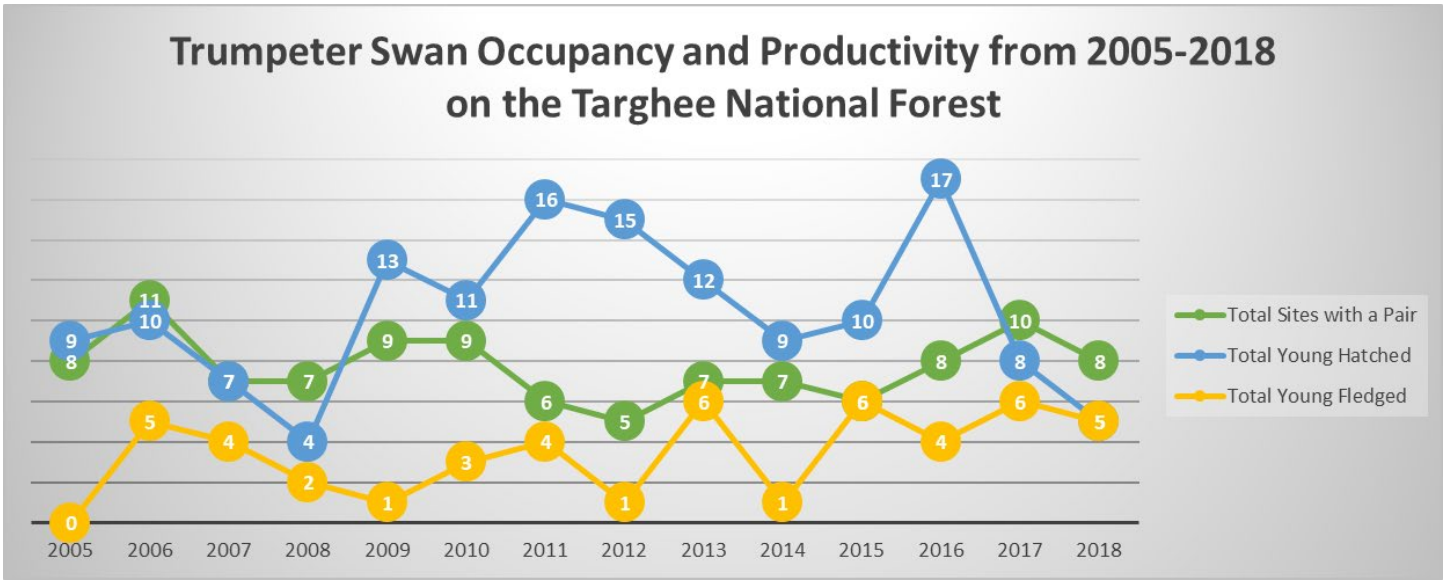

Figure 4: Trumpeter Swan Occupancy and Productivity from 2005-2018 on the Targhee National Forest.

Table 30: Summer trumpeter swan nesting activity from 2005-2018 (O=Occupied by pair; A=Actively reproducing; I=Inactive N=Occupied by non-breeding swans; V=Vacant; first number is the number hatched; second number is the number fledged; "-"=no data or not surveyed).

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
IDAHO														
Chain Lakes	V	OA/3/3	OA/0	V	V	V	V	V	V	V	V	V	OA/?/0	V
Boone Creek NW of Indian Lake	NI	-	-	-	-	-	-	-	-	-	-	-	-	-
Sheep Falls Pond	OA/0	V	V	V	V	V	V	V	V	V	V	V	V	V
Steele Lake	V	-	V	V	V	-	-	V	V	V	V	V	-	V
Thompson Hole	V	OA/0	V	V	V	V	V	V	V	V	V	V	V	V
Fall River Canyon	V	V	V	V	V	-	-	V	V	V	V	V	-	V
Putney Meadows	V	V	V	V	V	V	V	V	V	V	V	V	V	V
Upper Goose	OA/0	OA/0	OA/0	OA/2/0	OA/1/0	V	OA/0	OA/2/?	OA/3/0	OA/1/1	OA/0	OA/0	V	O?
Lower Goose	V	V	V	V	V	V	V	V	V	V	V	V	V	V
Long Meadow	V	-	V	V	V	V	V	V	V	V	V	OI	V	V
Swan Lake (east)	V	V	V	V	V	-	-	V	V	V	V	V	V	V
Tule Lake	V	-	-	-	-	-	-	-	-	-	-	-	-	-
Porcupine Lake	V	-	-	-	-	-	-	-	-	-	-	-	-	-
Twin Lakes	V	V	V	V	V	V	V	V	V	V	V	V	V	V
Bear Lake	OA/3/0	OA/4/0	V	OI	V	V	V	V	V	V	V	OA/0	V	V
Cub Lake	V	V	V	V	V	V	V	V	V	V	V	V	V	V
Beaver Lake	V	-	-	-	-	V	V	V	V	V	V	V	-	V
Mesa Marsh	OA/4/0	OA/2/2	OA/0	OA/2/2	OA/2/1	OA/2/2	OA/2/0	OA/5/?	OA/?/2	OI	OA/4/2	OA/6/0	OA/2/0	OA/?/0
East of Mesa Marsh	NI	-	-	-	-	-	-	-	-	-	-	-	-	-
Railroad Pond	OA/0	OA/0	OI	V	OI	V	V	V	OI	V	V	V	V	V
Beaver Pond (Gerritt)	V	OI	V	OI	OA/3/0	OI	OA/4/0	OA/0	OA/2/0	OI	OA/0	OA/4/1	OI	OA/1/1
West of Beaver Pond	NI	-	-	-	-	-	-	-	-	-	-	-	-	-
Gerritt's Pond	V	V	V	V	V	V	-	-	V	V	V	V	-	V
Hatchery Butte	V	V	V	V	V	V	V	V	V	V	V	V	V	V
Boundary Pond	V	V	V	V	V	V	V	V	V	V	V	V	V	V

