

Biennial Monitoring Evaluation Report for the Wasatch-Cache National Forest



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About our Plan Monitoring Program

Purpose

The purpose of the biennial monitoring evaluation report is to help the responsible official (Forest Supervisor) 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 biennial monitoring evaluation report represents one part of the Forest Service's overall monitoring program for this national forest unit. The biennial 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.

Our monitoring plan covers these eight topics required under FSH 1909.12, in addition to social, economic and cultural sustainability. You'll find each of these topics addressed in this report, with a cross-reference to the Wasatch-Cache NF Monitoring Questions provided on page 7.

1. The status of select watershed conditions.
2. The status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems.
3. The status of focal species to assess the ecological conditions required under § 219.9.
4. The status of a select set of the ecological conditions required under § 219.9 to contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern.
5. The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives.
6. Measurable changes on the plan area related to climate change and other stressors that may be affecting the plan area.
7. Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities.
8. The effects of each management system to determine that they do not substantially and permanently impair the productivity of the land (16 U.S.C. 1604(g)(3)(C)). (36 CFR 219.12(a))

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 Wasatch-Cache National Forest monitoring program was updated on November 20, 2015 for consistency with the 2012 planning regulations [36 CFR 219.12 (c)(1)]. The Wasatch-Cache National Forest Plan was administratively changed to include the updated monitoring program (Chapter 6: Monitoring and Evaluation Plan). For a copy of the current monitoring program go to https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd578954.pdf 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)].

The monitoring evaluation implementation guide (monitoring guide) is part of the overall plan monitoring program and provides more specific direction for implementing the more strategic plan monitoring program and details monitoring methods, protocols, and roles and responsibilities. The Monitoring Guide is not part of the plan decision and is subject to change as new science and methods emerge. The Uinta-Wasatch-Cache National Forest monitoring guide is available at upon request. Please contact Paul Cowley at the address on Page 2. Providing timely, accurate monitoring information to the responsible official and the public is a key requirement of the plan monitoring program. This biennial monitoring evaluation report is the vehicle for disseminating this information and identifying updates to the plan to keep it current.

Monitoring Objectives

The objectives of our plan monitoring plan include:

- Assess the current condition and trend of selected forest resources.
- Document implementation of the Plan monitoring Program
- Evaluate relevant assumptions, changed conditions, management effectiveness, and progress towards achieving the selected desired conditions, objectives, and goals described in the Forest Plan.
- Assess the status of previous recommended options for change based on previous monitoring & evaluation reports.
- Document scheduled monitoring actions that have not been completed and the reasons and rationale why.
- Present any new information not outlined in the current plan monitoring program that is relevant to the evaluation of the selected monitoring questions.
- Present recommended change opportunities to the responsible official.

Monitoring Results Summary

Tables 1 and 2 below summarize current adaptation recommendations for line officer consideration. Table 1 shows that at this time no monitoring items have been identified as needing change. Table 2 shows that two monitoring questions have the plan intent and recommendations as uncertain and the reason for a plan change may be under consideration in the future.

Table 1. Quantitative summary of adaptive management recommendations for all monitoring questions addressed in this report (3 total)			
Recommendation	Yes, need for change	Unsure	No
Results inconsistent with Forest Plan direction	0	0	16
Change to Forest Plan warranted	0	0	16
Change to management activities warranted	0	0	16
Change to Plan monitoring program warranted	0	0	16
Focused assessment needed	0	0	16

Table 2. Summary of findings for each plan monitoring item (questions and indicators).				
Monitoring Item	Last Year Updated	Consistency with Plan Intent ¹ <i>Do results demonstrate intended progress of the plan components associated with this monitoring item?</i>	Recommendation ² <i>Based on the evaluation of monitoring results, may changes be warranted?</i>	Type of Change(s) under consideration ² <i>Where may the change be needed?</i>
Monitoring Question #4, Are vegetation conditions stable or moving toward desired future conditions?	2017	B-Uncertain	B-Uncertain	More time needed to understand effect of woolly adelgid
Monitoring Question #12 Are Forest management activities and natural events affecting watershed conditions? Indicator #2 Air Quality - Trends of lichen biomonitoring sites.	2017	A – Uncertain	A - Uncertain	The lichen monitoring interval is 10 years. Next lichen station monitoring expected to be 2026
All Other Monitoring Questions and Indicators	2017	Yes	None	N/A

¹Plan intent:

(A) Uncertain – Interval of data collection beyond this reporting cycle (indicate date of next time this monitoring item will be evaluated);

(B) Uncertain – More time/data are needed to understand status or progress of the Plan Component(s);

²Refer to pages below for more details regarding any specific recommendations for change.

Past Monitoring Recommendation and Status Summary

In 2018, two Forest Plan amendments were completed in response to issues of obsolete standards, guidelines, and definitions in the WCNF plan for Canada Lynx (Scoping, analysis, and decision information can be found at <https://www.fs.usda.gov/project/?project=56203>), to correct inaccurate delineation of Wilderness Management Prescriptions of a small area in the Henrys Fork and Beaver Creek watersheds in the High Uintas Wilderness.

Monitoring from 2020-2021 identified two issues in the WCNF Forest Plan. The first one was that management direction was lacking on many acquired land parcels and on Forest Service lands that were inaccurately delineated during the 2003 WCNF revision. The second one was the need to allow vegetation/fuels treatments

in undeveloped areas (Management Prescription 2.6) such as in pinion/juniper areas of the Forest. The first issue was resolved through a Forest Plan update for land acquired and/or were adjusted and moved into or out of wilderness designation. The second issue was resolved through a Forest Leadership decision that Management Prescription 2.6 areas would be dealt with on a project-by-project basis.

This monitoring and evaluation report has no recommendations for changes to the forest plan, management activities for implementing the forest plan, or the monitoring program or to conduct an assessment to determine if there exists a preliminary need to change the plan.

Other Considerations for Adaptive Management

No other considerations not related to the monitoring program have been identified.

Forest Supervisor's Certification

This report documents the results of monitoring activities that occurred through Fiscal Year 2021 on the Wasatch-Cache Planning Uinta of the Uinta-Wasatch-Cache National Forest. Monitoring on some topics is long-term and evaluation of those data will occur later in time.

I have considered the monitoring and evaluation results presented in this report. Based on the monitoring, I find no need to change the 2003 Land Management Plan, as amended, at this time and, therefore, consider it sufficient to continue to guide land and resource management of the Wasatch-Cache Planning Area for the near future. I also find no need to change the plan monitoring program or to conduct an assessment to determine if there exists a preliminary need to change the plan.

I will examine the recommended change to management activities and the two potential needs to change the plan in response to non-monitoring related issues through further discussion with resource specialists. If changes are needed, appropriate NEPA analysis and public engagement will occur.

DAVID WHITTEKIEND

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FOREST SUPEVISOR
UINTA-WASATCH-CACHE NATIONAL FOREST

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Cross-Walk between Eight Requirements and Wasatch-Cache NF Monitoring Questions

This section of the report presents a cross-walk between the eight requirements which are noted at 36 CFR 219.12(a)(5) and the Wasatch-Cache Forest Plan monitoring questions

Monitoring Question #1, Education-Information: Are we delivering key education/ enforcement messages to Forest employees and users? Addresses Requirement v. The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives.

Monitoring Question #2, What is visitor satisfaction on Forest Service lands? Addresses Requirement v. The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives.

Monitoring Question #3, Is adequate access to and across the Forest being provided? Addresses Requirement v. The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives and Requirement vii. Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities.

Monitoring Question #4, Are vegetation conditions stable or moving toward desired future conditions? Addresses Requirement vi. Measurable changes on the plan area related to climate change and other stressors that may be affecting the plan area.

Monitoring Question #5, Fuels Reduction: Are fuels reduction projects protecting property, human health and safety, and reducing the potential for unwanted fire effects (in the Wildland Urban Interface (WUI) and non-WUI)? Addresses Requirement vii. Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities.

Monitoring Question #6, Fire Management: Are natural ignitions being managed to accomplish resource management objectives? Addresses Requirement vii. Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities.

Monitoring Question #7, Rangeland Management: What is the extent of the change of ecological conditions due to invasive species? Do rangeland plant communities have desired species composition and is ground cover adequate? Addresses Requirement i. The status of select watershed conditions.

Monitoring Question #8, Are Forest management activities and natural events affecting the ecological conditions indicated by the status of Focal species? Addresses Requirement iii. The status of focal species to assess the ecological conditions required under § 219.9.

