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Fishlake Forest Plan Monitoring Program

Evaluation of Monitoring Information

In Compliance With 36 CFR 219.12(d)



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Introduction

The 2012 USDA Forest Service Planning Rule directs the development, amendment, and revision of land management plans for 155 forests, 20 grasslands, and 1 prairie in the National Forest System (NFS) in accordance with the National Forest Management Act (NFMA) of 1976. The planning rule ensures that collaborative and science-based plans are developed to provide for ecosystem sustainability, species diversity and conservation, watershed protection, and benefits to public users and communities. The planning rule's three-part adaptive management framework consists of assessments; developing, amending, or revising a plan; and monitoring. Monitoring, as described in 36 CFR 219.12(a)(1), informs management effectiveness, and enables the responsible official to determine if changes to plan components, content, or implementation strategies are warranted. Plan monitoring is integrated with broader-scale monitoring strategies outlined by the regional forester in coordination with State and Private Forestry, Research and Development, partners, and the public.

This Biennial Monitoring Report for the Fishlake National Forest (Fishlake) presents the monitoring evaluations for 2022-2023. The report is separated into two parts. Part I summarizes the determinations from the biennial monitoring evaluations as to whether changes to either the forest plan, management activities, the monitoring program, or an assessment relating to the forest plan are needed. Part II presents the program specific monitoring reports as per conformance with requirements of 36 CFR 219.12 (a)(5).

The Fishlake National Forest has been operating under the 1986 Land and Resource Management Plan (LRMP) (USDA Forest Service, 1986), with several amendments. To comply with the 2012 Planning Rule, modifications to plan monitoring requirements were developed in 2016 to assess key ecological conditions and public benefits; specifically, questions and associated indicators were identified to evaluate resource areas under these contexts.

Part I: Determinations from the monitoring evaluation

Monitoring indicators designed to inform management effectiveness toward achieving the Fishlake National Forest Plan's desired conditions and objectives were evaluated for 2020-2021. Based on the new information gathered, determinations as per 36 CFR 219.12(d)(2) are as follows:

Need for change to the Forest Plan

Based on the information evaluated during this period, no near-term changes to the Forest Plan are warranted. Monitoring continues to improve our understanding of emerging conditions and will help identify areas where future adjustments may be appropriate.

Need for change to Management Activities

Based on the information evaluated during this period, no near-term changes to management activities are warranted.

Need for change to the Monitoring Program

Based on the information evaluated during this period, no near-term changes to the monitoring program are warranted.

Need for an assessment relating to the Forest Plan

Monitoring evaluation did not indicate a need to assess the Forest Plan for change.

Overall, the monitoring evaluation for the Fishlake National Forest shows that the forest plan, management activities, and monitoring program are effectively managing resources to meet the goals outlined in the 2012 Planning Rule. Constraints, such as limited funding and capacity, point to a need to prioritize treatment types, use interdisciplinary approaches, and work with a variety of outside entities to meet collective desired goals for forest resources. Monitoring will continue the Forest and inform not only adaptive management as conditions change but allow the Fishlake to identify potential future needs for forest plan revision.

Part II: Program Area Monitoring Evaluation

Recreation

Land and Resource Management Plan (LRMP) Desired Conditions for Recreation (Visitor Use)

Manage the land and activities on it, including visitor use, to achieve desired physical and social recreation settings (LRMP Page IV-3).

Activities and Monitoring Questions

Assure that developed and dispersed recreation site use and physical conditions meet Forest Plan standards.

- LRMP Standard: “Manage Development Scale 3 and 4 Sites for full service when at least one of the following are met: A. A campground is designated a fee site, B. More than 20% of the theoretical capacity is being utilized; C. A group campground or picnic ground has a reservation system and/or user fee; or D. The site is a swimming site, a boating site with a constructed ramp, or a staffed visitor information center.

- LRMP Standard: Close or rehabilitate dispersed sites where unacceptable environmental damage is occurring (Close sites that cannot be maintained in Frissell Condition Class 1, 2, or 3 and rehabilitate sites that are in Frissell Condition Class 4).

Are developed and dispersed recreation sites meeting Forest Plan standards for use and site conditions, and are visitors satisfied?

Monitoring Indicators

Site use and/or evidence of the extent of use. Developed site condition surveys; Frissell condition at dispersed sites; Fee collection data; Visitor satisfaction data.

Monitoring Methods and Data

Visitor use occurs in a variety of forms and at all times of the year. The Forest has used a variety of tools to collect data to determine use values.

For developed sites, tracking the fees collected provides a measure of use trends.

For dispersed sites, where fees don't apply, monitoring the impacts of visitor use provides information on use patterns to determine if there is an increase, decrease or stable trend at these sites. The LRMP identifies Frissell condition as the monitoring method for dispersed site condition. Sidney Frissell's article "Judging recreation impacts on wilderness campsites" (Journal of Forestry 1978) was adopted as a standard for the LRMP. Frissell proposed a condition class method of monitoring campsites, which describes site use in 5 classes:

1. Ground vegetation flattened but not permanently injured. Minimal physical change except for possibly a simple rock fireplace.
2. Ground vegetation worn away around fireplace or center of activity.
3. Ground vegetation is lost on most of the site, but humus and litter are still present in all but a few areas.
4. Bare mineral soil obvious. Tree roots exposed to the surface.
5. Soil erosion obvious. Trees reduced in vigor and dead.

The LRMP general guideline (LRMP p. IV-15) directs managers to close any sites that cannot be maintained at Frissell condition class 1, 2, or 3.

Formal surveys through the National Visitor Use Monitoring (NVUM) program are conducted on the forest every five years, with the most recent survey completed in 2023. The NVUM program provides reliable information about recreation visitors to national forest system that manages lands at the national, regional, and forest level. Information about the quantity and quality of recreation visits is required for national forest plans, Executive Order 12862 (Setting Customer Service Standards), and implementation of the National Recreation Agenda. To improve public service, the agency's Strategic and Annual Performance Plans require measuring trends in user satisfaction and use levels. NVUM information assists Congress, Forest Service leaders, and program managers in making sound decisions that best serve the public and protect valuable natural resources by providing science based, reliable information about the type, quantity, quality and location of recreation use on public lands. Specifics on methodology and sampling techniques are detailed in the [NVUM Visitor Use Report 2023](#).

The NVUM classifies forest visits into 3 categories:

1. Day Use Developed Sites (DUDS)
2. Overnight Use Developed Sites (OUDS)

3. General Forest Area (GFA)

Interviews conducted by willing participants resulted in annual visitor use estimates and satisfaction of services provided.

Assumptions

- **Utilization of fee data will capture most of the use at fee sites. Sites that are reserved through recreation.gov must be paid up front. Walk-in site payment is based on the honor system, especially when a campground host is not present.**
- **Frissell condition classes are adaptable to cover sites where the pre-use conditions exhibit bare mineral soil. This applies mainly to lower elevation sites where annual rainfall amounts from 8-11 inches do not support the development of humus and extensive ground cover vegetation.**

Results

Current Value

Developed Sites

The general trend for developed site revenue has been decreasing in recent years. Revenue reports show that revenues from developed recreation sites peaked in 2020 and have been in a downtrend since then (Fig 1). The 2020 spike in revenue was likely due to the Covid-19 pandemic and associated recreation trends.

2023 NVUM results indicate that satisfaction ratings for developed facilities, access, services, and feeling of safety range from 85% to 94% with most reports indicating a rating of “Keep up the Good Work”. Undeveloped areas reported satisfaction ratings ranging from 69% to 100% (Fig 2). On average 69% of visitors reported being very satisfied with their overall recreation experience (Fig 3), which is a reduction from 75% in the 2018 NVUM results, indicating declining visitor satisfaction ratings.