Dugway Pond	V	-	-	-	-	-	-	-	V	-	-	-	-	-
Horseshoe Lake												V	V	OI
Lily Pond	V	-	V	V	V	V	NI	V	OI	V	V	V	OI	V
Warm River Marsh	V	V	V	OI	V	V	V	V	V	V	V	V	OI	V
Eccles (west)	V	V	V	V	OA/0	V	V	V	V	V	V	V	V	V
Last Chance North	OA/0	OA/0	V	V	V	V	V	V	V	V	V	V	V	V
Last Chance South	V	V	V	V	V	V	-	V	-	V	V	V	V	V
Swan Lake (Hwy 20)	V	V	OA/3/0	V	V	OI	OA/4/4	OA/4/?	OA/5/4	OA/4/0	OA/5/4	OA/5/3	OA/6/6	OA/4/4
West of Lower Goose						OA/0	V	V	-	V	V	V	V	V
Dog Creek									V	V	V	V	OA/?/0	V
Cave Falls Road													OA/?/0	OA/?/0
WYOMING														
Indian Lake	OA/0	OA/1/0	OA/4/4	OI	OA/4/0	OA/3/0	OA/3/0	OA/4/1	OI	OI	NI	NI	OI	OA/0
Ernest Lake	NI	V	V	V	V	V	V	V	V	V	V	V	V	V
East Bergman Marsh	V	V	V	V	V	V	V	-	V	V	V	V	V	V
Bergman Reservoir	V	-	-	-	-	-	-	-	-	-	-	-	-	-
Squirrel Meadows	OA/2/0	V	V	V	V	V	V	V	V	V	V	V	V	V
Widget Lake	V	V	V	V	V	V	V	V	V	V	V	V	V	V
Junco Lake	V	OA/0	V	V	OI	V	V	V	V	V	V	V	V	OI
Moose Lake	V	V	V	V	V	V	V	V	V	V	V	V	V	V
Loon Lake	V	V	V	V	V	OI	V	V	V	V	V	V	V	V
Rock Lake	V	OA/0	V	OI	V	V	V	V	V	V	V	V	V	V
Rock Lake Slough						OA/4/1	V	V	V	NI	V	V	V	V
Fish Lake	V	V	V	V	V	V	V	V	V	V	V	V	V	V
Grassy Lake Reservoir	V	-	-	-	-	-	-	-	-	-	-	-	-	-
Winegar Lake	-	V	V	V	V	V	V	-	-	V	V	V	V	V
Winegar Creek		-	V	V	OA/3/0	OA/2/0	OA/3/0	NI	OA/2/0	OA/4/0	OA/1/0	OI	OA/0	V
Winegar Creek East												OA/2/0	V	V
Palisades Reservoir		NI	OA/0	V	OA/0	OA/0	V	-	OI	OI	OA/0	V	V	V

Total Sites with a Pair	**8**	**11**	**7**	**7**	**9**	**9**	**6**	**5**	**9**	**7**	**6**	**8**	**10**	**8**
Total Young Hatched	**9**	**10**	**7**	**4**	**13**	**11**	**16**	**15**	**12**	**9**	**10**	**17**	**8**	**5**
Total Young Fledged	**0**	**5**	**4**	**2**	**1**	**3**	**4**	**1**	**6**	**1**	**6**	**4**	**6**	**5**

Habitat work on the Targhee

The Targhee has completed two habitat projects between 2005 and 2018.

2007 Swan Habitat Work

- **Mesa Marsh**

  In early October a bobcat type machine with a dozer blade was used to lower the spillway on Mesa Marsh. The layer of rock armoring the spillway was removed by pushing to one side and stockpiling. The spillway was lowered approximately 18 inches and most of the rock was replaced. This was done to allow spring runoff to pass in a timely manner and allow the water control structure to better control water levels at the marsh.