Monitoring Question #9, Is there a change in species distribution across the Forest? Addresses Requirement vi. Measurable changes on the plan area related to climate change and other stressors that may be affecting the plan area.

Monitoring Question #10, Are Forest management activities and/or natural events affecting ecological conditions that contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of concern? Addresses Requirement iv. The status of a select set of the ecological conditions required under § 219.9 to contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern.

Monitoring Question #11, Are Forest management activities and natural events affecting the ecological conditions of terrestrial and aquatic ecosystems? Addresses Requirement ii. The status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems.

Monitoring Question #12, Are Forest management activities and natural events affecting watershed conditions? Addresses Requirement i. The status of select watershed conditions.

Monitoring Question #13, NFMA compliance: Are we complying with appropriate NFMA requirements? Addresses Requirement vii. Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities and Requirement viii. The effects of each management system to determine that they do not substantially and permanently impair the productivity of the land (16 U.S.C. 1604(g)(3)(C)).

Monitoring Question #14, Are timber management activities impairing soil productivity of the land?

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

Monitoring Question #15, Are goods and services being provided in accordance with Forest Plan goals and objectives? Addresses Requirement vii. Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities.

Monitoring Question #16, National Historic Preservation Act as amended: Are cultural resources being protected as the Forest Plan is implemented and are mitigation measures sufficient prevent damage to cultural resources from project activities? Are *Historic Properties* receiving adverse effects from project implementation, vandalism, looting, and/or neglect? Addresses Requirement vii. Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities.

SUMMARY OF CHANGES TO THE FOREST PLAN SINCE THE 2018-2019 REPORT

During the 2020-2021, Forest Plan Monitoring report identified management direction lacking on many acquired land parcels and on Forest Service lands that were inaccurately delineated during the 2003 WCNF revision. In 2023, the Forest Plan was updated and assigned management direction for these lands.

Summary of Vegetative Changes in 2022-2023

The largest area of vegetative changes on the Wasatch-Cache Planning Area (WCNF) are from timber harvest and fuels treatments. In 2022-2023, the main ecological change is from 818 acres of commercial timber sales and 17,373 acres of fuel treatments (Heber RD (Uinta Planning Area) and Kamas RD are combined). These treatments are primarily the result of management actions taken to move toward desired future conditions. These activities account for a total 18,191 acres that were treated on the WCNF. In 2022-2023, natural events caused little change in ecosystem conditions because there were very few wildfires and those that occurred were small. In 2023, a deep record snowpack fell on northern Utah and the spring runoff occurred at a good rate and there were very few problems for the streams on the WCNF.

INFORMATION ON MONITORING QUESTIONS AND INDICATORS

Monitoring Question #1 Education-Information: Are we delivering key education/ enforcement messages to Forest employees and users? (Key Focus Areas are OHV use, recreation user ethics, fire's role/hazardous fuels, noxious weeds, watershed health).

Finding: *No changes are needed. The WCNF delivers key education/enforcement messages to the Forest employees and users.*

Indicator #1 - Number of key messages.

Data source: *Uinta-Wasatch-Cache NF Public Affairs Officer, evaluation by partners of the Logan Canyon Children's Forest, information gathered during the National Visitor Use Monitoring surveys, responses from Forest visitors during field personnel interactions regarding effectiveness of messaging on kiosks, Forest website and social media.*

Monitoring result: *Several activities that provided key messages occurred in 2022-2023.*

Salt Lake Ranger District – Utilizing the Project Learning Tree “Places We Live” curriculum guide, educators learned how to integrate art, science, and observation skills. Participants learned how nature journaling

techniques and the “Places We Live” curriculum can be used to explore earth sciences, culture, history, math, mapping, and environmental issues. Educators continued to participate in the Naturalist Program.

Silver Lake Recreation Complex – The Silver Lake Recreation Complex and Visitor Center, at the headwaters of Big Cottonwood Canyon, offer an opportunity for visitors of all ages and abilities to interact with a diverse ecosystem along a loop path. The area provides an outdoor education classroom destination site for families, tourists, and recreation hub for local communities. This area connects an urban population to their national forest. Programs, activities, interpretive displays, and walks with rangers provide opportunities for visitors to understand the importance of protecting the municipal watershed.

In 2031, these programs continued to provide through Cottonwood Canyons Foundation (CCF), educational curriculum to visitors at the Silver Lake Visitor Center. Additionally, compliance and interpretive employees were increased through the support of partnerships with Salt Lake County and Town of Alta. Contacts made by these employees were modeled after the successful education/compliance work at Silver Lake Visitor Center to deliver key education/enforcement messages about watersheds, wildflowers, sanitation, and other visitation rules. These efforts will continue during spring, summer, and fall of 2024, including programming that CCF delivers, when schools resume their field trips. Outreach to schools serving underrepresented communities is a priority for 2024.

Logan Canyon Children’s Forest – The Logan Canyon Children’s Forest is supported by the Logan Ranger District and Stokes Nature Center. Through the partnership, opportunities are provided to students of all ages to explore, learn, and develop an appreciation and stewardship of the natural world. Forest Service and Stokes Nature Center staff provide service learning and mentorship for youth. Participants engage in campground activities, presentations, demonstrations, and hands-on activities. The programs focus on activities for local underserved youth. Stokes Nature Center staff conduct informal questionnaires with participants or participant parents/guardians to gather data and feedback about programs being provided. Other local partners will expand the education and engagement opportunities for 2024.

Monitoring Question #2 What is visitor satisfaction on Forest Service lands?

Finding: No changes are needed.

Indicator #1 - Level of visitor satisfaction.

Data source: The WCNF is currently collecting NVUM data.

Monitoring result: A search of the NVUM database indicates no new data has been collected. Please see FY 2018-2019 Forest Plan Monitoring assessment for most current data.

Monitoring Question #3 Is adequate access to and across the Forest being provided?

Finding: No changes are needed. Access is adequate.

Indicator #1 - Miles of classified road open for public use, miles of motorized trail, miles of non-motorized trail.

Data source: Uinta-Wasatch-Cache NF Motor Vehicle Use Map.

Monitoring result: At the end of FY 2023, there was a small increase in miles of classified roads open for public use, motorized trails, non-motorized trails, and ski/ snowshoe trails but very little change in miles of

snowmobile trails. The small increase in miles of classified roads open for public use is due to improved mapping and mapping corrections.

Table 3. Forest Access for selected features in miles.					
Year	Classified roads open for public use¹	Motorized trails	Snowmobile trails	Non-motorized trails	Ski/ snowshoe trails
2019	1,182	No data ²	No data ²	No data ²	No data ²
2021	1,185	252	254	1,098	87
2023	1,186	257	254	1,106	92

¹ These are Forest Service public roads only and does not include State highways, administrative roads, or private roads.
² Data for the miles of motorized trails and non-motorized trails is not available in 2019 because of data review and re-digitizing in GIS.

Monitoring Question #4 Are vegetation conditions stable or moving toward desired future conditions?

Finding: No changes are needed.

Indicator #1 Forested Vegetation –Extent of insect/disease infestations.

Data source: Ryan Davis of Forest Health Protection Annual Aerial Detection Survey, FACTS Database, and recorded accomplishments.

Monitoring result: Information on Forest Health are consolidated by forest administrative unit and are not separated by Uinta or Wasatch-Cache Planning Areas. Below are two tables that include hazard ratings by acres for the UWC based on insect hazard rating maps developed using VCMQ. For simplicity, the hazard ratings were broken into three categories: hazard more likely, hazard less likely, and no host (i.e., no hazard). The numbers below are broad estimates of moderate-to-high hazard (i.e., potential susceptibility and/or mortality should an insect outbreak occur) for host type across the UWC. These numbers are intended to get a broad understanding of potential hazard but are not concrete estimates due to the limitations of the underlying geospatial data resolution, rating methodologies employed, and data age. The data are intended for broadscale, mid-level planning, not site-specific planning.

The data below were generated in 2019 and are almost 5 years old, so some of the areas/acres for the various insects may already be dead due to insect activity. In particular, spruce beetle activity on the Mountain View, mountain pine beetle activity on the Mountain View, and fir engraver beetle across white fir distribution within the UWC has killed many trees which would no longer be considered susceptible. The hazard rating maps are slated to be updated soon by R4 GIS specialists and Entomologists should be available in 2025.