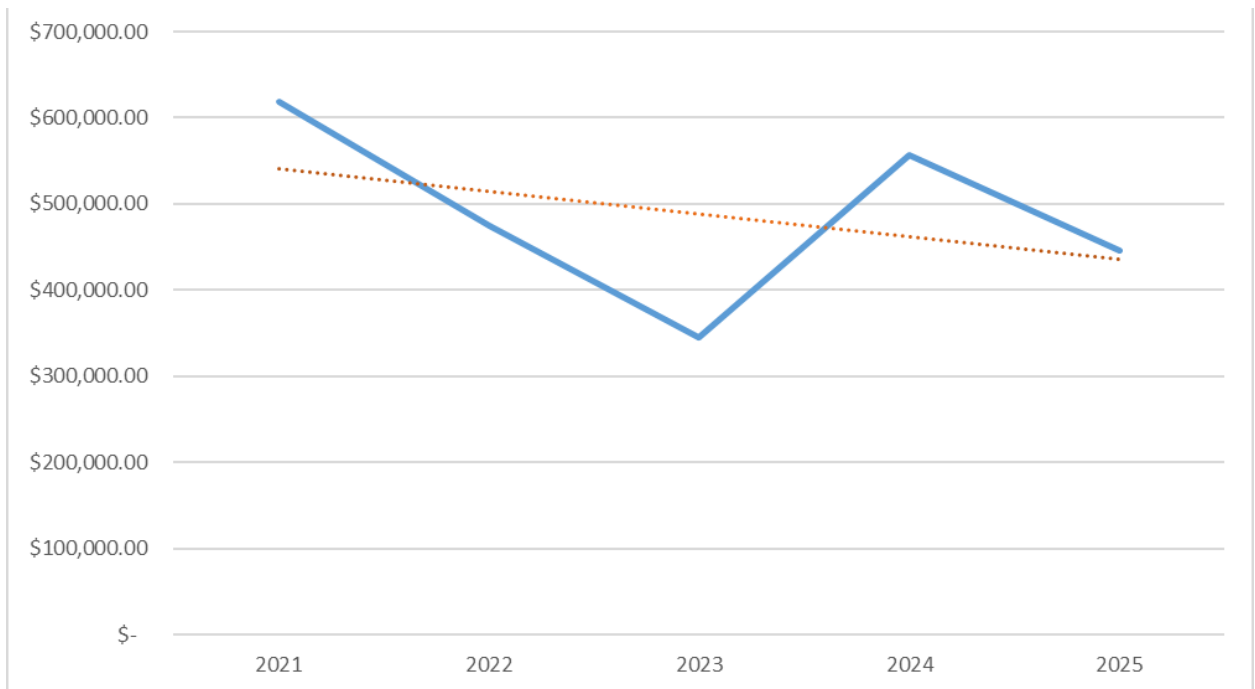


Figure 1. 2015-2025 Developed Site Use Fees

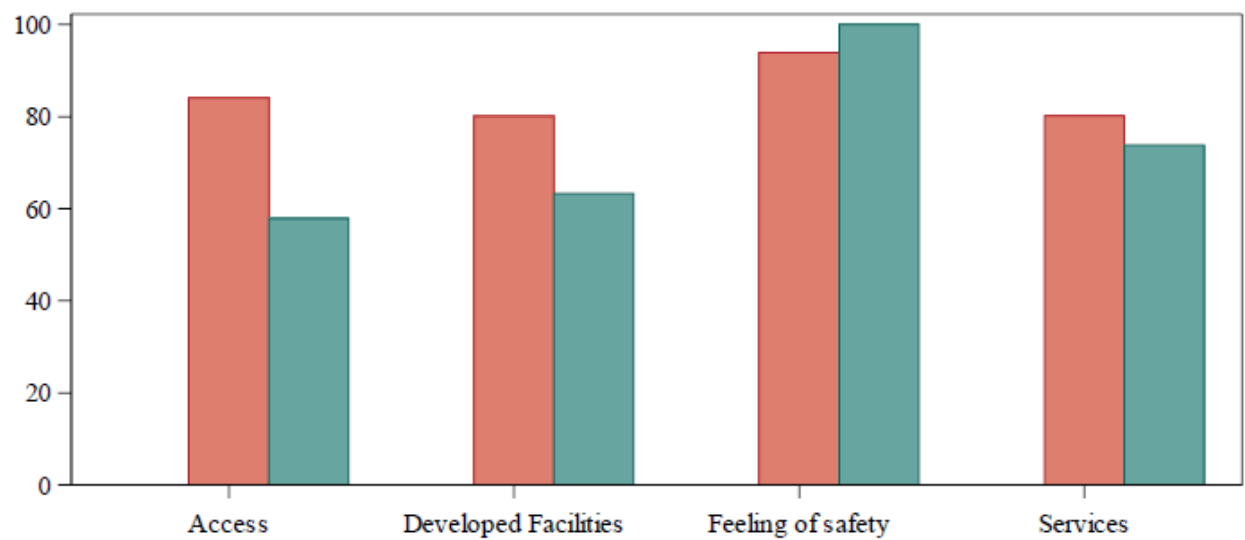


Figure 2. Visitor Satisfaction Ratings for Developed and Dispersed Sites

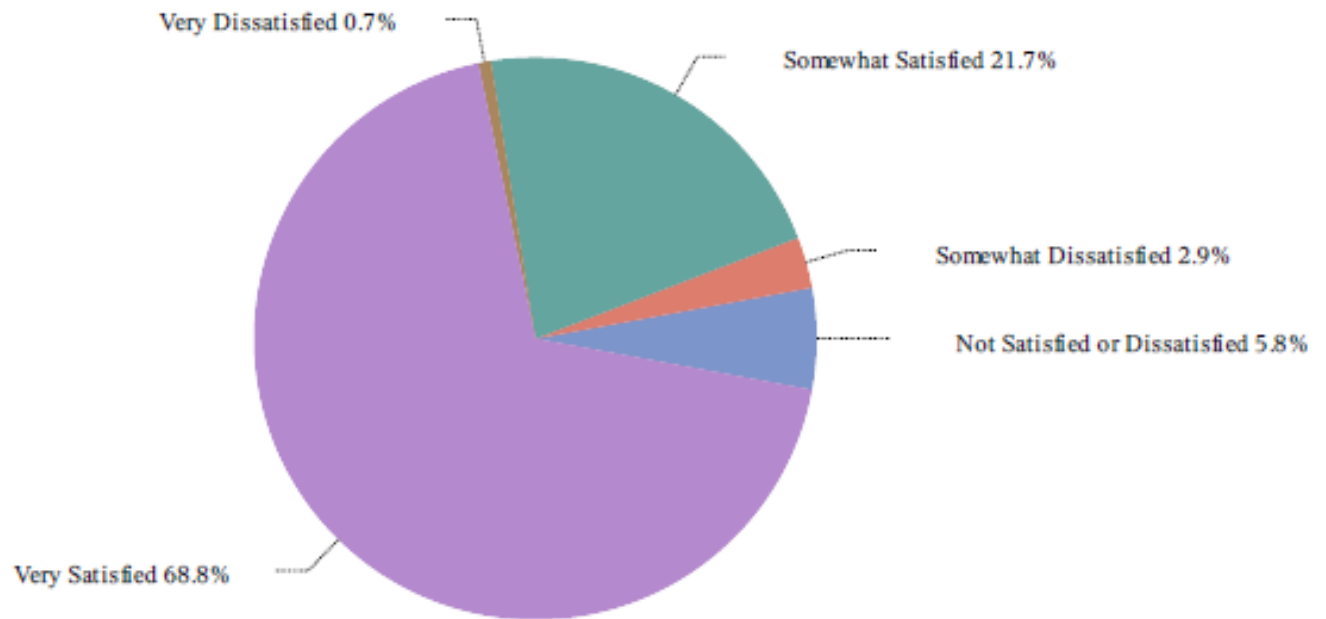


Figure 3. Overall Satisfaction Rating by Forest Visitors

Dispersed Sites

In 2022 and 2023 no dispersed sites were identified in Frissell Condition Class 4 or 5 and closures or rehabilitation was not required. Satisfaction ratings for dispersed sites averaged 82% based on the most recent NVUM survey results.

Recommendations

Continue to support visitation monitoring efforts on the Forest. Monitor developed sites for infrastructure maintenance needs and educate volunteer campground hosts to provide the best visitor experience possible.

LRMP Desired Conditions for Recreation (Trails)

Provide a trail system for public and resource needs (LRMP Page IV-3).

Activities and Monitoring Questions

Assure that non-motorized and motorized trails are managed to standard and visitors are satisfied.

- **Maintain all trails to meet standard of use designated in travel plan.**
- **Provide a full range of trail opportunities in coordination with other federal, state, and municipal jurisdictions and private industries both on and off NFS lands.**

Are trails meeting Forest Plan standards for use and condition, and are visitors satisfied?

Monitoring Methods and Data

Forest ranger districts record and report annual trail maintenance accomplishments. In addition, the program manager for the Forest motorized trail program prepares an annual report detailing work completed. The motorized annual report uses magnetic trail counters and trail cameras to

gather data on over 920.7 miles of motorized trail within the Paiute and Great Western Trail systems. This data provides an accurate indication of the quantity and trends of use.

Assumptions

- The number of vehicles counted by electronic, non-photo, trail counters assume 1 rider per vehicle. Acknowledgements are made to the increase in popularity of side by side and two-up configuration ATVs may underrepresent number of users in some instances. Use patterns are further refined using trail cameras which record number of riders per vehicle and vehicle type.
- Implementers are aware of trail designations in the travel plan when completing repairs and trail maintenance.

Results

Current Value

In 2024 and 2025, motorized trail maintenance activities on the Fishlake National Forest were completed by forest employees, partners, and volunteers. In 2024, 555 miles of motorized trail were maintained, and 161 miles of trail were improved. In 2025, 657 miles of trail were maintained, and 132 miles of trail were improved.

The motorized trail program is an inclusive approach to trail management that capitalizes on state, federal, and private resources to complete work. This approach has proven to be very successful in incorporate grant funding, maximize equipment deployment, and increase the workforce, which has resulted in a nationally recognized trail system. The trail network that is maintained through the Fishlake Motorized Trail Program incorporates Bureau of Land Management, State of Utah, Private, and NFS lands.

Motorized trail activity and OHV use is the 2nd highest reason visitors come to the Fishlake (NVUM 2023). Long-term use patterns for motorized trails show an increase over time, with a peak occurring in 2020 followed by a downturn in 2021 continuing through 2025, as shown in Figure 4.

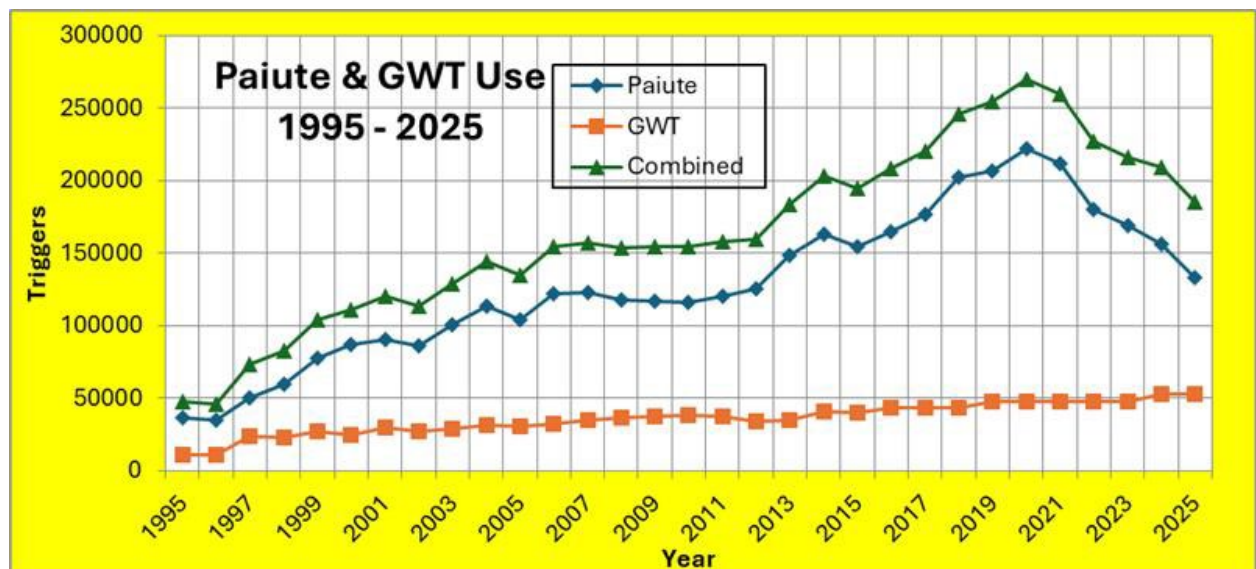


Figure 4. Paiute and Great Western Trail Use 1995-2025

Non-motorized trail activity includes hiking, equestrian, and mountain bike trails. These trails, together with the forest's motorized trail system, meet the standard of providing a full range of trail opportunities across multiple jurisdictions.

Access and services ratings associated with trail use recorded moderately high satisfaction with users; 69% and 75% respectively (NVUM 2018). These 2023 satisfaction ratings were about 12% lower than the 2018 satisfaction ratings.

In recent years there has been a discrepancy between trail maintenance performed on motorized versus non-motorized trails as shown in Figure 5; while funding availability through partner grant programs has been a consistent pillar of the motorized trail program over the years, funding for non-motorized trails has declined significantly, which explains the discrepancy.

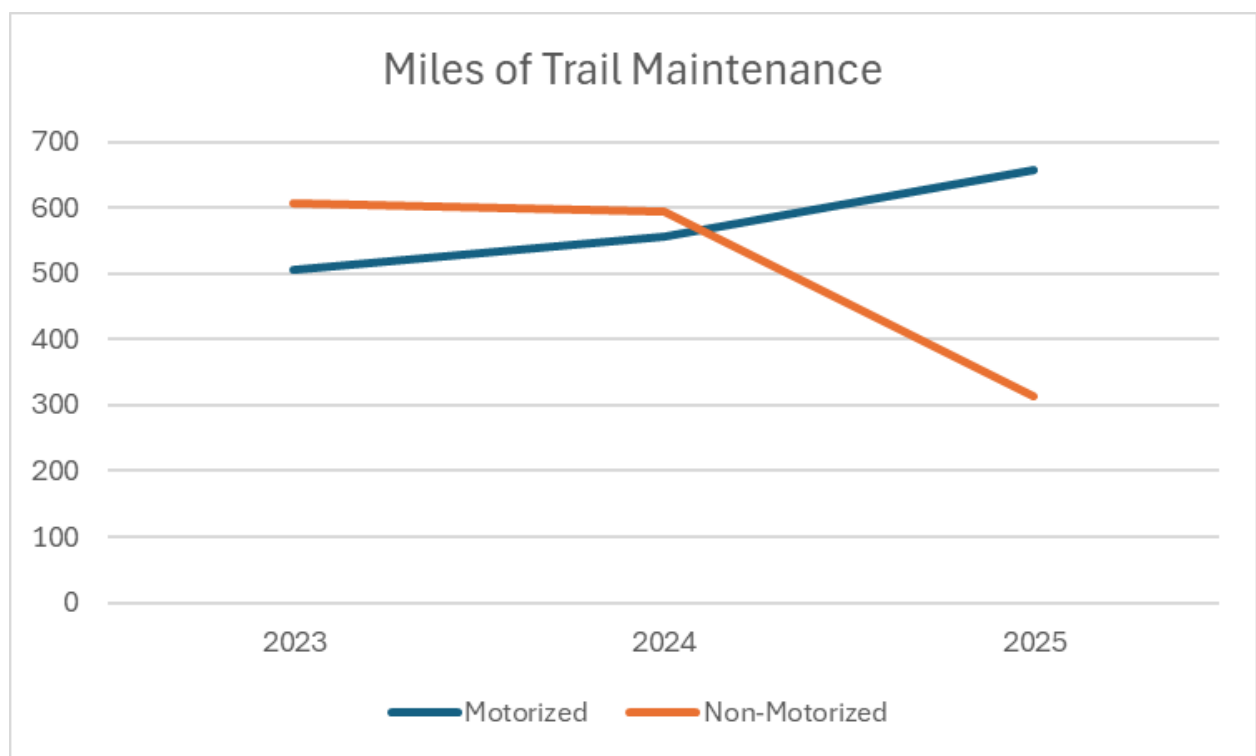


Figure 5. Motorized and Non-Motorized Trail Maintenance Performed from 2023-2025

In summary, visitors are generally satisfied with the level of services and access currently provided, although satisfaction levels do appear to be declining.