- **Railroad Pond**

  In June 2007, the areas resident beavers were live trapped and relocated to West Indian Creek on the Dubois Ranger District. In October, the decades old beaver dam at Railroad Pond was breeched using explosives. The pond was monitored for returning beaver for several years until the drawdown accomplished water lily mortality, at which point it was determined beaver could be repopulated to the area to reestablish water levels.

- **Bear Lake**

  Bear Lake is a natural lake which was originally deepened by a beaver dam in the drainage at the west end. This beaver dam was then made permanent in the late 1970's by bulldozing earth onto the beaver structure. This stagnation of the water level allowed water lily to engulf the lake and create a sterile environment. In early November explosives were used to breech the earthen dam to decrease water levels and facilitate water lily mortality. The lake was monitored and beaver were removed as necessary to keep the water levels low until substantial water lily mortality was achieved.

2017 Swan Habitat Work

- **Thompson Hole**

  With funds received from a North American Wetlands Conservation Act grant as well as help from partners TTSS and Ducks Unlimited, an eroded earthen dam was restored, and a water control structure was installed.

- **Railroad Pond**

  With funds received from a North American Wetlands Conservation Act grant as well as help from partners Idaho Master Naturalists, IDFG and Youth Conservation Corps, beaver dam analogs and a beaver lodge were constructed, and beavers were released on site.

Spotted Frog Population

Requirements

The Targhee NF and Idaho State University inventoried much of the Forest's riparian and wetland areas for the occurrence of spotted frogs (and other amphibians) in 1992 and 1993 (Clark and Peterson 1994). According to the RFP, each year a random sampling of the areas inventoried in 1992 and 1993

is to be done to document changes in occupancy and habitat conditions. The random sampling is to be done at a minimum of fifteen sites. This information would be used to determine population trend and the adequacy of Rx 2.8.3 and the standards and guidelines for Fisheries, Water, and Riparian Resources.

Results and Evaluation

The annual random sampling as stated in the RFP has not been done. However, Dr. Charles Peterson at Idaho State University approached the Forest in 2002 and suggested that the University and the Forest cooperatively fund a study to re-inventory the sites that were inventoried in 1992 and 1993. This would give the Forest a ten-year view of changes in spotted frog and other amphibian populations. The Forest agreed to cooperate with Dr. Peterson, and the re-inventory was accomplished in 2002 and again in 2012. The following is a summary of the findings from this effort (Clark et al. 2012). This monitoring will be repeated every ten years.

The goal of this study was to answer the following question: *Are amphibian populations declining on the Caribou-Targhee National Forest?* The approach used to address this question was to resurvey seventy-seven sites that were surveyed for amphibians in 1992 and 1993 by Clark and Peterson (1994). Specific objectives were to:

- measure temporal (among year) and geographic (among forest district) variation in site occupancy (% of sites at which each amphibian species was detected);
- measure temporal (among year) and geographic (among forest district) variation in species richness (number of species per site); and
- examine spatial shifts in the sites occupied by each species.

Three Year Survey Data (1992, 2002 and 2012) – 75 sites

The data collected illustrated year-to-year variation in observed occurrences of amphibians in the Targhee National Forest across the study period. Occurrences of tiger salamanders and western boreal toads were highest during the 2002 survey when compared with either 1992 or 2012. Boreal chorus frog occupancy was lowest in 1992, and the site occupancy of Columbia spotted frogs was highest in 2002, when compared across survey years. Columbia spotted frogs remain the most commonly encountered amphibian species on the TNF. Regardless of the variability in occurrence among years, none of the occurrence data between years were statistically significant.

Table 31: Summary of amphibian observations for the 1992, 2002, and 2012 surveys of the Caribou-Targhee National Forest.

	1992	2002	2012	1992, 2002, or 2012
No Species	32 (43%)	37 (49%)	37 (49%)	53 (71%)
Tiger Salamander	7 (9%)	14 (19%)	7 (9%)	16 (21%)
Western Toad	6 (8%)	10 (13%)	7(9%)	14 (19%)
Boreal Chorus Frog	7 (9%)	16 (21%)	16 (21%)	20 (27%)

Columbia Spotted Frog	36 (48%)	26 (35%)	26 (35%)	45 (60%)

There is a distinction to be made between detecting the occurrence of a species and whether that species exhibits evidence of breeding at any given location. Relatively few of the survey sites across the TNF exhibited evidence of amphibian breeding (Table 32). Columbia spotted frogs bred at 19-24% of all survey sites, representing the highest breeding percentage across all years and among all species. It is important to note that these surveys concentrated on potential breeding habitat, rather than terrestrial habitat used during migration/dispersal/foraging, and this introduces a sampling bias toward identifying breeding sites.

Table 32: Number of amphibian breeding sites detected for each species by survey year on the Caribou-Targhee National Forest.