Table 4. Hazard ratings of more likely, less likely, and non-host acres for key insect damage agents on the Uinta-Wasatch-Cache National Forest, Utah, 2019.			
Agent	Hazard		
	More Likely	Less Likely	No Host
Douglas-fir Beetle	27,534	184,637	2,335,565
Spruce Beetle	3,462	238,757	2,305,516
Mountain Beetle	5,946	271,119	2,270,671

<i>Fir Engraver</i>	12,032	11,110	2,524,594
<i>Pine Engraver</i>	110	75,736	2,471,890
<i>Western Spruce Budworm</i>	635,450	0	1,912,286
<i>Balsam Woolly Adelgid</i>	648,026	1,805,414	94,296

Monitoring Question #5 Fuels Reduction: Are fuels reduction projects protecting property, human health and safety, and reducing the potential for unwanted fire effects (in the Wildland Urban Interface (WUI) and non-WUI)?

Finding: *No changes are needed.*

The Wasatch-Cache National Forest was selected as a Wildfire Crisis Strategy (WCS) landscape in 2022. While all fuels projects are designed to alter fire behavior to meet one or more objectives, including protecting property, human health and safety, being selected as a priority landscape has given renewed emphasis to fuel reduction projects on the forest. In 2022 and 2023 the Wasatch-Cache implemented 17,277 acres of fuels reduction (Table 1).

Fuel treatments, combined with past fire footprints, have been successful at altering fire behavior in a way that reduced unwanted fire effects, increased firefighter safety, and allowed for more fire management options (which makes it easier to protect property and life). When a wildfire burns through a fuel treatment, we assess if the treatment was effective. In the last two years on the Wasatch-Cache, three fires have started in or burned into two different fuels treatments (Table 2). Fuels treatments have been consistently effective at altering fire behavior, increasing safety for firefighters, increasing suppression opportunities, and contributing to the control and management of a fire. Exceptions to this include times when there are extreme fire weather conditions, enough time has passed that vegetation has regrown, exceeding the “lifespan” of the treatment, or conditions are such that the fire would have remained small regardless of the fuel treatment.

In 2021, the WCNF undertook the effort to finalize maps of Potential Operation Delineations (PODs). This was an all-lands approach, working with state and local governments, to identified potential fire breaks across the landscape. While PODs and the WCS are separate efforts, each supports the other. The increase in acres treated under WCS is re-enforcing POD boundaries, while PODs are helping direct priorities for WCS funded projects. WCS will continue through 2024, and while there is a lot of work still to be done, the impacts are already quantifiable. These two initiatives have the potential to reduce fire effects as well as increase management options during a wildfire.

Indicator #1 Acres of hazardous fuels reduction in WUI and non-WUI.

Data source: *Forest Service Activity Tracking System database*

Monitoring result: *The table below shows that between 2022 and 2023, more treatment was conducted in WUI areas than in non-WUI areas.*

Table 5. Total number of acres of fuels treatments implemented on the Wasatch-Cache Planning Area from 2020-2023.					
	2020	2021	2022	2023	Total

WUI	12,009	2,974	2,294	6,670	14,983
Non-WUI	5,284	4,989	4,610	3,703	10,273
Total Acres	17,293	7,963	6,904	10,373	25,256

Indicator #2 Fire behavior and opportunities for suppression. Measure when a wildfire enters a fuels treatment that is less than 10 years old. Report every 2 years.

Data source: *Fuel Treatment Effectiveness Monitoring database*

Monitoring result: *As shown in the table below, in 2022 and 2023, two of three fires resulted in fire behavior changing due to vegetation treatments and on three fires, vegetation treatments contributed to the control and/or management of fire.*

Table 6. Fires on the Wasatch-Cache that started in or burned into fuels treatments from 2022-2023.						
<i>Fire</i>	<i>Fire Year</i>	<i>Treatment</i>	<i>Treatment Date</i>	<i>Treatment Acres Burned</i>	<i>Did fire behavior change as a result of treatment?</i>	<i>Did treatment contribute to the control and/or management of fire?</i>
Brighton	2022	Spruces C.G.		0.1	no	yes
North Fork	2023	Upper Provo		0.1	yes	yes
Slate Creek	2023	Upper Provo		0.1	yes	yes

Monitoring Question #6 Fire Management: Are natural ignitions being managed to accomplish resource management objectives?

Finding: *No changes are needed.*

Conditions must be favorable to manage fires for resource objectives, many of which are outside of our control (such as weather, available resources, and fire location). Therefore, the percentage of natural ignitions that can be managed for resource objectives can vary significantly from year to year. The goal, however, is to see a long-term trend of natural ignition fires managed to meet resource objectives.

In the last two years, there have been no natural ignitions managed to accomplish resource management objectives. As we continue to increase fuel reduction efforts on the forest, we increase wildfire management options. As we reduce fuel loading in future wildfire footprints, fire managers have more latitude in their decisions.

In addition to managing wildfires for resource benefit, we hope to see a trend of increasing percentages of acres with resource benefits from natural ignitions. As we continue to reduce the potential for unwanted fire effects, we are hopefully increasing the potential size of these fires, meaning they are allowed to burn naturally as severity and intensity maybe checked through vegetation management efforts. Over the last two years, however, there were no acres burned from natural ignitions and therefore no acres with resource benefit. These numbers only consider natural fires that were greater than 10 acres, and in the 2023 fire season specifically, there was only a total of six acres burned.

Indicator #1 Percent of natural ignitions with identified resource management objective.

Data source: *Wildland Fire Decision Support System database*

Monitoring results: *In 2022-2023, 0% of natural ignitions were managed with a resource management objective.*

Indicator #2 Percent of natural ignition acres with resource benefit.

Data source: *Forest Service Activity Tracking System database, UWC fire perimeter GIS data*

Monitoring results: *In 2022-2023, 0% of natural ignitions contributed to resource benefit as an objective on the Wasatch-Cache NF.*

Monitoring Question #7 Rangeland Management: What is the extent of the change of ecological conditions due to invasive species? Do rangeland plant communities have desired species composition and is ground cover adequate?

Finding: *No changes are needed. The Forest has been making efforts to control weeds on the planning area. Riparian areas and upland conditions of range allotments are overall in satisfactory conditions. Satisfactory condition is defined as meeting desired conditions or trending towards desired condition. Desired condition is defined as the 2003 Forest Plan Standards and Guidelines and having the desired plant communities.*

Indicator #1 Estimated acres infested with noxious weeds.

Data source: *Visual observations and/or treatment reports from seasonal noxious weed USFS crews.*

Monitoring results: *On the Salt Lake Ranger District, the Stansbury Mountains are considered a high use recreation area and noxious weeds are increasing in many places that are now more easily accessible. These new infestations are aggressively treated with the aim to keep them controlled and small. Hoary cress, Houndstongue, field bindweed, squarrose knapweed, and Canada Thistle are the most common invasive weeds found in this area. Long-term monitoring studies indicative of vegetative and ground cover conditions are in overall satisfactory condition and noxious weed infestations account for less than 5% of the Stansbury Mountains. On the Kamas and Evanston/Mt. View Ranger Districts, current noxious weeds infestations are being controlled and new noxious weed infestations are found almost on an annual basis. Mirror Lake corridor is a high use recreation area and new noxious weeds infestations are aggressively treated to keep infestations controlled and small. Musk Thistle, Yellow Toadflax, Bull Thistle are the three top invasive weeds found on the WCNF and noxious weed infestations account for less than 1% of the Kamas RD. On the Evanston/Mt. View Ranger District, current noxious weeds infestations are decreasing in number and size. Long-term monitoring studies indicative of vegetative and ground cover conditions are in overall satisfactory condition and noxious weed infestations account for less than 1% of the Evanston/Mt. View Ranger District. On the Logan and Ogden Ranger Districts, current noxious weed infestations are typically found along transportation corridors (eg. roads and trails) or recently disturbed areas (e.g. project work, timber sales, and prescribed burns) and are being controlled through partnerships/contracts. New infestations (eg. Canada Thistle, Dyers Woad, Houndstongue, Knapweed, Leafy Spurge, Musk Thistle, and White Top) are prioritized for treatment to contain or eradicate these populations. Noxious weed infestations account for approximately 5-7% of the Logan and Ogden Ranger Districts.*

The last time weeds were inventoried on the WCNF was in 2015 by USU and based on acres inventoried, the amount of weed infested area for Ogden and Logan Ranger Districts were 5.7 and 8.3 percent. Weeds have been treated on each District along high use areas such as roads and trails.