Recommendations

Continue to support the Forest Motorized Trail Program with partnerships between the State of Utah and private riding clubs. This program has been an effective way to meet users' needs and desires for OHV opportunities.

Continue to seek opportunities to increase non-motorized trail maintenance and improvement activities. Continue to seek out opportunities for partnerships and volunteer work for trail maintenance needs. Trail maintenance opportunities can be listed on volunteer websites such as

<https://www.justserve.org/>. Partnerships with non-profit organizations that support non-motorized trail activities should also be pursued, as well as grant funding opportunities to support non-motorized trail maintenance work.

Cultural Resources

LRMP Desired Conditions for Cultural Resources (Protection)

Identify, protect, interpret, and manage significant cultural resources on the Fishlake National Forest (LRMP Page IV-3).

Activities and Monitoring Questions

Sites located and protected: Are historical and cultural resources being protected both from forest plan implementation activities and from vandalism or neglect?

Monitoring Indicator

Number of historical or cultural sites adversely impacted by projects or the public.

No known adverse impacts were documented in FY24 or FY25.

Data Limitations

In 2021, the Fishlake National Forest completed digitizing all working heritage program files and began reconciling Forest records with those housed at the Utah SHPO. This effort continued through FY24, and in FY25 the Forest also initiated a review of data integrity within NRM Heritage. This work remains ongoing and will continue in future years as time and capacity allow.

Historical and Cultural Resource Protection

The information below, derived from heritage database records and associated field documentation, details the cultural resource identification, monitoring, and protection activities conducted during Fiscal Years 2024 and 2025.

A. Priority Heritage Assets:

Five Priority Heritage Assets were revisited, with updated photographs and field notes collected for each site assessment. These included the Wildcat Guard Station (04070001667), Blackbird Mine (04080000002), Old Woman Site (04080000361), Chief Wakara Site (04080000379), and the Mytoge Rock Shelter (04080002206).

The Silver King Mine (04080001712) was largely unaffected by the 2024 Silver King Fire. The primary structure remains intact, and the mine audits have not been impacted by post-fire hydrologic events to date. Site signage, however, was replaced following the incident.

At the Half-track Site (04080002291), a historic military vehicle was reported missing in June 2024 from the Boulder Mountain Row Lakes area on the Teasdale Ranger District of the Dixie National Forest, administered by the Fishlake National Forest. The vehicle was recovered and returned to the Forest Service in August 2024 and was reinstalled at its original location in June 2025.

B. Section 110 projects completed:

No Section 110 projects were completed for FY24 or FY25.

C. Section 106 projects completed:

2024

- 22-1412 Meeks Mesa Campground and Holt Draw Trail System
- 22-1428 Joe Lot Riparian Exclusion Fence
- 23-1434 Joe Lott-Fish Creek Livestock Water System
- 23-1440 Old Woman Chain Harrow
- 23-1442 Bowery Haven SCC Fiber Optic Line
- 23-1443 Last Chance Unit 2 Prescribed Fire Project
- 23-1450 East Old Woman Prescribed Fire Project
- 23-1453 Robins Valley Thousand Lakes Communication Sites
- 23-1455 Clear Creek Bank Stabilization
- 24-1456 FY2024 Stewardship Projects
- 24-1457 FY2024 Public Outreach
- 24-1458 FY2024 Evaluation of Legacy Sites
- 24-1459 FY2024 PHA Condition Assessments
- 24-1461 Monroe City Lower Hydro Penstock Line Replacement
- 24-1462 Dog Valley Zanskar Geothermal Exploration Test Wells
- 24-1463 Deer Trail Mine Alunite Ridge CRS
- 24-1465 FR-350 Little Lost Creek Road Realignment
- 24-1471 Cove Fort MT Geophysical Survey
- 24-1473 Stair Canyon Pipeline Project
- 24-1477 Deer Trail Mine's 2024 Exploration Plan
- 24-1478 Spectacle Lake SNOTEL Site
- 24-1481 DT Mine 2024 Permit Assistance
- 24-1482 Pando Clone Fence Alignments

2025

- 22-1415 HistoriCorps Fish Lake Basin Recreation Residence Tracts Survey
- 24-1466 Beaver Canyon Recreation Improvements
- 24-1468 Recreation Residence: Tom Adams
- 24-1470 Oak Creek Mule Deer Restoration 2024 Phase 1 inventory.
- 24-1472 East Old Woman Pine Hollow CRS, Logan Simpson
- 24-1475 Enbridge Gas Line Repair, Eocene Environmental Services
- 24-1480 Silver King Fire Restoration Project
- 25-1483 East Salina Canyon Prescribed Fire Project
- 25-1484 Ormat Cove Fort Geothermal
- 25-1485 FY2025 Stewardship Projects

25-1486	FY2025 Public Outreach
25-1487	Additional Survey for Deer Trail Mine's Permitting Assistance
25-1488	2025 Fishlake National Forest Guzzler Project
25-1489	Twin Creeks Amphitheater and Visitor Center Improvements
25-1491	Pando Clone Fence Realignment
25-1492	Upper Ebbs Watershed Improvement Project

Recommendations

No changes to the cultural resources monitoring program are recommended.

Monitoring Methods and Data

The Fishlake National Forest employs a Forest Archaeologist to develop, coordinate, and implement the Cultural Resources program on the unit, including planning, directing, and executing surveys for the location and verification of historical sites and providing guidance to management in marking, protecting, and salvage of these sites. The forest archaeologist ensures that scientific and systematic procedures are followed in identifying, evaluating, and classifying cultural resources. Identified cultural resources are documented and recorded using appropriate site forms, and this data is recorded in the Forest Service Natural Resource Manager (NRM) Database and sent to the Utah State Historic Preservation Office (SHPO) for consultations.

Timber

LRMP Desired Conditions for Forest Vegetation (Protection)

Prevent and control insect infestation and disease (LRMP Page IV-5).

Activities and Monitoring Questions

Assure that timber manipulation will not favor an increase in forest pests (insects, diseases, etc.): Are Forest vegetation conditions stable or moving toward Forest Plan desired conditions?

Monitoring Indicator

Extent of insect and disease infestations.

Monitoring Methods and Data

Since 1955 the Forest Service's Forest Health Protection (FHP) aviation group has conducted annual insect and disease detection surveys across the United States. Using fixed wing aircraft, the FHP flies in a grid pattern over the forest while entomologists sketch mapping the foliage below. These Insect and Disease Detection Surveys (IDS) are used to detect and monitor insect outbreaks. The completed sketch maps are digitized for use in Geographic Information Systems (GIS), while the results are published in condition reports (USDA Forest Service 2024).

Assumptions

Data and Data Quality

Aerial detection surveys are an efficient and economical method of collecting and reporting data on forest insects, diseases, and other disturbances. Aerial sketch mapping is the primary data-

collection method: data are collected by aerial observers from the Forest Service and other cooperating state and federal agencies. Areas of damage are captured as polygons on hardcopy 1:100,000 scale maps or through a Digital Sketch Mapping System (D-ASM). The D-ASM uses a moving map display, GPS tracking, and touch screen technology to create a digital version of the data on-the-fly in the aircraft. Regardless of the method, it is important to note that sketch mapping is a valuable but subjective endeavor with inherent spatial and attribute inaccuracies.

Polygons are coded to identify the damage agent, damage type, and other attributes. Reporting the number of dead trees or dead trees per acre is required for areas with mortality. In large areas where mortality is widely scattered, other attributes may be used (but are not required) to capture the pattern of damage. In all cases, mortality may be continuous or discontinuous; therefore, acres are reported as acres “with” mortality.

Areas with mortality are summarized on the map by 12-digit or 6th-level USGS sub-watersheds. These 10,000-to-40,000-acre units are consistent with those in the Forest Service Watershed Condition Framework (Potyondy & Geier, 2011). On the national scale, watershed summarization makes it easier to visualize mortality information. It especially helps highlight areas where activity consists of small and sparsely located polygons as is the case with some key species like southern pine beetles and emerald ash borer.

Managing Insects and Diseases

While there is little scientific support for the notion that insect epidemics or diseases can be arrested or “prevented” through silviculture (DeRose & Long, 2007), there is ample evidence that forest management can provide for stand conditions that are less conducive to high levels of disease and mortality (Amman & Logan, 1998; Wallin et al., 2008). Treatments that provide for reduced stand density, enhanced individual tree vigor, and reduced competition for light, water, and nutrients have long been used to reduce the risk of insect and disease induced mortality. Moreover, treatments that provide for structural diversity may improve resiliency—as larger trees are killed by beetles, smaller ones remain to replace them.

Providing Healthy Forests

Among the many conditions that promote insect and disease infestations in the forests of the Fishlake, there are some conditions under which managers have some control: Stand composition, density, and age. It has long been known that stands densely packed with mature and over-mature trees of uniform composition are ripe for an epidemic (Fettig et al., 2007). Forests on the Fishlake can be managed to provide for a wide range of age, size, stocking, and species classes, reducing the susceptibility to wide-spread insect or disease induced mortality.

Results

Current Value

There are 10 known and 2 unknown impacts from insects and diseases affecting the Fishlake National Forest (NF) over a three-year period from 2023 to 2025, see Table 1.

Fir engraver leads the way for impacts but at a much lower impact than in 2023. Fir engraver is a bark beetle affecting true firs such as, white fir and subalpine fir. These beetles affect the bole, large branches, and slash (Forest Health Protection, Rocky Mountain Region 2011). Subalpine fir declines and Western Spruce budworm are the next at 2,634 and 920 acres respectively. It is not real clear what the cause of subalpine fir decline is. Harvey et al. 2021 says, “Subalpine fir

decline is a poorly understood phenomenon that has killed millions of hectares in Western North America.” Other researchers, such as, Perret et al. 2023 believe that subalpine forests in the West are threatened by rapid climate change, increased activity by endemic and exotic insects and disease, and changing wildfire regimes. Western spruce budworm appears to have increased in 2024 but then declined back down to nearly 2023 numbers. Western spruce budworm is a defoliator affecting the outer buds of the tree. Species on the Fishlake affected are subalpine fir, Douglas-fir, white fir, Engelmann spruce, Colorado blue spruce. Smaller trees tend to suffer more from the effects of defoliation, and larger trees tend to suffer more mortality from subsequent bark beetle attack (Halooin 2003). Pinyon is, as the name implies, mainly affects pinyon pine and to a lesser degree ponderosa pine, Douglas-fir and spruce. Typically, pinyon and juniper coexist in the same stand, juniper is less affected by drought than pinyon (Kannenber, et al 2020).

Table 1. Affected acres from insect and disease on the Fishlake National Forest, 2023-2025.

Species	2023 Acres	2024 Acres	2025 Acres
Douglas-fir Beetle - 11007	1,142.39	45.35	209.99
Drought	0	0.25	0
Fir Engraver - 11050	16,481.10	4,549.74	5,682.70
Ips Engraver Beetles - 11030	38.30	0	4.24
Marssonina Blight - 25036	0	39.05	0
Mountain Pine Beetle - 11006	36.95	3.93	133.60
Pinyon Ips - 11019	4,706.84	4,034.42	18.78
Pinyon Needle Scale	0	0	0.25
Spruce Beetle - 11009	2.46	0.25	1.00
Subalpine Fir Decline - 29005	3,713.85	1,157.97	2,633.81
Unknown - 90000	16.57	0	1.00
Unknown Aspen Dieback	0	9.32	0
Unknown Defoliator - 12900	241.33	0	199.50
Unknown Defoliator or Shoot Disease - 25900	0.25	0	0
Western Pine Beetle - 11002	10.32	2.46	1.50
Western Spruce Budworm - 12040	839.42	3,116.84	920.12

Trends

The last three years don’t give a good picture of the trend for the last three years, given the conditions stated previously.

Recommendations

Forest vegetation on the Fishlake is currently managed—removed, regenerated, thinned, and restocked—by way of commercial timber cutting and non-commercial thinning. Providing commercial forest products is one of the missions of the Forest Service, and the Fishlake contributes to this mission by offering timber sales to local loggers. The forest is currently

thinning and regenerating Engelmann spruce by implementing several thousand acres of commercial timber sales in the Dark Blue and Big Flat project areas. In addition, the Fishlake is currently implementing several thousand acres of non-commercial stand improvement treatments composed of hand cutting, piling, and burning of primarily small-diameter shade tolerant species such as subalpine and white fir. These projects are occurring on all the Fishlake NF.