	1992	2002	2012
Tiger Salamander	7 (8%)	13 (17%)	6 (8%)
Western Toad	2 (3%)	4 (5%)	4 (5%)
Boreal Chorus Frog	2 (3%)	14 (19%)	14 (19%)
Columbia Spotted Frog	14 (19%)	18 (24%)	15 (20%)

Geographic Variation in Amphibian Occurrence

The Caribou-Targhee National Forest is divided into seven management districts, and five of these districts fall within the study area of our surveys: Ashton, Dubois, Island Park, Palisades, and Teton Basin. Each district contains distinctive landscapes and ecotypes. We examined our data to determine whether there were changes in amphibian occurrence across years for each district. Unfortunately, the sample sizes are too small and/or variable across districts to permit statistical testing between years and districts. Nevertheless, the trending data can be informative.

Table 33: Species occurrence at locations across Caribou-Targhee National Forest districts.

District	Species	1992	2002	2012
Ashton n=23	Tiger Salamander	5	8	3
	Western Toad	0	2	3
	Columbia Spotted Frog	12	10	8
	Chorus Frog	3	9	10
	None	5	6	9

Dubois n=11	Tiger Salamander	0	1	0
	Western Toad	2	3	1
	Columbia Spotted Frog	7	8	5
	Chorus Frog	0	1	1
	None	4	3	5
Island Park n=17	Tiger Salamander	0	2	2
	Western Toad	3	4	1
	Columbia Spotted Frog	12	6	10
	Chorus Frog	3	5	4
	None	4	9	6
Palisades n=18	Tiger Salamander	0	1	1
	Western Toad	0	1	2
	Columbia Spotted Frog	1	0	2
	Chorus Frog	0	0	0
	None	17	16	13
Teton Basin n=6	Tiger Salamander	2	2	1
	Western Toad	1	0	0
	Columbia Spotted Frog	4	2	1
	Chorus Frog	1	0	1
	None	2	3	4

Once again, the data illustrate considerable variability in observation repeatability across years at each site. However, overall species occurrence was similar across years within each forest district. We had previously noted (Jochimson et al., 2003) a possible decline in Columbia Spotted Frogs in Teton Basin District, but with the addition of the 2012 data this is less clear. The small sample size for Teton Basin makes any assessment of declines in this district problematic.

Species Richness

Mean species richness was 0.79, 0.83, and 0.75 species/site for 1992, 2002, and 2012, respectively, across the 75 sites common among the three survey years. At no site during the survey periods were all four species observed in the same year. There does not appear to be any longitudinal trend in species richness across time.

Table 34: Temporal variation of species richness at the 75 survey sites common to all three survey years. Data represents the total number of sites with corresponding level of species richness (number of different species present at survey site) by survey year, with relative percent in parentheses.

Species Richness	1992	2002	2012
0	32 (43%)	37 (49%)	37 (49%)
1	31 (41%)	18 (24%)	23 (31%)
2	8 (11%)	10 (13%)	12 (16%)
3	3 (4%)	8 (11%)	3 (4%)
4	0	0	0
Mean	**0.79**	**0.83**	**0.75**

The data showed that considerable variation in species richness exists among TNF districts. Species richness was highest in Ashton and Island Park districts, and extremely low in Palisades district. However, there appears to be a trend toward increasing species richness in the Palisades district. There is a slight trend toward a decline in species richness in Teton Basin, but the small number of sites precludes any rigorous analysis.

Common Loon Population

Requirements

Occupancy and habitat conditions in suitable loon nesting and brood-rearing habitat is to be monitored annually at the sites identified in Process Paper D. Personnel from the WYGF have done this monitoring. This monitoring would measure populations of common loons and its relationship to habitat changes on the Targhee.

Results and Evaluation

Common loon nesting and reproduction have been documented at five lakes and one reservoir within the Targhee National Forest from 2005-2018. Loons have been present every year at Indian Lake and Loon Lake, while the other sites have had one or more years with no loons present.

The six sites have been consistently monitored for the presence of adult loons between 2005 and 2018 through a combination of Forest Service personnel, Wyoming Game and Fish, and the Biological Research Institute funded through the Rickets Foundation. The number of adult loons at the six sites has ranged between 7 and 12. The overall trend for adult birds is stable.

Indian Lake produced the most young (16) over the 14 year monitoring period, followed by Loon Lake (5 young), Bergman Reservoir (4 young) and Moose Lake (2 young). Fish Lake and Junco Lake did not produce any young during the monitoring period.