Table 7. Acres of Noxious Weed Inventory and Treatments								
Ranger District	2015 USU Re-inventory		Weed Treatment Acres¹					
	Invent oried Acres	Weed Infested Acres	2018	2019	2020	2021	2022	2023
Salt Lake	N/A	N/A	0	24	331	313	183	68
Kamas²	N/A	N/A	742	1,107	1,139	Not Rpt ³	960	807
Evanston-Mt. View	N/A	N/A	0	106	100	103	143	299
Ogden	1,773	148	233	163	57	285	14	1
Logan	7,429	422	30	137	467	396	207	112
Totals	9,202	570	265	570	2,092	1,097	1,507	1,287

¹ From USFS FACTS database.

² The value includes Heber and Kamas Ranger Districts because they are reported as one District in FACTS.

³ Not Rpt - Data not reported because of personnel change.

Indicator #2 Riparian and upland condition and trend.

Data source: There are only three allotments on the Heber-Kamas District located on the Wasatch-Cache NF which include Curry, Kamas Valley, and Weber River. Trend and condition were and are determined from those studies that have been revisited at least once following establishment. Condition without trend is indicated from some studies with a single visit. Several monitoring methods are or have been used to gather data for condition and trend analysis. These include but are not limited to repeat photography, photo plot, line intercept, line point intercept, vegetation ocular macroplot, nested frequency, and greenline. Older study types that provide background information but are not currently used include site analysis and Parker 3-Step. These methods are used to determine ground cover, plant community composition, forage utilization, riparian and stream bank conditions, water quality, compliance with grazing management practices or other grazing permit and/or annual operating instructions, and any other pertinent desired condition parameters. The table below shows long-term monitoring studies were established or re-read on the cattle allotments between 2018 and 2023.

Table 8. Number of Range Study Sites Read or Established.			
Ranger District	Years	Number of Study Sites	Allotments Studied
Salt Lake	2018-2019	0	No allotments studies due to change in personnel.
	2020-2021	98	Blackbunch, Boxelder, Grantsville North, Grantsville South, Rush Valley, and Skull Valley
Kamas	2018-2019	63	Curry, Kamas Valley and Weber River
	2020-2021	103	Curry, Kamas Valley and Weber River
	2022-2023	44	Curry, Kamas Valley and Weber River
Evanston-Mt. View	2018-2019	750	Burnt Fork, Beaver Creek, Poison Mountain, Red Mountain, West Fork-Smiths Fork, Blacks Fork, West Fork-Blacks Fork, Larson, Gold Hill and others

	2020-2021	600	East Fork-Smiths Fork, Gilbert Creek, Gold Hill, Humpy Creek, Meadow Creek, Poison Mountain, Stillwater, West Fork Bear River, West Fork-Smiths Fork, and others.
	2022-2023	800	Beaver Creek, Blacks Fork, Burnt Fork, East Fork Bear River, East Fork-Blacks Fork, Little West Fork-Blacks Fork/Elizabeth Mtn #2, Lyman Lake, Meadow Creek, Moffit Creek, and others
Ogden	2018-2019	5	Dry Bread, Three Creeks
	2020-2021	2	Three Creeks
	2022-2023	30	Three Creeks
Logan	2018-2019	15	Boulder Mountain, Cottonwood, Cowley Canyon, Franklin Basin, Logan Canyon, Long Hollow, Millville, North Rich, Providence, Ricks Steel, Saddle Creek, South Cache, White Rock
	2020-2021	18	Logan Canyon, Willard Basin, Wood Camp

Monitoring results: *On the allotments monitored on the WCNF, the vegetative communities associated with the allotments are overall in satisfactory condition. Satisfactory condition is defined as meeting desired conditions or trending towards desired condition. Desired condition is defined as the 2003 Forest Plan Standards and Guidelines and having the desired plant communities.*

Monitoring Question #8 Are Forest management activities and natural events affecting the ecological conditions indicated by the status of Focal species?

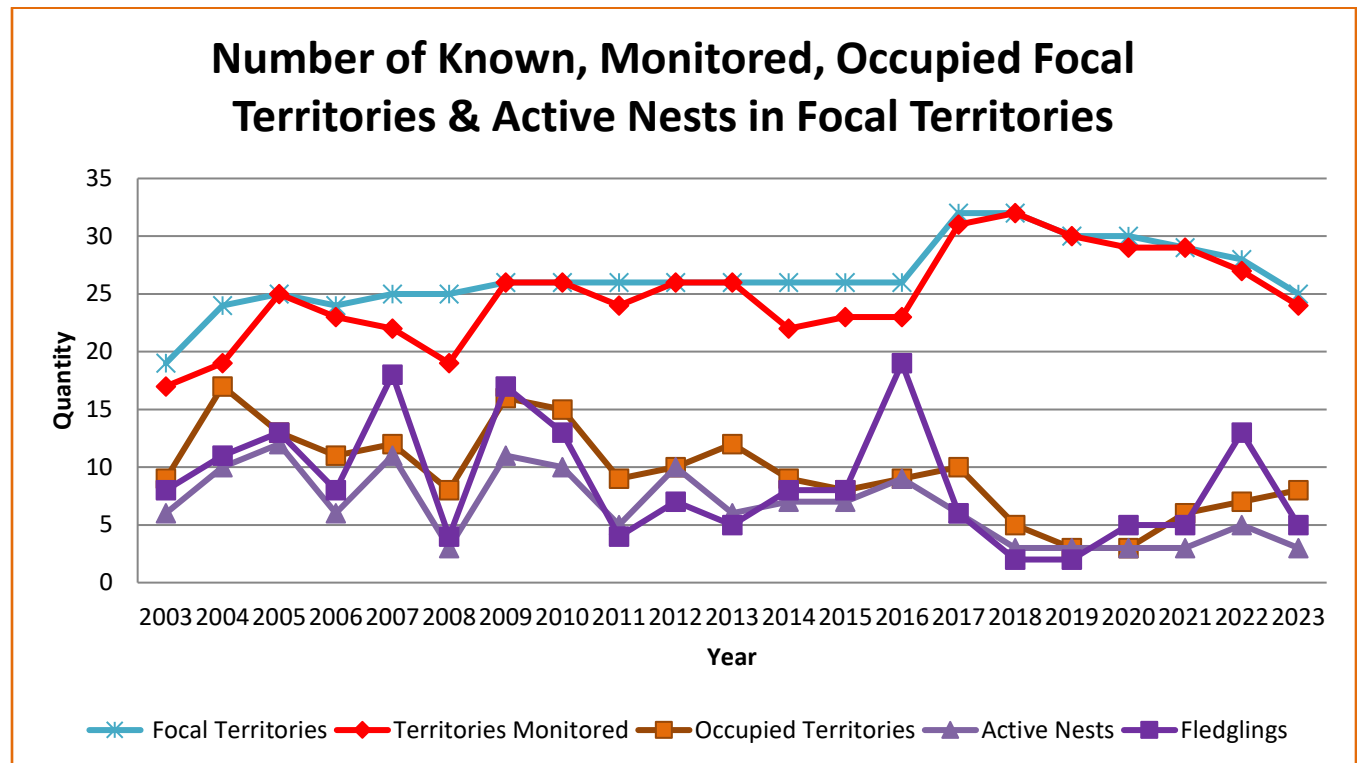
Findings: *No changes are needed. Management activities over the past 18 years were unlikely to cause significant population level impacts to goshawk reproductive activities and success rates. Although trends in fish populations vary by drainage, no changes are needed since the reasons for downward trends are from natural events or from stocking decisions not from issues with management direction.*

Indicator #1 Active Goshawk territories.