While projects such as these were designed, in part, to provide for age class diversity and reduced stand density, they are also necessarily small in scale. Both commercial and non-commercial cutting require access—roads—and operable ground. Neither treatment is truly feasible in the “back-40,” where there are no roads and the ground is often very steep. Moreover, much of the Fishlake is not administratively “suitable” for tree cutting, especially commercial logging, because it has been planned for other uses such as recreation, wildlife, or rangeland management, each of which is also part of the agency’s mission.

Which brings us to fire. Fire is another disturbance that kills trees, and that may be undesirable in many circumstances. But it is also a management tool that can be used across large acreages and outside of roaded and operable ground. We cite it here because many in the Forest Service recognize that fire can be a “good” disturbance that can serve to regenerate over-mature forests, reduce stand densities, and create diverse assemblages of species and age classes across the landscape (Parker and others 2006). In the case of the Fishlake, fire—both natural and managed—has been used in recent years to do all those things, with the result, that risk of insect and disease infestation may have been reduced where fire has been effective. In the North Beaver project area on the Beaver Ranger District, for example, prescribed fire is currently being implemented on tens of thousands of acres. Moreover, during 2016, the BRD experienced the remote Briggs Fire, a lightning ignited fire managed to reduce heavy pockets of insect killed trees while regenerating aspen. Fires like the Briggs, far from any roads and in steep country, will—for the foreseeable future—likely be the best tool the Fishlake has to reduce forest susceptibility to insect attack by thinning stands and providing for increased age class and compositional diversity.

Thus, despite the potential for reducing the susceptibility of stands to insect attack using silvicultural treatments, the most promising tool may be the reintroduction of fire into many of the stands on the Fishlake.

Fuels Treatment

LRMP Desired Conditions for Fuels Treatment (Protection)

Use prescribed fire to reduce fuel buildup and meet resource objectives. Provide cost-effective (level of) fire protection (LRMP Page IV-5).

Activities and Monitoring Questions

Assess the effectiveness of fuel treatments on wildfire behavior and effects: Are fuel treatments projects protecting property, human health, and safety, and reducing the potential for unwanted fire effects?

Monitoring Indicator

Effectiveness of fuel treatments in reducing unwanted fire effects.

Monitoring Methods and Data

The Fuel Treatment Effectiveness Monitoring (FTEM) database can be found at the following website: <https://iftdss.firenet.gov>. Fuel treatment effectiveness assessments are completed on all wildfires which start in or burn into a fuel treatment area that has been completed within the last 10 years. If a wildfire impacts more than one treatment unit, all treatment units that were affected must be entered into FTEM. All fuel treatment effectiveness assessment reports must be submitted within 90 days of control of the fire. Data will be reviewed from fire management resources, post fire field visits, and information within the FTEM database to determine the success of the fuels treatment in reducing the effects and behavior of the wildfire.

Results

From 2024 through 2025, the Fishlake experienced nine wildfires that interacted with vegetation treatment activities (Gooseberry Creek, East Fork, Jewks Mine, The Lakes, Silver King, Wild Coyote, Goosebumps, Monroe Canyon, and Wide Mouth fires). The treatments and effectiveness are summarized below:

Joseph/Elsinore Thinning (Gooseberry Creek Wildfire 2024), Eight Mile Thinning (East Fork Wildfire 2024 & Wild Coyote Wildfires 2025), Black Cedar Thin & Pile (The Lakes Wildfire 2024), Kanosh Bench Thinning (Jewks Mine Wildfire 2024) – Fillmore Ranger District, Gooseberry East Mechanical (Goosebumps Wildfire 2025) – Richfield Ranger District

Joseph/Elsinore Thinning, Eight Mile Thinning, Black Cedar Thin & Pile, Kanosh Bench, and Goose Berry East vary in scale, but the objectives of the treatments are similar. The treatments were implemented throughout the last ten years. The treatments are strategically located to break up the continuity of aerial fuels, designed to bring fire from the canopy to the surface fuels where suppression resources can better meet their objectives. Treatments methods consist of mechanical or hand thinning, thinning / lop and scatter, or thinning / piling / pile burning.

The five wildfires that interacted with these treatments all started within the treatment areas. Four of the wildfires were contained at a tenth of an acre. The largest, the East Fork Fire, was contained 20 acres. None of the wildfires spread outside of the treatment area.

The treatments were successful in limiting fire spread. Without the fuels treatments in place there would have been the potential for the fires to spread, making it more difficult for suppression resources the establish containment during initial attack.

Deer Flat Thinning (Silver King Wildfire 2024) – Beaver Ranger District

The Deer Flat Thinning project area is relatively small in scale but strategically placed to lessen the risk of wildland fire to the Deer Trail and Rainbow Mines, and the community of Maryvale, Utah. Treatments included mechanical and hand thinning of pinyon and juniper.

The Silver King Fire was reported July 05, 2024, on the northeastern portion of the Tushar Mountains near the Silver King Mine. The wildfire became established quickly, exhibiting extreme fire behavior. The fire initially spread rapidly to the south. Due to terrain, fuel loading, environmental conditions, and associated fire behavior, initial attack suppression resources had difficulty meeting their objectives. Over the next several days the wildfire continued to grow to the south, north, and east. The wildfire eventually moved down the eastern slope threatening the Deer Trail and Rainbow Mines and the rural community of Maryvale, Utah. This is where the

wildfire interacted with the Deer Flat Thinning projects. Though the treatment did not stop the fires spread, the fire behavior drastically moderated. This decrease in fire behavior made it possible for ground and aerial resources to establish an anchor point and containment line on this flank of the Silver King Fire, lessening the impacts to identify values.

If the area was left untreated, the natural fuel load in the area would have supported extreme fire behavior. This would have made it difficult for suppression resources to successfully meet objectives related to protecting nearby values. Crown fire would have become established, and short- and long-range spotting would have presented additional challenges. The impacts to nearby values from the Silver King Fire could have been severe.

White Sage Thinning (Wide Mouth Wildfire 2025) – Fillmore Ranger District

The White Sage Thinning project is a multiphase project that has been implemented as funds came available. The treatments consist of hand thinning, thinning / lop / scatter, and mechanical mastication. The project was designed to lessen the wildfire risk to adjacent private land and nearby values.

The Wide Mouth Fire was discovered on August 23, 2025. It started within the treatment that was implemented in 2024. The hand thinning treatment resulted in some heavy concentrations of activity fuels. The activity fuels were cured holding red needles. The wildfire became established quickly in the slash and run downslope to the north. The burning slash presented challenges for suppression resources.

The activity fuels from the treatment contributed to the spread of the Wide Mouth Fire. However, only a small amount of area burned outside of the treatment area.

Monroe Mountain Ecosystem Restoration (Monroe Canyon Wildfire 2025) – Richfield Ranger District

For over a decade, the Richfield District has worked to improve the ecological health of Monroe Mountain. Numerous treatments have been planned and implemented. Most of these treatments strategically placed to lessen the risks associated with wildfire to identified values and communities.

On July 13, 2025, the Monroe Canyon Fire was reported several miles southeast of Richfield, Utah. Initial fire activity included extreme surface spread with tree torching, spotting, rapid perimeter growth, and high intensity due to the dry weather, steep slopes, and heavy fuel loading. Over several weeks the wildfire grew to over 70,000 acres. Extreme fire behavior forced the evacuations of several communities on Monroe Mountain, and communities on the west and east side of the mountain range.

Throughout its course, the Monroe Canyon Fire had 49 interactions with fuels treatment activities. These treatment activities included mechanical / hand thinning, thinning / lop / scatter / piling, pile burning, and broadcast burning. Throughout the course of the incident, the fuels treatments bought firefighters valuable time to set up structure protection for private residences, provided tactical advantages they could anchor or connect containment lines onto, and moderated fire behavior that kept the acres severely damaged very low. Many of the strategically placed treatments steered the fire away from identified values and limited property loss. Fire intensity and resistance to control was within the untreated areas

Conclusion

Fuels treatments across the Fishlake have been and are implemented to reduce and/or redistribute ground, surface, and canopy fuels by removing trees, masticating small diameter trees and shrubs, mechanically and/or hand piling fuels then later burning them, or applying prescribed fire. An effective fuel treatment will slow the spread of fire and reduce the likelihood of crown fire, aid suppression efforts, and reduce the intensity and severity of a wildfire under all but the most extreme weather conditions (Vaillant & Reinhardt, 2017).

Fuel treatments strategies on the Fishlake typically fall within two overreaching land management objectives: ecosystem restoration/maintenance or fire control. The primary goal of ecosystem restoration is to promote or maintain fire resilient landscapes. For fire control, the goal of fuel treatments is to facilitate wildfire suppression activities through the reduction of fuel hazards with strategic placement across the landscape (Vaillant and Reinhardt 2017). Because fuel treatments are an important aspect of land management, we have implemented fuel treatment activities on numerous acres across the landscape. Reported accomplishments from 2016 to 2025 are summarized below (Table 2).

Table 2. Reported Acres of Fuels Treatments across the Fishlake National Forest, 2016-2025.

Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Acres	24,513	9,346	34,800	29,553	41,597	39,910	52,013	80,276	75,223	35,794

It is not realistic or necessary to do fuel treatments on every acre of the Fishlake National Forest. With limited funding and capacity along with other constraints, we must realize the importance of prioritizing when, where, and how to properly plan and implement successful fuel treatments.

During the monitoring period, nine wildland fires have been recorded that interacted with fuel treatment activities. Overall, the treatment interactions with wildfires were successful in moderating fire behavior, managing the fire, protecting identified values, and reducing adverse effects. We believe that fuel treatments are an effective way to manage fire across the landscape and provide increased protection to identify values.

Facilities

LRMP Desired Conditions for Facilities

Develop and implement a road management system. Construct, reconstruct, and maintain roads to facilitate safe access and management of the Forest. (LRMP Page IV-5).

Activities and Monitoring Questions

Are adequate road access and maintenance being provided? Are open roads maintained to standard?

Monitoring Indicators

Miles of classified road open for public use and miles of road maintained to standard.

Monitoring Methods and Data

The indicators for this program area will be extracted from the Natural Resource Management (NRM) database.

Results

Results for Facilities are forthcoming. This section will be updated as results are received.

Recommendations

Recommendations will be developed as results are received and reviewed.

Watershed (Soil and Water Resources)

Over the last two years (2024-2025) This is an effort to be compliant with the standards and guidelines outlined in the Fishlake National Forest Land and Resource Management Plan (LRMP) and an effort consistent with the mission and obligation of the agency to manage these public lands. The monitoring effort summarized here is a collaboration between federal and state agencies and employees. Monitoring the Fishlake National Forest is ongoing.

During the following biennial monitoring period there was turnover in the Fishlake NF watershed program, with a new Forest Hydrologist beginning in Fall 2024, as such not all monitoring data was accounted for and some monitoring efforts were not completed.

LRMP Desired Conditions for Forest Vegetation (Protection)

Maintain water quality to meet State standards for beneficial uses (LRMP Page IV-4).

Manage municipal watersheds to protect quality and water supplies (LRMP Page IV-4).

Maintain productive streams, lakes, and riparian areas and mitigate hazards on floodplains (LRMP Page IV-4).

Maintain or improve current soil productivity and restore areas with watershed problems (LRMP Page IV-5).

R4-Soil Quality Standard and Guideline for Accelerated Soil Loss Forest wide or are management activities impairing soil productivity of the land (no more than 15% of an activity area).

Application of appropriate extent of upland adjacent upland areas (Riparian Protection by buffers) (LRMP Page IV-43).

Best Management Practices (BMP) effectiveness and compliance on land disturbing projects (LRMP Page V-9).

Goals of Monitoring Efforts

Compliance with the Fishlake National Forest Land and Resource Management Plan.

Monitoring water quality on the Fishlake National Forest and identifying streams and bodies of water with impairment concerns to better inform forest management direction:

303d listed water bodies, established TMDLs, and priority watersheds (this effort is led by the State of Utah Division of Environmental Quality).

Manage municipal watersheds effectively to support the protection of water quality and quantity.

Assess the efficacy of implemented projects on NFS lands and identify issues and ways to improve project implementation on NFS lands.