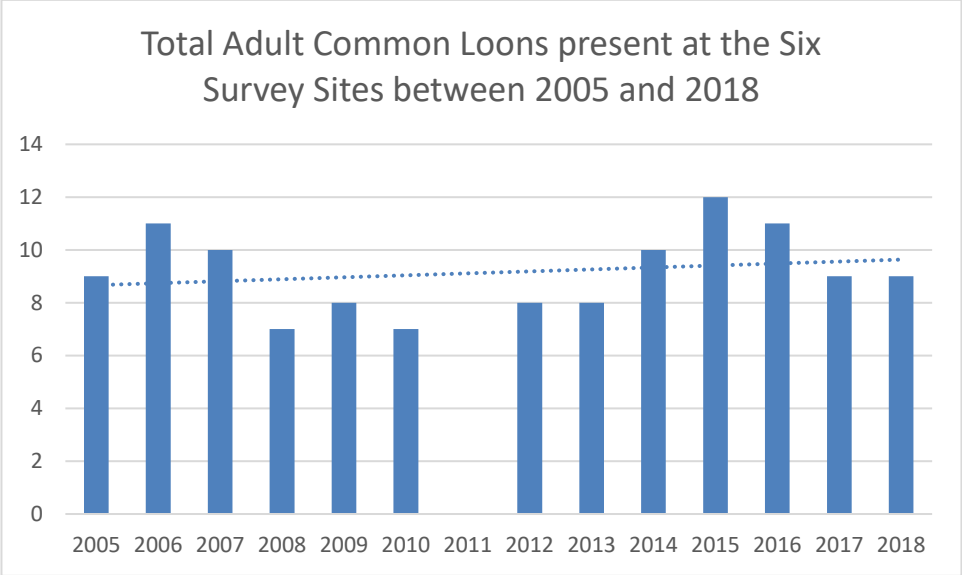

Figure 5: Presence of adult common loons at six survey sites on the Caribou-Targhee from 2005 to 2018

Table 35: Common loon monitoring data from 2005 to 2018

	Bergman Reservoir		Fish Lake		Indian Lake		Junco Lake		Loon Lake		Moose Lake		Total Young Per Year
Year	**Adults**	**Young**	**Adults**	**Young**	**Adults**	**Young**	**Adults**	**Young**	**Adults**	**Young**	**Adults**	**Young**	
2005	1	0	2	0	2	2	0	0	2	0	2	0	2
2006	2	0	3	0	2	2	0	0	2	2	2	0	4
2007	1	0	1	0	2	1	2	0	2	0	2	0	1
2008	0	0	0	0	2	1	0	0	3	0	2	0	1
2009	2	0	2	0	2	1	0	0	2	0	0	0	1
2010	0	0	2	0	2	2	0	0	2	0	1	0	2
2011	-	-	-	-	-	-	-	-	-	-	-	-	-
2012	2	0	2	0	2	2	0	0	2	1	0	0	3
2013	2	0	2	0	2	1	0	0	2	0	0	0	1
2014	2	0	2	0	2	1	0	0	2	1	2	0	2
2015	2	2	2	0	3	0	1	0	2	1	2	0	3
2016	2	2	2	0	2	2	1	0	2	0	2	0	4
2017	2	0	2	0	2	1	0	0	1	0	2	0	1
2018	3	0	2	0	2	1	0	0	0	0	2	2	3
Total Young Per Lake		2		0		16		0		4		0	

Harlequin Duck Population

Requirements

Occupancy and productivity of harlequin ducks is to be monitored annually at nesting and brood-rearing sites identified in the RFP's Process Paper D. This monitoring data would be used to determine if the standards and guidelines for Rx 2.8.3 and Fisheries, Water, and Riparian Resources are adequate to maintain populations.

Results and Evaluation

In the past, harlequin ducks have been documented on only four streams in the Targhee National Forest: Big Elk Creek and McCoy Creek on the Palisades Ranger District and Teton Creek and Darby Creek on the Teton Basin Ranger District. Since 2005, only Big Elk Creek has been surveyed through the efforts of volunteers from the Idaho Master Naturalists. The following table summarizes the observations on Big Elk Creek.

Table 36: Harlequin duck monitoring data for Big Elk Creek from 2005 to 2018.

Year	Big Elk Creek
2005	None observed
2006	1 pair, 2 drakes, 1 hen
2007	1 pair, 1 hen, 8 ducklings
2008	1 hen, 3 ducklings
2009	3 pairs
2010	4 drakes, 1 hen
2011	None observed
2012	1 pair, 2 drakes
2013	1 pair, 2 drakes
2014	None observed
2015	2 drakes
2016	None observed
2017	None observed
2018	Not surveyed

Monitoring records illustrate that harlequin ducks are secretive and difficult to observe. Several times in Big Elk Creek, harlequins were not observed by the volunteers, but were observed at a later date. Therefore, negative results from monitoring may not mean that harlequins are not present. Also, there are very few times when broods or young have been observed, which may also be a product of the secretive nature of the species. Monitoring of the three other streams has not been completed due to higher priority monitoring and lack of personnel to fully complete monitoring requirements outlined in the RFP.

Elk Vulnerability and Habitat Effectiveness

Requirements

To measure the effectiveness of RFP standards and guidelines and validate assumptions, the population trend and habitat changes for elk will be monitored annually. Population trend would be determined from the annual percent bull elk mortality as gathered by the State Fish and Game Departments. Habitat changes would be tracked by monitoring road and trail access, cross-country motorized travel, and cover analysis.