Data source: *2022-2023 Goshawk survey results of monitoring a subset (approximately 50%) of the known goshawk nesting territories and comparison to goshawk inventories from 2003. Surveys of territories are based on protocols for the Uinta-Wasatch-Cache National Forest (UWCNF) that have been adapted from the Northern Goshawk Inventory and Monitoring Technical Guide (Woodbridge & Hargis, Northern goshawk inventory and monitoring technical guide, 2006).*

Monitoring results: *The WCNF shows an overall slight downward trend in occupied territories (OT), active nests (AN), and fledgling success in total number of fledglings (FS) over the course of the 2003-2023 monitoring history. Over the last three years (2021-2023), the number of OT has been higher than the previous three years (2018-2020), but lower than most previous years. Number of active nests (AN) has been stable for the last six years (2018-2023) with only 3 AN each year other than a transient increase 2022 to five AN. Fledgling Success (FS) appears to be increasing since the lowest years 2018 and 2019, with a high success in 2022. Looking at the data from the beginning of the data collection in 2003, a shift occurred around 2009. Before 2009, OT and AN had flat trend lines and FS was increasing. After 2009, OT, AN, and FS started to show decreasing trends, but now seem to have stabilized or are slightly increasing.*

Figure 1. Known focal territories, monitored focal territories, occupied focal territories, active focal nests, and young fledged in focal territories on the Wasatch-Cache Planning Area between 2003 and 2023.



Colder and wetter springs generally limit goshawk reproduction (Bloxtton 2002, Ingraldi 1998, Patla 1997, Kostrzewa and Kostrzewa 1990). The winters of 2016-2017, 2018-2019, and 2022-2023 had above average snow accumulations that may have affected goshawk reproduction. However, this last winter of 2022-2023 had unusually deep snow depths with cold temperatures into spring and occupancy and productivity was the same or slightly higher than 2021. In contrast, the snow depths through the winter of 2017-2018 was below average, but Evanston Mountain View Ranger District (EMVRD) had exceptionally low OT, AN, and FS numbers. The winter of 2019-2020 had average snow depths, but OT and AN were low although FS was higher compared to the previous three years. Other districts in the Planning Area had lower than average metrics as well for these same years. The winter of 2020-2021 was very dry with little snow accumulation with a hot and dry spring. OT in 2021 was higher than 2020, but AN and FS were same as 2020. Because metrics are relatively low and possibly stabilizing the last five years under various weather patterns, weather may not solely be responsible for the downward trends over the last five years.

Management activities over the past 20 years were unlikely to cause significant population level impacts to goshawk reproductive activities and success rates. Management activities implemented on the Forest

require environmental analysis, including impacts to goshawk, resulting in project design with minimal negative effects to goshawk. Approximately 18% of the Wasatch-Cache Planning Area and 63% of the (EMVRD) is designated as wilderness and roadless areas. EMVRD has the most known goshawk territories within the Planning Area. Management of wilderness and roadless areas require approvals from the Forest Supervisors, Regional or Washington Offices; therefore, management activities in these areas occur less frequently.

*In recent years, the Uinta-Wasatch-Cache National Forest, especially the Evanston-Mountain View Ranger District, has seen high tree mortality due to mountain pine and spruce beetle infestations reaching epidemic levels. Beetle kill caused substantial mortality to the Forest's coniferous tree species including 80-90% mortality in north slope Lodgepole pine (*Pinus contorta*) and significant mortality in Engelmann spruce (*Picea engelmannii*). This is a continuation of an east to west infestation of mountain pine beetle and spruce bark beetle beginning in the early 2000s. By 2007 the mountain pine beetle infestation was peaking on the west side of the EMVRD followed by peak infestations on the east side of the EMVRD during 2008-2009. Spruce bark beetle has moved west-to-east more slowly, with some higher elevation spruce bark beetle infestations on the east side peaking in recent years. Widespread forest mortality is a likely causal factor in downward trends of goshawk breeding activities and success in the planning area.*

Goshawks prefer to nest in mature, large diameter trees in closed canopy forests. The dead lodgepole trees no longer provide a closed canopy; therefore, this open canopy may be causing goshawks not to nest in beetle-killed areas and shifting nesting areas and nesting trees to other species. More consistent and long-term field data is needed to determine if this change will continue in the future, but a shift to an alternative tree species is logical since goshawks use mature trees for nest building and live, mature lodgepoles are less abundant than they once were. Goshawks hunt primarily in mature forest. As the area of mature forests decrease due to beetle kills, goshawks are required to hunt over larger areas which increase intra-specific competitions among goshawks. Increased intra-specific competitions could result in decreased number of nesting goshawks or in decreased reproductive successes.

The Intermountain Bird Observatory (IBO) has found that goshawks metrics have been decreasing region-wide for several years (see Annual Variation of Northern Goshawk Breeding and Productivity in the Intermountain West, 2020 Update, Miller et al.). After a discussion with a few FS Intermountain Region biologists, the IBO requested 2017- 2020 goshawk data from FS Intermountain Region forests to determine if broader patterns are apparent, inform management actions, and help drive new science priorities for goshawks. The IBO concluded that the region is inconsistent in their monitoring approaches, protocol, and level of monitoring; therefore, limits the ability for region-wide quantitative comparisons. The IBO used a qualitative comparison approach and reported that no forest in the region had increasing population levels, and more than half of the forests are reporting declines in goshawk breeding. The managers for many forests in the region are concerned about a decreased aspen viability, and the IBO suggested a comprehensive look into the goshawk-aspen system. In the case of the Uinta-Wasatch-Cache NF, the decline is believed to be the result of forest structural changes related to pine beetles. IBO also suggested a region wide program to collect high quality genetic samples to evaluate inbreeding depression and broad time-scale integration of birds across the region since there are no evidence for whether new breeding goshawks are recruited from within or outside of the region (Miller et al. 2020).

Indicator #2 Cutthroat Trout population estimates.

Data source: In 2023, the Uinta-Wasatch-Cache National Forest conducted fish surveys on streams located in the Upper Bear Drainage on the Evanston-Mt. View Ranger District. These surveys repeated surveys conducted in 2013 to monitor Bonneville cutthroat trout (BCT) and Forest management activities. The data collected in 2013 was compared with data collected in 2023.

Monitoring results: Throughout this drainage, habitat conditions remain good, and in most instances have improved. Conifer killed by beetles have started falling into area streams. This increase in large woody debris has increased stream complexity and improved fish habitat. Increased precipitation in 2022 – 2023 also helped stream conditions that occurred during an extended drought. While this increase in flows helped area streams and fish populations, it decreased our electrofishing efficiency, and in some cases (East Fork Bear River) prevented us from completing surveys due to safety concerns. Brook trout continue to expand in several streams in this drainage and are the biggest threat to Bonneville cutthroat trout and other native fish in this drainage. . Conversations with Utah Division of Wildlife Resources have begun to address this issue and decide where BCT strongholds should be protected.

Subwatershed and 6 th Field HUC Number	Stream	Survey Site	Fish Species	Year Sample d	Salmonids per mile	Biomass (lb/acre)	Ave. Condition Index	Comments	Reach Trend
Upper Bear Metapopulation									
East Fork Bear River 1601010101	E.F. Bear, Left Hand Fork	351	CT	2003	876	34	1.07	---	Down
				2013	846	44	0.95	---	
				2023	161	10	0.96	High flows made electrofishing very inefficient in 2023. Only one pass completed, and numerous fish missed.	
	Boundary Fork Lower	471	brook	2003	94	23	1.01	---	Up
				2013	113	28	1.16	---	
				2023	358	28	1.23	---	
			CT	2003	131	16	0.90	---	Up
				2013	62	17	0.97	---	
				2023	257	20	1.05	---	
			Total	2003	225	39	NA	---	Up
				2013	175	45	NA	---	
				2023	615	48	NA	Fire burned over the area in 2002. Conditions continue to improve	
Stillwater Drainage 1601010102 Hayden Fork	Stillwater Fork Lower	27	CT	2003	32	2	0.94	---	Down
				2013	295	5	0.97	---	
				2023	0	0	NA	BCT quickly	

160101010103								being replaced by EBT.	
			brook	2003	16	1	1.18	---	Down
				2013	252	8	0.89	---	
				2023	145	5	1.11	---	
			whitefish	2003	64	5	0.95	---	Down
				2013	0	0	NA	---	
				2023	0	0	NA	No whitefish observed since 2003	
			rainbow	2003	10	1	NA	---	Down
				2013	0	0	NA	---	
				2023	0	0	NA	Rainbow stocking stopped in 2002	
			total	2003	122	9	NA	---	Down
				2013	547	13	NA	---	
				2023	145	5	NA	---	
	Main Fork Lower	354	CT	2003	146	8	1.10	---	Down
				2013	463	13	0.92	---	
				2023	80	6	1.08	Only one pass completed in 2023.	
			brook	2003	0	0	NA	---	Down
				2013	86	7	1.04	---	
				2023	0	0	NA	Only one pass completed in 2023	
			total	2003	146	8	NA	---	Down
				2013	549	20	NA	---	
				2023	80	6	NA	---	
	Gold Hill Creek	338	CT	2003	32	5	1.36	---	Up
				2013	163	18	1.0	---	
				2023	300	40	0.97	---	
	Hayden Fork Upper	318	brook	2003	217	7	1.06	---	Stable
				2013	172	11	1.05	---	
				2023	225	6	0.95	Numerous young of year EBT captured. Overall population is increasing.	
			CT	2003	10	1	0.94	---	Up
				2013	72	2	0.83	---	
				2023	101	5	0.88	---	
			whitefish	2003	16	1	1.05	---	Down
				2013	0	0	NA	---	
				2023	0	0	NA	---	