Identify sources of pollutants, soil erosion, and water quality hindrances.

Inventory and assess the condition of Groundwater Dependent Ecosystems on NFS lands.

Assess the soil disturbance of completed timber sales on NFS lands.

Monitoring Indicators

Water Quality uses impaired and listed on the 303(d) list.

Feedback from community partners and other governmental agencies.

Issues with municipal watershed operators regarding Forest management.

BMP implementation and effectiveness.

Conditions of stream banks.

Conditions of groundwater-dependent ecosystems.

Soil disturbance parameters.

Impacts from management activities (livestock, ATV recreation, etc.).

Watershed Condition Framework status and priority watersheds.

Monitoring Methods may include:

Water Quality Monitoring

The State of Utah Division of Environmental Quality, Water Quality Division conducts monitoring of all streams, lakes, and reservoirs on the Fishlake National Forest and the State of Utah. They conduct this monitoring on a rotational basis. Recently, a new report outlining changes in water quality and impairment status has been released by the State. This report can be found at the link below:

<https://lf-public.deq.utah.gov/WebLink/ElectronicFile.aspx?docid=645245&eqdocs=DWQ-2026-000357&dbid=0&repo=Public>

BMP Monitoring

BMP monitoring is conducted following the National Best Management Practices for Water Quality Management on National Forest System Lands.

https://www.fs.fed.us/biology/resources/pubs/watershed/FS_National_Core_BMPs_April2012

GDE Inventory

Groundwater Dependent Ecosystem Inventory was conducted following Forest Service methodology found here:

https://www.fs.fed.us/geology/GDE_Level_I_FG_final_March2012_rev1_printing.pdf

Forest Service Soil Disturbance Monitoring Protocol

Soil disturbance within timber sales is conducted using the Forest Service Soil Disturbance Monitoring Protocol found here:

<https://www.fs.usda.gov/treesearch/pubs/34427>

Level II Riparian Inventory

Monitoring of stream and riparian health, including conditions of stream banks using the Forest Service Level II Riparian Inventory Protocol found here:

<https://www.fs.usda.gov/emc/rig/documents/protocols/Stream-Inventory-Handbook-Level-I-II.pdf>

Data and Graphics

Watershed Condition Framework (WCF)

Figure 6, below, shows the condition classification of the watersheds on the Forest. Some watersheds on the Dixie and Manti La Sal National Forests are visible on this map. Most watersheds on the Fishlake are functioning or functioning at risk per the WCF classification. There were no changes to WCF status within this reporting period. The Fishlake watershed staff plans to reassess watersheds within the upcoming reporting period.

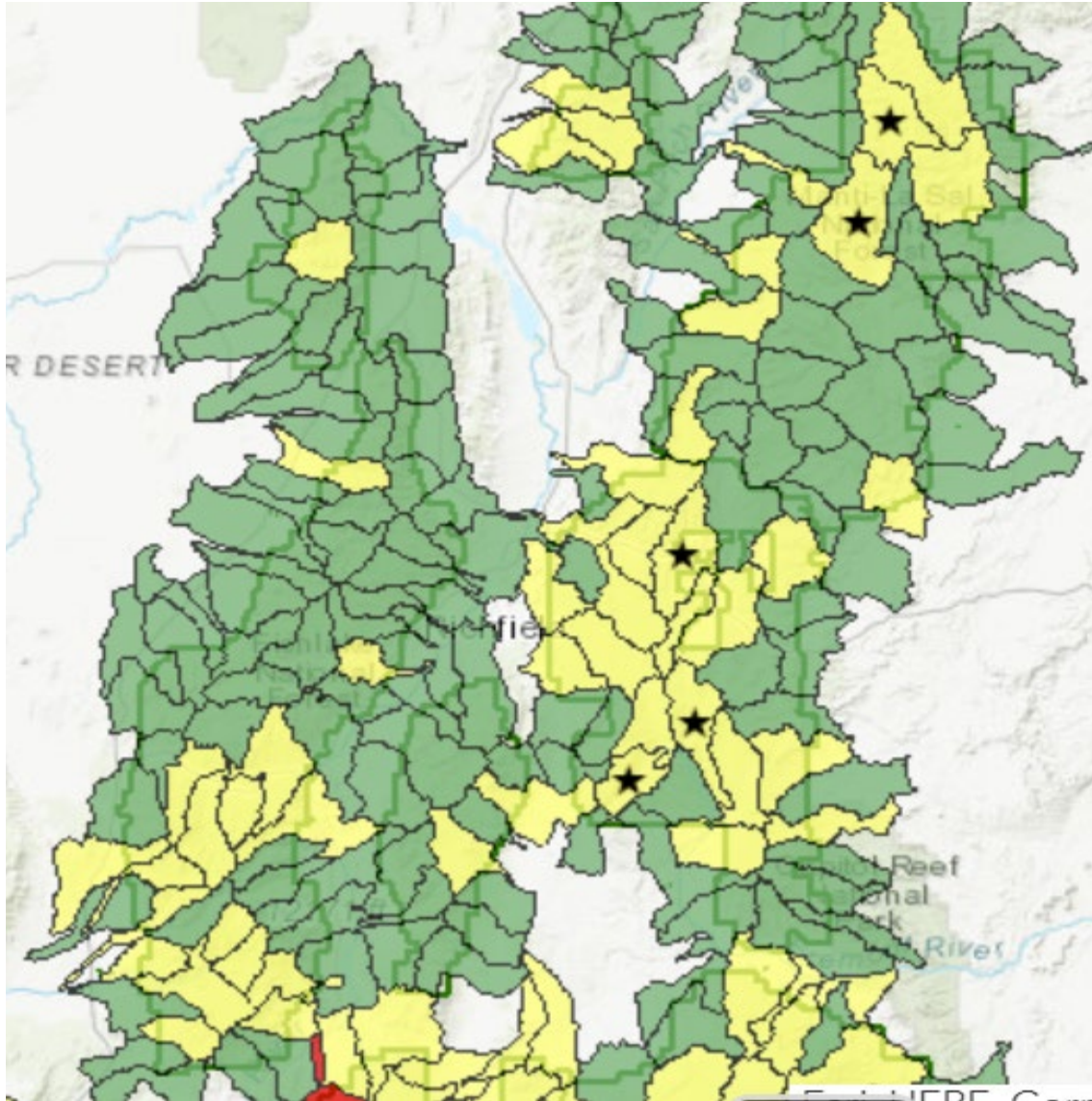


Figure 6. Fishlake National Forest Watershed Condition Framework Map.

Key: Green= Functioning, Yellow= Functioning at Risk, Red= Impaired

Water Quality Results

The following is a table summary of changes to water quality listings, parameters, and results from the 2024 and 2026 DEQ Integrated 303d report.

Table 3. Water Quality Summary, Water Bodies Fishlake National Forest.

Name	Assess ID	Description	BEN Class	Mgmt. Unit	Assessment	Change in Impairment
Fish Lake	UT-L-14070003-006_00	Fish Lake	2B, 3A, 4	Western Colorado River	2: Supports all assessed uses	None <i>No Change</i>
Johnson Valley Reservoir	UT-L-14070003-010_00	Johnson Valley Reservoir	2B, 3A, 4	Western Colorado River	4A: Approved TMDL. Impaired	Use Class 3A: Total P <i>No Change</i>

Name	Assess ID	Description	BEN Class	Mgmt. Unit	Assessment	Change in Impairment
Mill Meadow Reservoir	UT-L-14070003-015_00	Mill Meadow Reservoir	2B, 3A, 4	Western Colorado River	4A: Approved TMDL. Impaired	Use Class 3A: Total P. <i>Added = Harmful algal blooms and Eutrophication.</i>
Forsyth Reservoir	UT-L-14070003-019_00	Forsyth Reservoir	2B, 3A, 4	Western Colorado River	4A: Approved TMDL. Impaired	Use Class 3A: Total Phosphorus, Dissolved Oxygen <i>No Change</i>
Donkey Reservoir	UT-L-14070003-027_00	Donkey Reservoir		Western Colorado River	5 Not supporting, TMDL required	Use Class 3A: pH
Piute Reservoir	UT-L-16030001-011_00	Piute Reservoir	2B, 3A, 4	Upper Sevier River	5: TMDL Required (Impaired 303d list)	Harmful algal blooms, Max Temp, Total P and pH. <i>Dissolved Oxygen removed</i>
Otter Creek Reservoir	UT-L-16030002-004_00	Otter Creek Reservoir	2B, 3A, 4	Upper Sevier River	5: TMDL Required (303d List) / 4A: TMDL Approved (Impaired)	Temperature, Total Phosphorus <i>No Change</i>
Lower Box Creek Reservoir	UT-L-16030002-005_00	Lower Box Creek Reservoir	2B, 3A, 4	Upper Sevier River	5: TMDL Required (303d List) / 4A: TMDL Approved (Impaired)	Total P and pH. <i>Dissolved Oxygen removed</i>
Koosharem Reservoir	UT-L-16030002-011_00	Koosharem Reservoir	2B, 3A, 4	Upper Sevier River	5: TMDL Required (303d List) / 4A: TMDL Approved (Impaired)	Max Temp, Total P, pH. <i>Dissolved Oxygen removed</i>
Barney Lake	UT-L-16030003-005_00	Barney Lake	2B, 3A, 4	Lower Sevier River	3: Insufficient Data (changed from 2: no evidence)	None
Manning Meadow Reservoir	UT-L-16030003-006_00	Manning Meadow Reservoir	2B, 3A, 4	Lower Sevier River	5: TMDL Required (Impaired 303d list)	pH, Total Phosphorus. <i>Added = Eutrophication, Harmful algal blooms</i>
Redmond Lake	UT-L-16030003-012_00	Redmond Lake	2B, 3B, 4	Lower Sevier River	2: Supports all assessed uses	None <i>No Change</i>
Rex Reservoir	UT-L-16030003-016_00	Rex Reservoir	2B, 3A, 4	Lower Sevier River	2: Supports all assessed uses	None <i>No Change</i>
Kents Lake	UT-L-16030007-020_00	Kents Lake	2B, 3A, 4	Cedar-Beaver	5: TMDL Required (Impaired 303d list) / 4A: Approved TMDL (Impaired)	Use Class 3A: pH, Dissolved Oxygen, Total Phosphorus <i>No Change</i>
Anderson Meadow Reservoir	UT-L-16030007-024_00	Anderson Meadow Reservoir	2B, 3A, 4	Cedar-Beaver	5 Not Supporting TMDL required	Use Class 3A: pH
Three Creeks Reservoir	UT-L-16030007-025_00	Three Creeks Reservoir	2B, 3A, 4	Cedar-Beaver	5: TMDL Required (Impaired 303d list)	Use Class 3A: pH <i>No Change</i>
LeBaron Lake	UT-L-16030007-027_00	LaBaron Lake	2B, 3A, 4	Cedar-Beaver	4A: Approved TMDL. Impaired	Use Class 3A: Dissolved Oxygen, Total Phosphorus <i>No Change</i>
Puffer Lake	UT-L-16030007-028_00	Puffer Lake	2B, 3A	Cedar-Beaver	4A: Approved TMDL. Impaired	Use Class 3A: Dissolved Oxygen, pH <i>No Change</i>