Results and Evaluation

The primary factor over which the Forest Service has control in elk vulnerability (EV) and elk habitat effectiveness (EHE) is motorized access. The forest completed an analysis on EV and EHE focusing on the progress the Forest made in achieving the new motorized access density standards that were established in the 1997 RFP and the 1999 Open Road and Open Motorized Trail Analysis (see Targhee Monitoring Report: 1997-2004, pp. 189-192). Road densities on the Targhee National Forest have not changed significantly, therefore there has not been a change in elk vulnerability or elk habitat effectiveness in regard to motorized access.

Red Squirrel Population

Requirements

Red squirrel “middens” (their cache of seeds and nuts) have been determined to be important to grizzly bears as an alternative food source. This monitoring item was set up to monitor densities of active red squirrel middens in grizzly bear BMUs and subunits.

Results and Evaluation

Monitoring for red squirrel “middens” has not taken place on the Targhee National Forest between 2005 and 2018. Instead, red squirrels were monitored in conjunction with the furbearer transects and are the most common prey species recorded.

According to the monitoring data, red squirrels continue to be found in every ecological subsection on the Forest. They are the most abundant prey species recorded on winter furbearer track surveys and were found on 15 out of the 17 winter track survey routes completed between 2005 and 2018. Although, it must be stated that completion of winter track survey routes has been sporadic on the due to inadequate field conditions and more often lack of personnel (i.e., the need for a minimum 2 surveyors per route), and therefore it is possible that squirrels could be located along all survey routes if the surveys were completed more consistently.

Forest Users

User Satisfaction

Requirements

Forest User mailing lists are to be used to conduct annual, random sample surveys of user satisfaction. Forest employee records of user comments would also be used to measure user opinions. This monitoring item was designed to measure forest customer satisfaction with the direction, progress, and administration of the Revision.

Results and Evaluation

User satisfaction is obtained through the National Visitor Use Monitoring (NVUM) surveys conducted on a 5-year cycle for the forest. The NVUM survey is the only nationally approved method we have for obtaining public survey and information. Results obtained in 2015 indicate 87.5% of visitors surveyed are satisfied with their visit to the Caribou-Targhee National Forest. While this number represents user satisfaction regarding facilities, trails and recreation, it represents user satisfaction of administration of the revised forest plan.

Recreation

Seasonal Trail Use Impacts to Soil and Vegetation

Requirements

This monitoring item is designed to measure compliance with the soil quality standards and impacts to on- and off-trail soils from hiking, horses, and OHV use. Visual observations and photo documentation of trail conditions are to be conducted on 5-10 percent of the system trail areas and adjacent off-trail areas. The 60 to 120 miles should be done in these priority areas: Big Hole Mountains, Madison-Pitchstone Plateaus, Caribou Range Mountains, and Lemhi-Medicine Lodge ecological subsections.

Results and Evaluation

This monitoring element has not been completed during the reporting period.

Recreation/Wildlife Conflicts

Requirements

Violations of closures, observed wildlife disturbances, and diminishing wildlife populations with signs of stress are to be used to measure conflicts between all forms of recreation and wildlife. According to the RFP, ten percent of the winter range should be monitored weekly for three or four months in the winter. In the summer, big game security and summer range prescription areas should also be monitored weekly for three or four months, especially in early summer.

Results and Evaluation

In the winter the Teton Basin RD has a grant from the State of Wyoming to groom and patrol. Two people are out 3-4 days a week in areas that run through (on designated routes) and adjacent to winter range. Observed incursions are reported and followed up on.

Palisades District employees snowmobiled the Fall Creek Road at least once in January, February, or March every year. The snowmobile use on designated routes in the area seem to not be affecting the wildlife, however unauthorized cross-country motorized use is increasing in the area. This use occurs mostly in the later part of March and first of April, depending on snowpack. Most of the illegal cross-country travel is by snowbikes. Snowbikes essentially are a motorized dirt bike that have ski replacing the front tire and a track replacing the rear tire. These snowbikes are able to go many more places in this area then the traditional snowmobiles. Snowbike tracks have been observed on numerous snow drifts on ridges that big game winter on. The activity of shed antler collecting has increased significantly in the Fall Creek are over the last 10 years. When the Summer Travel Plan goes into effect, meaning human entry is allowed in the Fall Creek Area off of designated routes, (April 15th) the area receives a plethora of human traffic. Any remaining wintering wildlife are forced to move towards their summer range at that time.

The reduction in recreation personnel have dimished the ability to get people out in the field on a weekly basis.

This item, as written, is very subjective and time-consuming. As described above, very little monitoring has been done as described in the RFP. The monitoring is limited to anecdotal evidence of recreation impacts to the resources but no scientific tie has been made to wildlife populations. Most of the wildlife monitoring evaluates recreation impacts, where applicable. This is also indirectly addressed during project level NEPA and watershed analyses. Also, other agencies are monitoring this at a more site-specific level (harlequin duck, peregrine falcon, grizzly bear, etc.).