	Hayden Fork Lower	11	total	2003	243	9	NA	---	Up
				2013	244	13	NA	---	
				2023	326	11	NA	---	
		11	brook	2003	302	19	1.10	---	Up
				2013	671	44	0.99	---	
				2023	581	37	1.09	---	
			CT	2003	64	7	0.97	---	Down
				2013	98	17	0.92	---	
				2023	56	6	0.93	---	
			rainbow	2003	64	7	1.03	---	Stable
				2013	0	0	NA	---	
				2023	64	15	1.12	Rainbow population dependent on stocking	
			whitefish	2003	32	7	0.97	---	Down
				2013	0	0	NA	---	
				2023	0	0	NA	---	
			total	2003	462	40	NA	---	Stable
				2013	769	61	NA	---	
				2023	701	58	NA	---	
	Teal Lake Trib. Upper	029	brook	2003	348	39	1.17	---	Stable
				2013	64	6	1.10	---	
				2023	134	19	1.17	---	
			CT	2003	64	23	0.76	---	Down
				2013	113	4	0.89	---	
				2023	0	0	NA	---	
			total	2003	412	62	NA	---	Down
				2013	177	10	NA	---	
				2023	134	19	NA	---	
West Fork Bear River, Meadow, Humpy, Deer C 160101010104	West Fork Bear Upper	035	brook	2003	32	19	0.91	---	Down
				2013	0	0	NA	---	
				2023	0	0	NA	---	
			rainbow	2003	163	290	0.91	---	Down
				2013	0	0	NA	---	
				2023	0	0	NA	---	
			CT	2003	158	146	0.94	---	Down
				2013	219	15	1.13	---	
				2023	16	1	1.07	---	
			Total	2003	337	455	NA	---	Down
				2013	219	15	NA	---	

			2023	16	1	NA	---	
Meadow Creek Upper	332	CT	2003	172	22	1.13	---	Down
			2013	158	12	0.81	---	
			2023	16	3	1.04	Numerous beaver ponds above and below reach in 2023. BCT observed in them.	
Humpty Creek	334	CT	2003	80	28	0.96	---	Up
			2013	113	9	0.85	---	
			2023	163	7	1.10	---	
Coyote Hollow	335	CT	2003	64	60	1.08	---	Down
			2013	16	4	1.07	---	
			2023	15	6	1.06	---	
Bear River	344	brook	2003	97	3	1.09	---	Down
			2013	645	13	0.95	---	
			2023	145	4	1.00	---	
		CT	2003	72	4	0.88	---	Down
			2013	145	4	0.85	---	
			2023	16	0	0.91	---	
		whitefish	2003	283	33	1.04	---	Down
			2013	64	2	0.92	---	
			2023	0	0	NA	Whitefish observed directly below reach in 2023.	
		Rainbow	2003	32	4	1.15	---	Down
			2013	0	0	NA	---	
			2023	0	0	NA	---	
		total	2003	484	44	NA	---	Down

				2013	854	19	NA	---		
				2023	161	4	NA	---		
	Mill City Creek Upper	15	CT	2003	209	108	1.08	---		Down
				2013	0	0	NA	Stream dry in 2013		
				2023	145	21	0.94	BCT population recovering from drought		
Mill Creek Drainage 160101010201	Mill Creek Lower	19	CT	2003	421	24	1.02	---	Stable	
				2013	484	17	0.96	---		
				2023	464	18	1.05	---		
		brook	2003	0	0	NA		Stable		
			2013	97	13	1.08	---			
			2023	84	7	1.04	---			
		total	2003	421	24	NA		Stable		
			2013	581	30	NA	---			
			2023	548	25	NA	---			
	Mill Creek, Upper	18	CT	2003	32	5	0.88	---	Stable	
				2013	32	7	1.09	---		
				2023	32	15	1.16	Culvert below reach is an upstream fish barrier. Will be replaced in 2024.		
	Mill Creek, Nork Fork Upper	20	CT	2003	251	11	1.04	---	Stable	
				2013	220	21	1.06	---		
				2023	232	7	1.00	---		
	Carter Creek	343	CT	2003	268	34	1.05	---	Down	
				2013	16	4	1.06	Landslide in 2007 impacted this stream and cutthroat population		
				2023	32	1	0.95	Numerous age 1+ BCT captured in 2023.		
Weber River Metapopulation										
Smith and Morehouse Creek 160201010202	Ride Pine Creek	95	CT	2009	256	4	1.10	Located on WCNF but managed by HKRD	Stable	
				2018	80	1	0.99			
				2023	72	1	1.30			
	Erickson Creek	92	BK	2009	717	42	1.06	Located on WCNF but managed by HKRD	Up	
				2018	683	na	na			
				2023	830	53	1.05			

NA = not applicable
ND = no data.

Monitoring Question #9 Is there a change in species distribution across the Forest?

Finding: *No changes are needed.*

Indicator #1 Change from cold water to warm water species, change in terrestrial vegetation and species distribution.

Data source: *Field observations and monitoring of aquatic habitat and fish population surveys*

Monitoring results: *From the results of fish population and habitat surveys, there is no indication of a change from cold to warm water species. There is no indication of a change in terrestrial species distribution.*

Monitoring Question #10 Are Forest management activities and/or natural events affecting ecological conditions that contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of concern?

Finding: *No changes are needed. For conditions indicated by goshawk and fish surveys and for federally listed threatened and endangered species, conserve proposed and candidate species, management activities over the past 15 years were unlikely to cause significant population level impacts. For fisheries, most monitored sites indicate a stable to upward trend and where downward trends occur, they are from natural events or from fish stocking decisions not from issues with Forest management direction.*

Indicator #1 Mature Forest conditions and population estimates (e.g, Northern goshawk). *See Monitoring Question # 8, Indicator #1.*

Indicator #2 Aquatic and riparian condition: In-stream channel conditions and population estimates (e.g, Bonneville cutthroat trout and Colorado River cutthroat trout). *For fish abundance and condition surveys see Monitoring Question # 8, Indicator #2.*

Indicator #3 Habitat that contains other federally listed threatened and endangered species, conserve proposed and candidate species – Documentation of alterations in habitat due to management actions and natural events.

Data source: *Forest Service information in FACTS database on timber treatments, prescribed fire, wildfire, Burned Area Emergency Response (BAER) reports, and aquatic habitat improvement projects.*

Monitoring results: *Regarding Northern Goshawk, management actions may have modified some habitat for these species, but these modifications are unlikely to have substantial effects to these species populations. On the Evanston-Mt. View District, to improve Bonneville trout populations, aquatic migration has been improved on the East Fork Bear River where a fish screen and diversion structure have been installed on the Hilliard Canal. Previously, a push-up dam was created each spring and fish were entrained into the canal. In 2024-2026, aquatic organism passage (AOP) culverts will be installed at Mill Creek, Meadow Creek, and Carter Creek. These culverts are currently fish barriers.*

Monitoring Question #11 Are Forest management activities and natural events affecting the ecological conditions of terrestrial and aquatic ecosystems?

Finding: *No changes are needed: In 2022 through 2023, the main ecological change that has occurred is from 818 acres of commercial timber sales and 17,373 acres of fuel treatments (Heber RD and Kamas RD are combined). These treatments are primarily the result of management actions taken to move toward desired*

future conditions. These activities account for a total 18,191 acres that were treated on the WCNF or less than 1% of the 2,314,498 acres encompassed by the forest boundary. Fuels treatments consist of thinning, Treatments consisted of burning of piled material and broadcast burning. The purpose of these treatments is to reduce fire sizes and intensities and to create diversity in forest age classes on the Forest. Most of these activities affected the terrestrial ecosystem by setting the seral stage of the vegetation to an earlier stage. Aquatic ecosystems will continue to improve due to improved fish passage and habitat work in the Upper Bear over the next three years.