Name	Assess ID	Description	BEN Class	Mgmt. Unit	Assessment	Change in Impairment
Quitchipah Creek Upper	UT14070 002-002_00	Quitchipah Creek from U-10 to headwaters	2B, 3A, 4	Western Colorado River	5: TMDL Required (Impaired 303d list)	Use Class 3A: Temperature, Dissolved Oxygen, Benthic Macroinvertebrate Bioassessment <i>No Changes</i>
Saleratus Creek - Emery	UT14070 002-003_00	Saleratus Creek and tributaries from U-10 crossing to headwaters	2B, 3A, 4	Western Colorado River	5: TMDL Required (Impaired 303d list)	Use Class 3A: Benthic Invertebrate Assessment <i>No Change</i>
Ivie Creek Upper-2	UT14070 002-004_02	Ivie Creek and some tributaries from U-10 crossing to headwaters	2B, 3A, 4	Western Colorado River	3: Insufficient Data. Need more information	None <i>No Change</i>
Last Chance Creek	UT14070 002-005_00	Last Chance Creek and tributaries from Ivie Creek confluence to headwaters	2B, 3C, 4	Western Colorado River	5: Not Supporting, TMDL Needed	Use Class 3A: Benthic Macroinvertebrates Bioassessments, Dissolved Oxygen; Use Class 4: Total Dissolved Solids
Johnson Valley	UT14070 003-001_00	Johnson Valley Reservoir tributaries	1C, 2A, 3A, 4	Western Colorado River	5: TMDL Required (Impaired 303d list)	Use Class 1C: E. coli; Use Class 2A: E. coli; Use 3A: Dissolved Oxygen, Temperature <i>No Change</i>
UM Creek	UT14070 003-002_00	UM Creek and other tributaries to Forsyth Reservoir	1C, 2A, 3A, 4	Western Colorado River	5: TMDL Required (Impaired 303d list)	Use Class 1C: E. coli; Use Class 2A: E. coli; Use Class 3A: Zinc, Nutrient/ Eutrophication Biological Indicators <i>No Change</i>
UM Creek Lower	UT14070 003-003_00	UM Creek and tributaries from Mill Meadow to Forsythe Reservoir	1C, 2A, 3A, 4	Western Colorado River	1: Supports all designated uses	None <i>No Change</i>
Fremont River-1	UT14070 003-004_00	Fremont River and tributaries from Mill Meadow Reservoir to Johnson Valley Reservoir	1C, 2A, 3A, 4	Western Colorado River	1: Supports all designated uses	None
Fremont River-2	UT14070 003-005_00	Fremont River and tributaries from Bicknell to Mill Meadow Reservoir near USFS boundary	1C, 2A, 3A, 4	Western Colorado River	5: TMDL Required (303d List) / 4A: TMDL Approved (Impaired)	Use Class 1C: E. coli, pH; Use Class 2A: E. coli, pH; Use Class 3A: pH, Total P, Max Temperature (Added); Use Class 4: pH
Fremont River-3	UT14070 003-008_00	Fremont River and tributaries from east boundary of Capitol Reef National Park to Bicknell	1C, 2A, 3A, 4	Western Colorado River	5: TMDL Required (Impaired 303d list) / 4A: TMDL Approved (Impaired)	Use Class 1C: E. coli; Use Class 2A: E. coli; Use Class 3A: Temperature; Use Class 4: Total Dissolved Solids (TDS) <i>No Changes</i>
Fish Lake Tributaries	UT14070 003-015_00	Fish Lake tributaries	1C, 2A, 3A, 4	Western Colorado River	5: Not Supporting TMDL Required	Use Class 3A: Nutrient / Eutrophication Biological Indicators
Piute West	UT16030 001-001_00	Piute Reservoir west side tributaries (City Creek) above USFS boundary	2B, 3A, 4	Upper Sevier River	3: Insufficient Data. Need more information	None <i>No Change</i>

Name	Assess ID	Description	BEN Class	Mgmt. Unit	Assessment	Change in Impairment
		and south of HUC boundary 16030003				
Sevier River-4	UT16030001-002_00	Sevier River and tributaries from Piute Reservoir to Circleville Irrigation Diversion, excluding East Fork Sevier River and tributaries	2B, 3A, 4	Upper Sevier River	5: TMDL Required (Impaired 303d list)	Use Class 3A: Temperature <i>No Change</i>
Sevier River-3	UT16030001-005_00	Sevier River and tributaries from Circleville Irrigation Diversion to Horse Valley Diversion	2B, 3A, 4	Upper Sevier River	5: TMDL Required (Impaired 303d list) / 4A: Approved TMDL (Impaired)	Use Class 2B: E. coli; Use Class 3A: Temperature, Total P, Sediment, <i>Benthic Macroinvertebrates Bioassessments</i>
Piute	UT16030001-013_00	Piute Reservoir tributaries below USFS boundary and excluding Sevier River inlet	2B, 3A, 4	Upper Sevier River	3: Insufficient Data. Need more information	None <i>No Change</i>
Otter Creek-4	UT16030002-001_00	Otter Creek and tributaries from Koosharem Reservoir to headwaters, within Utah jurisdiction, excluding tribal jurisdictions	2B, 3A, 4	Upper Sevier River	5: TMDL Required (Impaired 303d list)	Use Class 2B: E. coli; Use Class 3A: Temperature <i>No Changes</i>
Otter Creek-1	UT16030002-002_00	Otter Creek and tributaries from Otter Creek Reservoir to Koosharem Reservoir, except Box and Greenwich Creeks	2B, 3A, 4	Upper Sevier River	5: TMDL Required (Impaired 303d list)	Use Class 2B: pH; Use Class 3A: pH, Temperature, Benthic Invertebrate Assessment, Nutrient/Eutrophication Biological Indicators; Use Class 4: pH <i>No Changes</i>
Otter Creek-3	UT16030002-003_00	Greenwich Creek and tributaries from confluence with Otter Creek to headwaters	2B, 3A, 4	Upper Sevier River	5: TMDL Required (Impaired 303d list) 4A: Approved TMDL (Impaired)	Use Class 2B: E. coli; Use Class 3A: Temperature, Dissolved Oxygen, Sediment, Total P <i>No Change</i>
Otter Creek-2	UT16030002-004_00	Box Creek and tributaries from confluence with Otter Creek to headwaters	2B, 3A, 4	Upper Sevier River	4A: Approved TMDL. Impaired / 4C: Habitat Impaired	Use Class 3A: Dissolved Oxygen, Sediment, Total P, Habitat Alteration, Nutrient / Eutrophication Biological Indicators
East Fork Sevier River-4	UT16030002-005_00	East Fork Sevier River and tributaries from confluence with Sevier River upstream to Antimony Creek confluence, excluding Otter Creek and tributaries	2B, 3A, 4	Upper Sevier River	5: TMDL Required (Impaired 303d List) / 4A: TMDL Approved (Impaired)	Use Class 3A: Temperature, Total P (Approved TMDL), Nutrient / Eutrophication Biological Indicators
Antimony Creek	UT16030002-008_00	Antimony Creek and tributaries from confluence with Sevier River to headwaters	2B, 3A, 4	Upper Sevier River	5: TMDL Required, not supporting	Use Class 3A: Nutrient/Eutrophication Biological Indicators
Sevier River-19	UT16030003-001_00	Sevier River west side tributaries from Sevier	2B, 3B, 4	Lower Sevier River	3: Insufficient Data. Need more information	None <i>No Change</i>

Name	Assess ID	Description	BEN Class	Mgmt. Unit	Assessment	Change in Impairment
		Bridge Dam to Salina Creek confluence				
Willow Creek - Axtell	UT16030 003-002_00	Willow Creek and tributaries from USFS boundary to headwaters	2B, 3A, 4	Lower Sevier River	3: Insufficient Data. Need more information	None <i>No Change</i>
Salina Creek-1	UT16030 003-003_00	Salina Creek and tributaries from confluence with Sevier River to USFS boundary	2B, 3B, 4	Lower Sevier River	4A: Approved TMDL. Impaired	Use Class 4: Total Dissolved Solids <i>No Change</i>
Sevier River-16-1	UT16030 003-004_01	Sevier River east and west side tributaries from Salina Creek confluence to Rocky Ford Reservoir (excludes Lost Creek)	2B, 3B, 4	Lower Sevier River	3: Insufficient Data. Need more information	None <i>No Changes</i>
Sevier River-16-2	UT16030 003-004_02	Sevier River east and west side tributaries from Salina Creek confluence to Rocky Ford Reservoir (excludes Lost Creek)	2B, 3B, 4	Lower Sevier River	3: Insufficient Data. Need more information	None <i>No Changes</i>
Sevier River-16-3	UT16030 003-004_03	Sevier River east and west side tributaries from Salina Creek confluence to Rocky Ford Reservoir (excludes Lost Creek)	2B, 3B, 4	Lower Sevier River	3: Insufficient Data. Need more information	None <i>No Changes</i>
Lost Creek-1	UT16030 003-005_00	Lost Creek and tributaries from confluence with Sevier River upstream approximately 6 miles	2B, 3B, 4	Lower Sevier River	5: TMDL Required (Impaired 303d list)	Use Class 3C: Temperature; Use Class 4: Boron, Total Dissolved Solids (TDS) <i>No Change</i>
Salina Creek-2	UT16030 003-006_00	Salina Creek and tributaries from USFS boundary to headwaters	2B, 3A, 4	Lower Sevier River	5: TMDL Required (Impaired 303d list)	Use Class 2B: pH, E. coli; Use Class 3A: pH, Temperature, Dissolved Oxygen; Use Class 4: pH <i>No Change</i>
Beaver Creek-1 Sevier	UT16030 003-007_00	Beaver Creek and other west side tributaries to Sevier River below USFS boundary from Clear Creek upstream to HUC boundary	2B, 3A, 4	Lower Sevier River	1: Supports all designated uses	None <i>No Change</i>
Lost Creek 2-Salina	UT16030 003-008_00	Lost Creek and tributaries from ~6 miles upstream to USFS boundary	2B, 3B, 4	Lower Sevier River	3: Insufficient Data. Need more information	None <i>No Change</i>
Sevier River-11	UT16030 003-009_00	Sevier River west side tributaries from the Annabella Diversion upstream to Sevier River confluence with Clear Creek and below USFS boundary, within Utah jurisdiction, excluding tribal jurisdictions	2B, 3A, 4	Lower Sevier River	3: Insufficient Data. Need more information	None <i>No Change</i>
Lost Creek 3-Salina	UT16030 003-010_00	Lost Creek and tributaries from USFS boundary to headwaters	2B, 3A, 4	Lower Sevier River	5: TMDL Required (Impaired 303d list)	Use Class 2B: E. coli; Use Class 3A: Dissolved Oxygen, Temperature <i>No Change</i>

Name	Assess ID	Description	BEN Class	Mgmt. Unit	Assessment	Change in Impairment
Sevier River-12	UT16030003-011_00	Sevier River west side tributaries from approximately due West of Salina Creek confluence upstream to Clear Creek confluence and above USFS boundary	2B, 3A, 4	Lower Sevier River	5: TMDL Required (Impaired 303d list)	Use Class 2B: E. coli <i>No Change</i>
Sevier River-17	UT16030003-012_00	Sevier River from Yuba Dam upstream to confluence with Salina Creek	2B, 3B, 4	Lower Sevier River	4A: Approved TMDL. Impaired	Use Class 3B: Total Phosphorus, Sediment. Use Class 4: Total Dissolved Solids <i>No Changes</i>
Monroe Creek	UT16030003-013_00	Sevier River east side tributaries above USFS boundary from Mill Creek-Water Creek area upstream to Durkee Creek	2B, 3A, 4	Lower Sevier River	1: Supports all designated uses	None <i>No Change</i>
Sevier River-14	UT16030003-014_00	Sevier River east side tributaries from Rocky Ford Reservoir upstream to Annabella Diversion and below USFS boundary	2B, 3B, 4	Lower Sevier River	2: Supports all assessed uses	None <i>No Change</i>
Sevier River-8	UT16030003-015_00	Sevier River from Rocky Ford Reservoir upstream to Annabella Diversion	2B, 3B, 4	Lower Sevier River	1: Supports all designated uses	None <i>No Change</i>
Sevier River-10	UT16030003-016_00	Sevier River east side tributaries below USFS boundary from Annabella Diversion upstream to Clear Creek confluence	2B, 3A, 4	Lower Sevier River	3: Insufficient Data. Need more information	None <i>No Change</i>
Sevier River-6	UT16030003-017_00	Sevier River from Clear Creek confluence to HUC unit 1603003-1603001 boundary	2B, 3A, 4	Lower Sevier River	5: TMDL Required (Impaired 303d list)	Use Class 3A: Temperature <i>No Change</i>
Clear Creek-170	UT16030003-018_00	Clear Creek and tributaries from confluence with Sevier River to headwaters	2B, 3A, 4	Lower Sevier River	5: TMDL Required (Impaired 303d list)	<i>Removed Use Class 3A: Aluminum; Use Class 4: Total Dissolved Solids</i>
Sevier River-9	UT16030003-019_00	Sevier River from Annabella Diversion to Clear Creek confluence	2B, 3A, 4	Lower Sevier River	3: Insufficient Data. Need more information	None <i>No Change</i>
Beaver Creek 2-Piute	UT16030003-020_00	Beaver Creek and other west side tributaries to Sevier River above USFS boundary from Clear Creek upstream to HUC boundary	2B, 3A, 4	Lower Sevier River	3: Insufficient Data. Need more information	None <i>No Change</i>
Manning Creek	UT16030003-021_00	Manning Creek and tributaries from confluence with Sevier River to headwaters	2B, 3A, 4	Lower Sevier River	5: TMDL Required (Impaired 303d list)	Use Class 2B: pH; Use Class 3A: pH, Dissolved Oxygen, Nutrient/Eutrophication Biological Indicators; Use Class 4: pH
Sevier River-5	UT16030003-022_00	Sevier River east side tributaries from Manning Creek confluence to HUC unit boundary	2B, 3A, 4	Lower Sevier River	3: Insufficient Data. Need more information	None <i>No Change</i>