Dispersed Campsite Soil Displacement

Requirements

This monitoring item is designed to measure compliance with the soil quality standards in heavily used dispersed campsites. Annually, 10 percent of the 100 Management Prescription 4.3 areas are to be measured; the Caribou Mountains and Lemhi-Medicine Lodge Subsections are top priority for monitoring.

Results and Evaluation

2014: 8 dispersed recreation sites were monitored; findings are on file in the Soil Monitoring Report

2015: 7 dispersed recreation sites were monitored; findings are on file in the Soil Monitoring Report

2016: 15 dispersed recreation sites were monitored; findings are on file in the Soil Monitoring Report

2017: 24 dispersed recreation sites were monitored; findings are on file in the Soil Monitoring Report

2018: 43 dispersed recreation sites were monitored; findings are on file in the Soil Monitoring Report

Jedediah Smith Wilderness LAC and Further Details (Includes Winegar Hole)

Requirements

This item is the consolidation of all of the monitoring described in the Jedediah Smith Wilderness Monitoring Plan (WMP). The annual evaluation is designed to measure the overall impacts from recreation use on the wilderness character. The WMP identifies six indicators to measure wilderness use impacts:

1. Number of occupied campsites visible from a site.
2. Condition of individual campsites.
3. Condition of user-created routes and trail segments.
4. Number of encounters per mile with other parties along a use-created route or trail.
5. Number of substantiated complaints about outfitters and grazing permittees from the public and other permittees.
6. Number of violations of regulations by type.

Results and Evaluation

Wilderness campsite monitoring is conducted on a 5-year rotation. Trails are monitored by wilderness crews when they are maintaining trails, including user-created routes and trails that need repair or reconditioning. Encounter data is random and done when time is available. Substantiated complaints regarding outfitters are minimal. No grazing occurs within the wilderness areas. The wilderness ranger position has been vacant for more than a year, no violations have been issued.

Roads and Trails Access

Authorized Use Level

Requirements

The District Rangers approve authorized use, and at the end of the year, evaluate if that use effectively opened any closed roads. This monitoring is designed to measure the amount of authorized motorized use on roads and trails and determine if this administratively authorized use is effectively opening those closed routes. In Prescription Areas with elk and deer habitat values (5.1.4, 5.4, and 2.7) and grizzly bear habitat values (5.3.5, 2.6.1, 2.6.2, and 2.6.5) the number of motorized trips into closure areas or roads/trails would be recorded annually.

Results and Evaluation

All of the Districts have monitored authorized use on closed roads or into closed areas during the 2005 to 2018 period, to some degree. This use did not effectively open any nonmotorized road or trail.

On average, approximately 8 authorizations are approved per year for the public for administrative use during hunting season and are typically authorized under a form letter. In regard to forest use of administrative use roads, it depends upon the forest project, district and time of year. All administrative use if recorded on forms and are located at the district offices.

Road Closure Effectiveness

Requirements

The RFP set up a stratified sampling approach for monitoring the effectiveness of road and trail closures. Visual checks of closure areas and closed roads would be conducted three times during the snow-free season on one or two Districts per year.

Results and Evaluation

There are more and more breaches of trail and road closures with reduced personnel, more active public and technological advances of OHV's. It is estimated that approximately 40-50% of the road and trail closures are breached yearly, typically by OHV activity.

Achievement of Road Density

Requirements

This implementation monitoring was developed to measure the achievement of Total Motorized Access Route Density (TMARD) and Open Road and Open Motorized Trail Route Density (OROMTRD) for each prescription area. The RFP directed us to use GIS and the moving-window technology to measure our progress.

Results and Evaluation

Route density is considered on a yearly basis when the Motorized Vehicle Use Map is reviewed prior to printing. In addition, any NEPA documentation conducted takes route and trail density into consideration to maintain any regulations implied by other agencies or the forest plan.Range

Streambank Disturbance/Stubble Height/Channel Stability

Requirements

This monitoring item was developed to determine if a streambank disturbance standard was needed or if the stubble height standards were adequate to maintain channel stability. One hundred plots are to be established and read across the Forest for five years, mainly in areas with vegetation dependent channel stability. The watershed staff is then to measure channel stability at each correlation plot site. A matrix is to be developed by the soil scientist to determine if there is a correlation between stubble height, streambank disturbance, and channel stability in different ecological types.

Results and Evaluation

MIM protocol includes procedures for monitoring for 10 indicators: three indicators provide short-term livestock use information (stubble height, stream alternation, and woody species use); and seven indicators provide data from which long-term indictor resource condition can be derived (greenline, woody species height class, streambank stability, green-line to greenline width, substrate and residual pool depth and pool frequency.) Long-term indicator provide data to assess the current condition and trend of streambanks, channels and streamside vegetation.

Seventy-four MIMs have been established in a 10 year period. These studies are being used during allotment management planning and Rangeland BMP monitoring.