Data source for all indicators: *See Monitoring Question # 4, Indicator #1, Monitoring Question #5, Indicators #2, Monitoring Question # 6, Indicators #1 and #2, Monitoring Question # 7, Indicators #1and #2, Monitoring Question # 8, Indicators #1 and #2. Water quality data used for this assessment are 303(d) listed water bodies from Utah Division of Water Quality 2022 303(d) list and the 2020 State of Wyoming Integrated 305 (b) and 303(d) reports.*

Indicator #1 Aquatic habitat conditions.

Monitoring results: *For fish abundance and condition surveys see Monitoring Question # 8, Indicator #2. Water quality may indicate natural and/ or man-caused conditions that affect aquatic habitat. Several streams that are classified as not supporting its beneficial use and is presented in the table below. The State of Utah Integrated Report analyzes water quality data to determine if assessed waterbodies support their beneficial uses. Utah has a draft 2024 Integrated Report that is under review by the US Environmental Protection Agency. The Utah 2022 Integrated Report is the current water quality condition report for the State and no changes in water quality condition is reported since the 2020-2021 WCNF Forest Monitoring report. The Utah 2022 Integrated Report identifies all streams and lakes that are listed as not supporting are rated as low priority for assessment. In the 2022 303(d) list, four analysis units had parameters delisted from the previous assessment. In Wyoming, Willow Creek on EMRD was considered impaired for habitat alteration and is now fully supporting its beneficial uses. Based on the current assessment, all streams on the WCNF in Wyoming are meeting their beneficial uses for the streams that have been assessed.*

Table 10. 303(d) listed water bodies from Utah Division of Water Quality 2022 303(d) list and 2020 State of Wyoming Integrated 305 (b) and 303(d) reports.			
Ranger District	Analysis Unit ID	Analysis Unit Description	Parameter
Salt Lake RD	UT16020102-023_00	Hardscrabble Creek	Max. Temperature (3A)
	UT16020102-026_00	East Canyon Creek-2	Max. Temperature (3A); Total Diss. ¹ Solids (4)
	UT16020102-027_00	Kimball Creek	Arsenic (1C, HH1C)
	UT16020102-032_01	South Fork Kays Creek	Copper, Diss. (3A)
	UT16020102-032_02	Middle Fork Kays Creek	Copper, Diss. (3A)
	UT16020102-034_00	Holmes Creek-2 (No evidence of Impairment)	Copper, Diss.
	UT16020102-038_00	Farmington Creek-2	Aluminum, Diss. (3A); Copper, Diss. (3A)
	UT16020102-043_00	Barnard Creek	E. coli. (2B), Copper, Diss. (3A)
	UT16020102-044_02	Centerville Creek	Copper, Diss. (3A)
	UT16020102-045_00	Stone Creek-2 (Insufficient Data)	Copper, Diss.
	UT16020102-049_00	Mill Creek2-Davis	Copper, Diss.
	UT16020204-010_00	City Creek-2	Cadmium, Diss. (3A)
	UT16020204-013_00	Parleys Canyon Creek-2	Cadmium, Diss.
	UT16020204-020_00	Big Cottonwood Creek-2	Cadmium, Diss. (3A); Copper, Diss. (3A)
	UT16020204-022_00	Little Cottonwood Creek-2	Cadmium, Diss. (3A); Copper, Diss. (3A), pH (1C, 2B, 3A)
	UT16020204-025_00	Parleys Canyon Creek-1	E. coli (1C, 2B), macroinvertebrate (3A)
Kamas RD	UT16020101-030_00	Beaver Creek2-Kamas	Aluminum, Diss. (3A)
	UT16020203-006_02	Provo River-6-2	Aluminum, Diss. (3A); Zinc, Diss. (3A)
	UT16020203-006_03	Provo River-6-3	Aluminum, Diss. (3A); pH (1C, 2B, 3A, 4), Copper (3A)
	UT-L-14060003-293_	Butterfly Lake along Mirror Lake Highway	pH, Dissolved Oxygen
	UT-L-16020203-002	Trial Lake	pH
	UT14040107-001_00	Blacks Fork	Aluminum, Diss. (3A)
	UT14040107-005_00	East Fork Smiths Fork	Aluminum, Diss. (3A); Zinc, Diss. (3A)
	UT16010101-021_00	Bear River -6	Aluminum, Diss.
	UT16010101-025_00	Stillwater Fork	pH (2B, 3A, 4)
	UT-L-14040107-004	Bridger Lake	pH, Dissolved Oxygen
	UT-L-14040107-005	Lyman Lake	Dissolved Oxygen
	UT-L-14040107-006	China Lake	Temperature, Dissolved Oxygen
	WYGR140401070205_01	Willow Creek (Delisted)	Habitat Alteration
Ogden RD	UT16010101-007_00	Big Creek	E. coli (2B); pH (3A)
	UT16020102-001_00	Weber River-1	Macroinvertebrates (3A)
	UT16020102-002_00	Weber River-3	OE Bioassessment

	UT16020102-009_00	Middle Fork Ogden River	Min. Diss. Oxygen (3A)
	UT-L-16020102-014	Pineview Reservoir (Has a TMDL)	pH, Total Phosphorus, Temperature, Dissolved Oxygen
Logan RD	UT16010201-001_00	Bear Lake West	Macroinvertebrates (3A)
	UT16010201-002_00	Laketown	Max Temperature (3A), Macroinvertebrates (3A)
	UT16010203-005_00	Logan River-1	E. coli (3A), Total Phosphorus as P (3A)
	UT16010203-006_00	Logan River-2	pH (2B, 3A, 4)
	UT16010203-008_00	Spring Creek	Max Temp (3A), Total Diss. Solids (4)
	UT16010203-020_00	Blacksmiths Fork-1	E. coli. (2B)
¹ Diss. means dissolved. Note that Colors mean: Blue - Delisted Light Blue – No Evidence of Impairment Pink – Insufficient Data Black – Not Supporting, Carry over from previous assessment. Red – Not Supporting, New listing			

Table 11. Utah Division of Water Quality 2022 303(d) listed water bodies that were delisted in the 2022 Integrated Report.			
Ranger District	Analysis Unit ID	Analysis Unit Description	Parameter
Kamas RD	UT16020203-006_01	Provo River-6-1	Zinc, Diss. (3A) (In 2022 assessment, Dissolved Zinc was delisted because it meets WQ criteria with new data)
	UT16020203-006_03	Provo River-6-3	Zinc, Diss. (3A), (In 2022 assessment, Dissolved Zinc was delisted because it meets WQ criteria with new data),
Evanston-Mt. View RD	UT14040106-003_00	West Fork Beaver Creek	Aluminum, Diss. (3A) (In 2022 assessment, Dissolved Aluminum was delisted because it meets WQ criteria with new data)
	UT14040106-004_00	Middle Fork Beaver Creek	Aluminum, Diss. (3A) (In 2022 assessment, Dissolved Aluminum was delisted because it meets WQ criteria with new data)

Indicator #2 Riparian ecosystem conditions.

Monitoring results: *Overall, very little change has occurred to riparian areas of the Wasatch-Cache Planning Area and most management activities have avoided impacts to these areas.*

Indicator #3 Forested Terrestrial ecosystem conditions.

Monitoring results: *In 2022, early monsoon weather occurred and in 2023 a late spring occurred because of the record setting snowpack. Very few impacts to soils occurred on the WCNF from wildfire.*

Indicator #4 Non-forested terrestrial ecosystem conditions. See Monitoring Question #7, Indicator #2

Monitoring Question #12 Are Forest management activities and natural events affecting watershed conditions?

Finding: *No changes are needed. The UWCNF is working cooperatively to collect water samples and to provide information to the Utah Division of Water Quality on possible causes of water quality impairment. No lichen monitoring has occurred since 2016-2017. The next evaluation is scheduled in 2026 when another round of lichen monitoring should be complete. Past lichen monitoring indicates no change is needed. Based on projects monitored in 2022-2023, monitoring indicates that a small amount of impairment of soil properties have occurred from a dispersed site activity, the remaining sites have no permanent or substantial impairment of soil resources and there has been no loss of soil productivity in the long-term.*

Indicator #1 Aquatic Habitat conditions.