Name	Assess ID	Description	BEN Class	Mgmt. Unit	Assessment	Change in Impairment
Sevier River-18	UT16030 003-023_00	Sevier River east side tributaries from Sevier Bridge Dam to Salina Creek confluence, excluding San Pitch River and waters above USFS boundary	2B, 3B, 4	Lower Sevier River	3: Insufficient Data. Need more information	None <i>No Change</i>
Sevier River-15	UT16030 003-024_00	Sevier River form confluence with Salina Creek upstream to Rocky Ford Reservoir	2B, 3B, 4	Lower Sevier River	2: Supports all assessed uses	None <i>No Change</i>
Sevier River-13	UT16030 003-025_00	Sevier River west side tributaries from Rocky Ford Reservoir upstream to Annabella Diversion and below USFS boundary	2B, 3B, 4	Lower Sevier River	3: Insufficient Data. Need more information	None <i>No Change</i>
Sevier River-7	UT16030 003-026_00	Sevier River east side tributaries from the Clear Creek confluence upstream to Manning Creek confluence	2B, 3A, 4	Lower Sevier River	5: TMDL Required (Impaired 303d list)	Use Class 2B: pH; Use Class 3A: pH, Temperature; Use Class 4: pH <i>No Change</i>
Peterson Creek	UT16030 003-027_00	Petersen Creek and tributaries from confluence with Sevier River to USFS boundary	2B, 3B, 4	Lower Sevier River	5: TMDL Required (Impaired 303d list)	Use Class 3C: Temperature; Use Class 4: Total Dissolved Solids (TDS) <i>Added: Boron</i>
Sevier River-27	UT16030 005-008_00	Sevier River south side tributaries from DMAD Reservoir upstream to Yuba Dam, excluding all waters above USFS boundary	2B, 3B, 4	Lower Sevier River	1: Supports all designated uses	None <i>No Change</i>
Ivie Creek	UT16030 005-012_00	Ivie Creek and tributaries from Scipio Dam to headwaters	2B, 3A, 4	Lower Sevier River	2: Supports all assessed uses	None <i>No Change</i>
Goose Creek-2	UT16030 005-014_00	Goose Creek and tributaries from USFS boundary to headwaters	2B, 3A, 4	Lower Sevier River	3: Insufficient Data. Need more information	None <i>No Change</i>
Pioneer Creek-2	UT16030 005-016_00	Pioneer Creek and tributaries from USFS boundary to headwaters	2B, 3A, 4	Lower Sevier River	3: Insufficient Data. Need more information	None <i>No Change</i>
Chalk Creek 2-Fillmore	UT16030 005-019_00	Chalk Creek and Pine Creek (Millard County) and tributaries from USFS boundary to headwaters	2B, 3A, 4	Lower Sevier River	5: TMDL Required (Impaired 303d list)	Use Class 2B: pH; Use Class 3A: pH; Use Class 4: pH <i>No Change</i>
Corn Creek	UT16030 005-021_00	Corn Creek and tributaries from mouth to headwaters	2B, 3A, 4	Lower Sevier River	1: Supports all designated uses	None <i>No Change</i>
Meadow Creek	UT16030 005-023_00	Meadow Creek and tributaries from mouth to headwaters (Juab County)	2B, 3A, 4	Lower Sevier River	2: Supports all assessed uses	None <i>No Change</i>
Round Valley Creek	UT16030 005-024_00	Round Valley Creek from mouth upstream to Scipio Reservoir	2B, 3A, 4	Lower Sevier River	3: Insufficient Data. Need more information	None <i>No Change</i>
Beaver River-2	UT16030 007-002_00	Beaver River and tributaries from	2B, 3A, 4	Cedar-Beaver	5: TMDL Required (303d List) / 4A:	Use Class 2B: E. coli; Use Class 3A:

Name	Assess ID	Description	BEN Class	Mgmt. Unit	Assessment	Change in Impairment
		Minersville Reservoir to USFS boundary			TMDL Approved (Impaired)	Dissolved Oxygen, Temperature <i>Removed: Benthic Invertebrate Assessment</i>
Beaver River-3	UT16030 007-003_00	Beaver River and tributaries from USFS boundary to headwaters	2B, 3A, 4	Cedar-Beaver	2: Supports all assessed uses	None <i>No Change</i>
Pine Creek-Tushar	UT16030 007-004_00	Pine Creek and tributaries from I-15 to headwaters	2B, 3A, 4	Cedar-Beaver	3: Insufficient Data. Need more information	None <i>No Change</i>

Best Management Practices Monitoring Results

Within the reporting period, nine sites were monitored for BMP compliance. The national monitoring period for BMPs is on a 2-year cycle (FY23/24 and FY25/26). For this monitoring report two sites were monitored in FY24 and seven from FY25. Ratings are given for the implementation of BMPs and for the effectiveness of those BMPs. The Table below will show the activity type and the ratings along with the composite rating which is a combination of the implementation and effectiveness rating.

Table 4. BMP Monitoring Results

Monitoring activity	Implementation Rating	Effective Rating	Composite Rating
Aquatic Ecosystem B	Mostly	Effective	Excellent
Aquatic Ecosystem B	Fully	Marginal	Fair
Range A	Marginal	Effective	Good
Mineral B	Mostly	Effective	Excellent
Recreation A	Fully	Marginal	Fair
Recreation D	Mostly	Mostly	Good
Road C	Mostly	Marginal	Fair
Road C	Mostly	Marginal	Fair
Water Uses B	Marginal	Not	Poor

Generally, BMP evaluations show that implementation is mostly implemented with a couple that are marginal and couple that are fully implemented. Effectiveness ratings are largely marginally too effective, with one being not effective as the water infrastructure is not currently being maintained. Improvements can be made to ensure implementation and effectiveness are more effective, moving forward.

Range Management

LRMP Desired Conditions for Range Management (Permitted AUM)

Provide livestock grazing consistent with range capacity and other uses (LRMP Page IV-4).

Activities and Monitoring Questions

Are goods and services being provided in accordance with Forest Plan goals and objectives?

Monitoring Indicator

Level of permitted livestock grazing.

Monitoring Methods and Data

The level of grazing is allocated based on Term Grazing Permits (FS-2200-10) that have been issued to permittees on various allotments within the Forest. Each year, after the permittee has validated their permit and prior to the beginning of the grazing season, the Forest Service will send the permittee a Bill for Collection specifying for the current year the kind, number, and class of livestock allowed to graze, the period of use, the grazing allotment, and the grazing fees. This bill, when paid, authorizes us for that year and becomes part of their permit. Data for the 2025 grazing season were queried from IWEB Rangeland Information Management System (RIMS) database for annual grazing statistics.

Results

Statistics for the 2025 grazing season are displayed in Table 5.

Table 5. Grazing Statistics for 2025 for livestock type and authorized Head Months (HMs) and equivalent Animal Unit Months (AUMs).

District	Number of Permittees	Cattle No.	Cattle HMs/ AUMs	Horses/ Burros No.	Horse/ Burro HMs/ AUMs	Sheep/ Goats No.	Sheep/ Goat HMs AUMs	Total No.	HMs/ AUMs
Fillmore	44	6,609	27449/ 36,249	14	60/ 71	1,500	7,003/ 1,401	8,123	34,512/ 40,667
Fremont River	44	7,421	32,685/ 42,100	5	22/ 27	9,684	20,423/ 6,129	17,110	53,130/ 48,256
Beaver	21	3,466	12,805/ 16,662	10	25/ 30	0	0/ 0	3,476	12,830/ 16,692
Richfield	53	10,369	40,947/ 51,896	0	0/ 0	3,668	8,595/ 2,578	14,168	49,542/ 54,474
Total	162	27,865	113,886/ 146,907	29	89/ 107	14,852	36,021/ 10,108	42,746	149,996/ 157,122

Recommendations

Range Specialists will continue to monitor grazing utilization so that forage can be provided and utilized by permittees with valid Term Grazing Permits.

LRMP Desired Conditions for Range Management (Forage Utilization)

Maintain range lands being used by livestock in at least fair condition with stable or upward trend using proper management and restoration measures (LRMP Page IV-4).

Establish proper grazing capacity for each allotment (LRMP Page IV-4).

Activities and Monitoring Questions

Are goods and services being provided in accordance with Forest Plan goals and objectives?

Monitoring Indicator

Forage Utilization.

Monitoring Methods and Data

The 1986 Forest Plan set out “management requirements” for forage use throughout the Fishlake National Forest. Those requirements included general direction statements specifying “the actions, measures, or treatments (management practices) to be done when implementing ...management activit[ies]....” General Direction Statement No. 2 for forest-wide, range-resource management was to “[m]anage livestock and wild herbivores forage use by implementing proper use guides.” These “proper use guides” included numeric forage-utilization limits for different grazing systems. For example, the 1986 Plan established a maximum forage-utilization standard for rest-rotation systems of 55 percent of total forage (80 percent of key species) on late-use pastures and 45 percent of total forage (70 percent of key species) on early-use pastures. A separate set of forage-use standards applied in riparian areas.

In 2001, the Forest amended the Forest Plan through an environmental assessment (EA) under the National Environmental Policy Act (NEPA) with a “Decision Notice and Finding of No Significant Impact: Forest Plan Amendment of Forage Utilization Standards & Guidelines” which evaluated alternatives for forage-use management requirements. The Forest chose to amend the Plan by adopting “Alternative 3” described in the EA. The amendments prescribed in Alternative 3 made two main changes. First, the forest-wide range-resource General Direction Statement No. 2 was replaced with a new statement: “Manage ungulate forage use by implementing maximum allowable forage use criteria and modifying these criteria where necessary to obtain ‘proper use.’” Second, the forest-wide range-resource and riparian-area standards and guidelines for forage use were replaced with the following “maximum allowable use standards” (See Table 6).

The glossary in the EA elaborates on what the terms “allowable use” and “proper use” mean. “Allowable use” is the degree of utilization considered desirable and attainable on various specific parts of an allotment considering the present nature and condition of the resource, management objectives, and level of management. Allowable use is based on the morphological

and physical characteristics of forage species and is the amount of use that can occur for a specified period while meeting basic resource needs and associated resource management goals.

“Proper use,” in contrast, “is determined from allowable use and is the level of grazing utilization that can be permitted on an area considering the need to maintain or reach desired conditions while at the same time considering all limiting factors.” The “limiting factor” is that which “becomes critical first,” whether seral condition, key hydric species, damage to fisheries, critical wildlife habitat, or any other measurable factor. Under this limiting-factor approach, “the site-specific development and application of Proper Use criteria may prescribe lower utilization levels than those presented as maximum allowable use standards.”

Table 6. Maximum Allowable Forage Use Criteria.

Vegetation Type	Stubble Height/Use	Comments
Riparian Hydric Species	4"	Triggers the time to move livestock between units or off the allotment
Riparian Emphasis Management Areas	6"	Triggers the time to move livestock between units or off the allotment
Non-hydric Sod-Forming Grass Species in Riparian Areas	1 ½"	Primarily Kentucky bluegrass-- Triggers the time to move livestock between units or off the Allotment
Wheatgrass Seedings	60%	Management option to exceed 60% use to maintain healthy seedings
Riparian/Upland Browse Sprouts and Young-Aged Plants	≤40%	# of current year's available twigs removed
Riparian/Upland Mature Browse	≤50%	# of current year's available twigs removed
Upland Grass/Forb	40–60% of key species; varies by grazing system and desired condition	% of current year's growth
Riparian Ground Cover	Maintain ground cover of at least 70% within riparian areas	

Results

The above utilization standards are incorporated into the respective Term Grazing Permits unless different standards have been identified in an Allotment Management Plan (AMP). Forest Range Specialists monitored approximately 1,175,692 acres to the defined standard in 2025, respectively. This requires that the specialists monitor the grazing utilization on their respective allotments. The monitoring is tracked in the RIMS database.