Riparian Forage Utilization Within Key Areas

Requirements

To monitor compliance with RFP riparian use standards, the RFP recommended tracking several items: stubble height of key species in the hydric greenline (HGL) and aquatic influence zone (AIZ); percent browse utilization in the riparian area; and soil disturbance levels in the AIZ. These parameters were to be measured at least once a year in priority allotments, with additional readings, if time allowed. One third of all allotments on each District are to be monitored yearly, approximately five days per allotment.

Results and Evaluation

To monitor compliance with grazing standards in the 1997 RFP, the RFP recommended tracking several items: stubble height of key species in the hydric greenline (HGL) and aquatic influence zone (AIZ); percent browse utilization in the riparian area; and soil disturbance levels in the AIZ. These parameters were to be measured at least once per year on priority allotments and additional readings if time allowed. One third of all allotments, open to grazing, on each District were monitored yearly. Over a ten-year period, 29 to 48 percent of key areas open to grazing have been monitored on an annual basis.

Upland Forage Utilization Within Key Areas

Requirements

Upland forage utilization in key areas is to be measured, especially in areas where upland forage is limiting. This would primarily be in sheep grazing allotments. These upland use parameters, including percent forage utilization and soil disturbance, are to be measured on one third of the allotments per District, approximately two days per allotment.

Results and Evaluation

Upland Forage Utilization Within Key Areas is a priority #3 monitoring item. To monitor compliance with grazing standards in the 1997 RFP, the RFP recommended tracking utilization of herbaceous and browse species in non-riparian (upland) areas. This parameter was to be measured at least once per year on allotments and additional readings if time allowed. One third of all allotments, open to grazing, on each District were monitored yearly.

Over a ten-year period 39 to 73 percent of key areas open to grazing have been monitored on an annual basis.

Riparian and Upland Long-Term Trend in Benchmarks

Requirements

This monitoring item was developed to measure achievement of the range objectives to improve riparian and upland vegetation conditions. According to the RFP, there should be at least one benchmark in each dominant ecological type within an area of interest. Chapter V of the RFP estimated that 105 benchmarks would be established and surveyed every five years.

Results and Evaluation

This is a priority #3 monitoring item. This monitoring item was developed to measure achievement of non-forested riparian and non-riparian vegetation objectives across the forest. According to the RFP, there should be at least one benchmark in each dominant ecological type unit within an area of interest. Chapter V of the RFP estimated that 105 benchmarks would be established and surveyed during a five year period. Recommended surveys for riparian benchmarks include Cross Sections, Greenline Plots, Photo Points, Rosgen Stream Channel Classification, Stream Channel Stability, and Woody Species Utilization and Regeneration. Recommended methods for upland benchmarks include Density/Shrub Form Class, Line Intercept Transects, Nested Frequency Plots and Photo Points. Over the last ten-years, 212 long-long term monitoring studies have been installed and/or reread across the Forest. This is within the expected results.

212 long-term trend studies have been established in a 10 year period. These studies are being used during allotment management planning and Rangeland BMP monitoring.

Timber

Changes to Land Suitability

Requirements

This monitoring item was developed to validate the suitability assessment made in the RFP. Project-level analyses are to be reviewed yearly to determine if the analysis confirms or disagrees with the

tentative suitability determinations. A significant change would trigger a review of the Allowable Sale Quantity (ASQ).

Results and Evaluation

This item was monitored each year. No changes were made to tentative land suitability assessment in the RFP from 2005 to 2018. NEPA documents were reviewed for sales sold between 2005-2018: Winslow Salvage, Sheep Creek, Pole Canyon, Calamity Hazardous Fuels, Smith Canyon, Pole Canyon, Porcupine, Meadow Creek, and Yale Creek timber sales. None of these projects proposed changes to the tentatively suitable land assessment in the RFP.

Maximum Created Opening Size

Requirements

This monitoring item was developed to measure compliance with the RFP prescription area standards for created openings. Each decision document allowing vegetation management in Prescription Areas 5.2.1, 5.2.2, 2.1.2, 5.3.5, 2.6.1(a), and 5.4 would be reviewed. If the review shows a trend towards exceeding the guidelines to implement ecologically-based projects, those guidelines will be reviewed.

Results and Evaluation

No timber sale projects exceeded the created opening standards, and no RFP amendments were made within the above-listed Prescription Areas, between 2005 and 2018.

Security Cover Retention

Requirements

This item is designed to measure compliance with the grizzly bear security cover RFP standard. Vegetation management project proposals in prescription areas 5.3.5 and 2.6.1(a) are to be reviewed.

Results and Evaluation

Yale Creek, Meadow Creek, and Porcupine timber sales were analyzed and were determined to meet the grizzly bear security requirement. See wildlife reports for each of these timber sales.

Large Forested Block Retention

Requirements

This item was designed to monitor compliance with the RFP prescription area standard to retain 250-acre forested blocks in Rx areas 5.1.4(c) and 5.4(a-c). Each timber sale analysis document is to be reviewed for compliance.

Results and Evaluation

No timber sales have been implemented in these prescription areas between 2005 and 2018.