Data source: *See Monitoring Question #8, Indicator #2 and Monitoring Question #11, Indicator #1.*

Monitoring results: *See Monitoring Question #8, Indicator #2 and Monitoring Question #11, Indicator #1.*

Indicator #2 Air Quality - Trends of lichen biomonitoring sites.

Data source: *The WCNF has seven lichen monitoring sites. Four sites are established in the High Uintas Wilderness Area, one site in the Lone Peak Wilderness Area, and two in the Deseret Peak Wilderness Area. A report on lichen surveys was completed in 2013 by Brigham Young University. The results of the evaluation were presented in the 2016-2017 Forest Plan Monitoring Evaluation report. The monitoring interval for lichen monitoring is 10 years and no new data has been collected for 2020-2021 Forest Plan Monitoring Evaluation report.*

Monitoring results: *No new data is available for evaluation for the 2020-2021 Forest Plan Monitoring Evaluation report.*

Indicator #3 Changes in soil properties (physical, chemical, and biological) that result in the loss of the inherent ecological capacity or hydrologic function of the soil resource.

Data source: *Soil resource condition surveys*

Monitoring results: *In 2022 and 2023, three projects were monitored and documented in the National Best Management Practices database that included implementation and effectiveness for the projects. Monitored activities are listed below.*

1. *Brighton boardwalk replacement (Monitored 08/22/2023): The boardwalk was replaced using small front-end loaders. The project has bare soil in the wetland but the soil does not have ruts in them. Best management practices were employed such as using the same access route to reconstruct the boardwalk. The boardwalk uses helical piers to replace boards in the wetland and will provide very little long-term impact to the wetlands.*
2. *Cardiff Fork Boardwalk (Monitored 09/19/2023): A boardwalk and a bridge was installed across a wetland area where Forest users walked on trails in the wetland area. Soils were disturbed from an excavator and a truck that was used during construction. Best management practice of using one access route limited the amount of soil disturbance and dense vegetation is growing back in the wetland.*
3. *Burnt Fork burn piles (Monitored 07/06/2022): Many slash piles were burned during the previous winter season and most of the soil where the piles were burned had light to moderate burn severity. It is recommended that piles that will be burned in the future be placed 25' from perennial streams to reduce the chance of sediment reaching streams.*

Results of monitoring indicates that these activities had BMPs mostly or fully implemented and that the BMPs were effective at reducing sediment movement to streams. There was no permanent or substantial impairment of soil properties due to these project activities and no loss of soil productivity in the long-term.

Monitoring Question #13 NFMA compliance: Are we complying with appropriate NFMA requirements?

Finding: *No changes are needed.*

Indicator #1 Stocking of lands.

Data source: *Uinta-Wasatch-Cache NF Annual Reforestation and Timber Stand Improvement Needs Report in FACTS database.*

Monitoring results: *The Wasatch-Cache National Forest did not have any tree planting activities in 2022 through 2023. The forest does not show any acreage needed to be planted or to certify as being restocked.*

Monitoring Question #14 Are timber management activities impairing soil productivity of the land?

Finding: *No changes are needed to Forest Plan.*

Indicator #1 Changes in soil properties (physical, chemical, and/or biological) that result in the loss of the inherent ecological capacity or hydrologic function of the soil resource. Specific indicators are amount of soil disturbance, change inorganic matter, or change in Soil structure, soil temperature, A horizon depth.

Data source: *Soil resource condition surveys conducted on timber harvest units.*

Monitoring *Field review of timber harvest units in Dahlgreen Aspen timber sale and prescribed fire.*

In 2005, Dahlgreen timber harvest (clearcut with reserves) was completed. In 2008, prescribed fires were completed in the area Dahlgreen timber harvest area. Currently, overall minimal soil disturbance remains and is in skid trail, haul road, and log landing areas. Area has good vegetation regeneration with visual estimation of ~90-95% ground cover overall. Aspens are regenerating as intended along with additional lodgepole and sagebrush regrowth. No erosion is present besides a 40 ft² area on a skid trail and is not a concern. Only one 10-ft long remnant rut with 3-4 in compaction was observed in the area and had almost complete vegetation cover. Only material remaining from prescribed burn with burn marks is coarse woody debris and no moderate or severe soil burn severity was observed. Only ~10-15% of the area had gopher activity. However, musk thistle was observed in some locations. Minimal, low soil disturbance remains, and soil and vegetation have recovered well from treatment activities.

Monitoring Question #15 Are goods and services being provided in accordance with Forest Plan goals and objectives?

Finding: No changes are needed. The Wasatch-Cache NF is providing a variety of goods and services according to the Forest Plan.

Indicator #1 Number of Lands Special Use Permits.

Data source: Forest Service Special Uses Data System (SUDS) database.

Monitoring results: The number of lands and recreation special use permits are presented by ranger district in the table below. No data is available for 2023. Lands SUPs are uses such as dams, water transmission lines, geophysical exploration. Recreation SUPs are uses such as recreation residences, outfitter and guides, and recreation events. Since 2019, total number of Lands SUPs decreased by 26 and Recreation SUPs increased by 47.

Table 12. Special Use Permits (SUP) from 2017-2023.								
Ranger District	Number of Lands SUP				Number of Recreation SUP			
	2017	2019	2021	2022	2017	2019	2021	2022
Supervisor's Office	48	50	44	50	14	12	12	13
Salt Lake	158	159	159	202	176	162	178	256
Kamas¹	32	32	32	75	48	43	51	138
Evanston- Mt. View	47	45	44	48	49	48	50	80
Ogden	43	43	48	56	13	9	18	32
Logan	56	61	62	74	99	92	94	119
Total	407	413	412	500	399	418	465	668

Indicator #2 Number of Recreation Special Use Permits. See indicator #1 and table above.

Indicator #3 Acres leased for oil and gas exploration and development.

Data source: US Bureau of Land Management, MLRS (Mineral & Land Record System).

Monitoring results: As of 1/4/2024, there are 35 authorized oil and gas leases containing 33,024 acres within the Wasatch-Cache NF plan area. There has been no change from the 2018-2019 and 2020-2021 WCNF Forest Plan Monitoring Report.

Indicator #4 Level of permitted livestock grazing.

Data source: Range Allotment Annual Operating Plans

Monitoring results: The level of permitted livestock grazing has not changed since 2015. The table below presents the permitted commercial livestock use levels. The term AUM means animal unit months.

Table 13. Level of permitted livestock grazing.

Ranger District	Number of permittees	Cattle Numbers	Cattle AUM	Sheep & Goats Numbers	Sheep & Goats AUM	Total number	Total AUM
Salt Lake	17	957	3,025	0	0	957	3,993
Kamas	12	989	5,146	0	0	989	5,146
Evanston-Mt. View	21	2,364	9,052	20,262	12,015	22,626	21,067
Ogden	17	2,549	4,549	9,915	6,242	12,464	10,791
Logan	31	5,132	23,760	11,029	9,826	16,181	33,586
Total	98	11,991	45,532	41,206	28,083	53,217	74,583

Indicator #5 Other Forest Products (Fuelwood and Christmas Tree Permits).

Data source: Forest Service PTSAR database.

Monitoring results: The Wasatch-Cache National Forest sold 6591 Christmas Tree Permits and 870 Fuelwood & Post and Pole Permits for a total of 7,461 special forest product permits to individuals in 2021.

Indicator #6 Total Timber Sale Program Quantity.

Data source: Forest Service PTSAR database.

Monitoring results: For the combined UWC in 2022-2023, the amount of commercial timber volume sold is 43,115 CCF and an additional 8,000 CCF of firewood. The Forest plan indicates that the forest should average 9,000 CCF of timber sold per year, excluding firewood. The forest is exceeding this annual average due to salvage beetle killed timber while there is some economic viability to it.

Monitoring Question #16 National Historic Preservation Act as amended: Are cultural resources being protected as the Forest Plan is implemented and are mitigation measures sufficient prevent damage to cultural resources from project activities? Are *Historic Properties* receiving adverse effects from project implementation, vandalism, looting, and/or neglect?

Finding: No changes are needed.

Indicator #1 Number of *Historic Properties* that received new adverse effects from looting, vandalism, and/or neglect.

Data source: Heritage data module, hard copy reporting.

Monitoring results: No new vandalism was noted on archaeological or historical sites. It was noted that artifacts were being collected from the Temple Fork Sawmill and being placed near the interpretive sign. The Utah Cultural Site Steward program created a PHA for site visitation etiquette related to the Temple Fork Sawmill site and put it online on Facebook and Instagram.