Recommendations

Range Specialists will continue to monitor grazing utilization so that forage can be provided and utilized by permittees with valid Term Grazing Permits.

LRMP Desired Conditions for Range Management (Range Trend)

Maintain range lands being used by livestock in at least fair condition with stable or upward trend using proper management and restoration measures (LRMP Page IV-4).

Establish proper grazing capacity for each allotment (LRMP Page IV-4).

Provide livestock grazing consistent with range capacity and other uses (LRMP Page IV-4).

Control noxious weed infestations (LRMP Page IV-4).

Activities and Monitoring Questions

Do rangeland plant communities have desired species composition and is ground cover adequate?

Monitoring Indicator

Range condition and trend.

Monitoring Methods and Data

Long term trend data are gathered using a variety of different methods which include established photo plots, ocular macro plots, Line-point intercept, and nested frequency for upland vegetation. Riparian areas are monitored utilizing the Winward Greenline protocol outlined in General Technical Report RMRS-GTR-47. Noxious weed locations have been identified and are treated using a variety of chemical, mechanical, and biological methods.

Results

The Forest has long-term trend studies established across the different grazing allotments. The goal is to monitor 20% of the allotments each year so that the sites are monitored every 5 years for both upland and riparian locations. The yearly monitoring of upland, riparian, and utilization studies can be found on the Fishlake National Forest website. Data that is gathered from these studies is and will be used to determine effects from ungulate grazing and to make sure that utilization is at proper use so that rangelands continue in a stable or upwards trend. In 2025, 5,873 acres of noxious weeds were treated.

Recommendations

Continue to acquire long term trend data and utilize the data to make informed decisions on grazing management. Continue to treat noxious weed populations.

Wildlife and Fish

LRMP Desired Conditions for Wildlife and Fish

Protect aquatic habitats which are in good or excellent condition and improve habitats where ecological conditions are below biological potential (LRMP Page IV-3).

Identify and improve habitat for sensitive, threatened, and endangered species including participation in recovery efforts for both plants and animals (LRMP Page IV-4).

Improve or maintain the quality of habitat on big game winter ranges (LRMP Page IV-4).

Determine current status and monitor trends in management indicator species and their habitats (LRMP Page IV-4).

Activity: Wildlife Habitat Diversity

Monitoring Question

Is the diversity of wildlife habitat being maintained by managing Vegetative Structural Stages (VSS)?

Monitoring Indicator

Diversity of forest and rangeland vegetation.

Monitoring Methods and Data

The Forest has been monitoring habitat diversity at various scales from the landscape level to site-specific project level scales using several different sources. Some of these sources may include a review of Utah Division of Wildlife Resources (UDWR) long-term range trend data, old growth evaluation data, soil surveys, visual reconnaissance, Forest stand exam data, and Vegetational Structural Stages (VSS).

In reviewing Forest standards, direction, project level information and monitoring information, edge habitat for terrestrial species is not lacking and is adequate in abundance and distribution to support the species that use edge. Although it was not logistically or economically feasible to assess every project that modified wildlife habitat diversity across the Fishlake National Forest, sample projects have been looked at and edge is present in abundance with good distribution. Based on this evaluation, the diversity of wildlife habitat, with the exception of mature and old growth forests, is being maintained across the Forest in sufficient amounts with good distribution. Old growth and mature stands of aspen and fir are generally below desired conditions.

Results

As discussed in the Fishlake National Forest Life History report (2017 draft) viability of Threatened, Endangered, Regionally Sensitive and Management Indicator Species is generally strong across the Forest with the exception of the northern goshawk and mule deer. Population

estimates for both these species are down forest wide. The remaining species represent a variety of habitats across the Forest and healthy populations are a reasonable indicator of habitat diversity and effectiveness on the Forest. It is possible to have populations that struggle while habitat diversity and quality remain high. Many variables can contribute to strong persistent populations; however, population numbers are a reasonable indicator and are used for this summary.

Activity: Modification of Ecosystem

Monitoring Question

Are forest management activities and/or natural events affecting the structure and function of upland and riparian ecosystems?

Monitoring Indicator

Structure and function of forest and riparian ecosystems.

Monitoring Methods, Data, and Results

Forest management activities are designed to improve forest function. Implementation teams discuss upcoming projects and identify potential impacts to ecosystems and opportunities to improve these ecosystems. Natural events such as drought and wildfire affect both the structure and function of upland and riparian ecosystems. These effects can be both positive and negative. For example, recent wildfires have short term negative impacts as they remove vegetation and increase erosion. However, long-term effects are often increased habitat diversity and forage sources for wildlife species. Drought conditions from 2020 thru 2022 produced two of the driest years on record for this area. These conditions negatively impacted many wildlife species on the forest as upland and riparian resources were negatively impacted. A reduction in overall forage and the diversity of forage species resulted.

Activity: Big game habitat condition

Monitoring Question

Is big game habitat maintained to meet Forest Plan desired conditions?

Monitoring Indicator

Big game habitat condition.

Monitoring Methods and Data

The Forest has been monitoring big game habitat at various scales from the landscape level to site-specific project level scales using several different sources. Some of these sources include review of UDWR long-term range trend data, old growth evaluation at the project and landscape level, visual reconnaissance, Forest stand exam data, and VSS.

Big game habitat diversity is being maintained and enhanced across the Forest using a variety of tools. These tools include mechanical methods as well as prescribed fire. In reviewing Forest standards and guidelines direction, project level information and monitoring information, edge habitat for terrestrial species is not lacking and is adequate in abundance and distribution to support the species that use edge.

Results

The following tables show mule deer and elk (both are focal species) population objectives and annual population estimates. While these data demonstrate that big game populations are viable and persistent across the Fishlake Forest, they also show that mule deer populations are well below objective in every unit. While elk populations are within or close to population objectives, mule deer populations have declined dramatically in the last 5 years (Tables 7 and 8).

While various factors impact mule deer survival, prolonged drought is thought to be responsible for declines from 2020 to 2022. The Fishlake National Forest experienced severe to exceptional drought in these years and better water years in 2023 and 2024 (Figure 6). These conditions have contributed to declining forage on critical mule deer habitats in 2020 through 2022. Drought conditions were reduced significantly in 2023, but it will take several good water years to restore ideal forage conditions.

Table 7. Mule Deer Winter Population Estimates by WMU

WMU	Plan Objective	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Beaver	14,000	14,700	13,950	13,750	12,000	10,300	9,400	9,200	9,400	9,900	10,500
Boulder	8,500	8,500	7,900	7,200	6,600	6,350	6,150	7,050	7,650	8,200	7,500
Fillmore	9,600	8,900	8,800	8,800	6,700	6,500	6,700	7,100	8,000	8,200	8,700
Fishlake	7,000	6,800	6,600	6,300	5,100	4,900	4,400	4,500	4,600	4,640	4,600
Monroe	7,000	6,700	6,000	6,300	5,400	5,200	5,000	5,000	5,000	5,000	4,300
Thousand Lake	1,400	1,250	1,150	1,150	1,000	850	750	760	600	610	600
Total	47,500	46,850	44,400	43,500	36,800	34,100	32,400	33,610	35,250	36,550	36,200

Table 8. Elk Winter Population Estimates by WMU

WMU	Plan Objective	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Beaver	1,050-1,350	1,500	1,450	1,050	1,275	1,200	850	900	900	1,000	1,050
Boulder	1,200-1,700	1,200	1,200	1,300	1,050	1,150	1,200	1,250	1,300	1,400	1,400
Fillmore	1,450-1,750	1,450	1,400	1,450	1,350	1,400	1,350	1,400	1,500	1,450	1,500
Fishlake	5,000-5,900	4,400	4,900	5,200	4,750	5,100	5,450	4,500	4,750	5,000	5,200
Monroe	1,000-1,400	1,000	1,000	1,050	1,100	1,150	1,100	1,100	1,100	1,100	1,200
Total	9,700-12,100	9,550	9,950	10,050	9,525	10,000	9,950	9,150	9,550	9,950	10,350

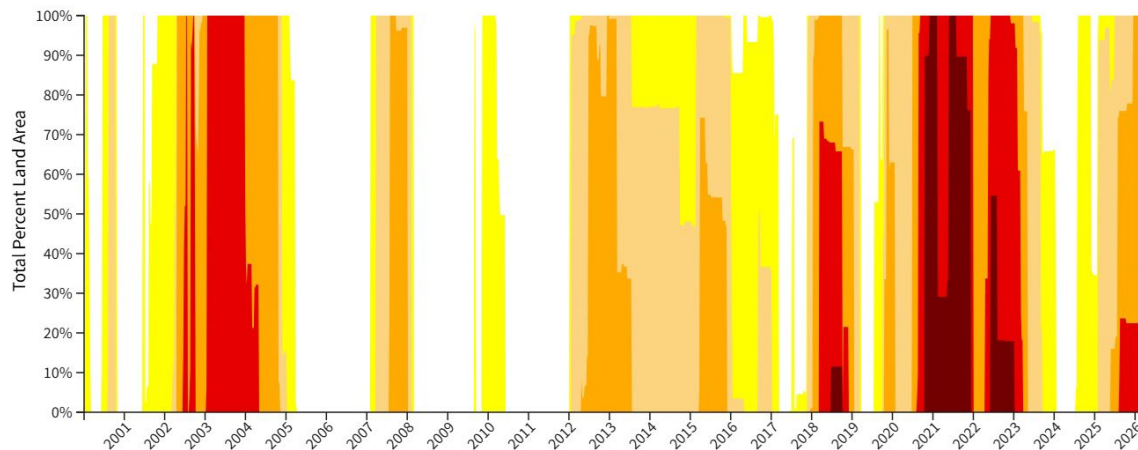


Figure 7. Drought Conditions on the Fishlake National Forest since 2000

Activity: Threatened Plant Species

Monitoring Question

Are Threatened, Endangered, Proposed, and Candidate (TEPC) plant habitats being protected from forest plan implementation activities?

Monitoring Indicator

Number of TEPC plant locations adversely impacted.

Results

Recently there have been a variety of vegetation treatment projects in TEPC plant habitat. Specifically, the Last Chance project, Governor Creek project and projects implemented under the Forest wide PJ EA, located in habitat for *Townsendia aprica*. Prior to these projects being implemented surveys for this species occurred. Per the consultation with the FWS with these projects, no treatments occurred within occupied habitat. Other projects within *Townsendia aprica* habitat are planned for future years and surveys will be conducted for them at that time.

Activity: Threatened, Endangered, and Sensitive (TES) Animals

Monitoring Question

Are TES animal habitats being protected from forest plan implementation activities?

Monitoring Indicator

TEPC habitat conditions retained across the planning area.

Monitoring Methods, Data, and Results

Listed animals are rare on the Fishlake National Forest. Currently, small populations of Utah prairie dogs are found on the Fremont Ranger District. The Forest also has critical habitat for Mexican Spotted Owl and additional areas are considered dispersal habitat for these birds. The Forest is also considered foraging habitat for California Condors. Habitat conditions for T&E species are reviewed during project development analysis. Where applicable T&E species habitat is protected or enhanced as a planned proposed actions are implemented.

The California condor may occasionally occur in areas on the Forest. Because no nesting occurs on the Forest use by condors is only incidental if any. Foraging habitat is retained across the Forest, is well distributed and abundant.

The Mexican spotted owl is limited in habitat to steep walled canyon complexes on the Fremont River Ranger District which contains approximately 17,442 acres of designated critical habitat and two Protected Activity Centers (PACs). The Fishlake Forest plan provides protection along with the Mexican Spotted Owl Recovery Plan (2012). Little to no use occurs in the 2 PACs on the Fishlake National Forest.

Annual counts of Utah Prairie Dogs are carried out in cooperation with the Utah Division of Wildlife Resources. Occupied habitat for these small mammals is protected and evaluated during project planning (Figure 8).

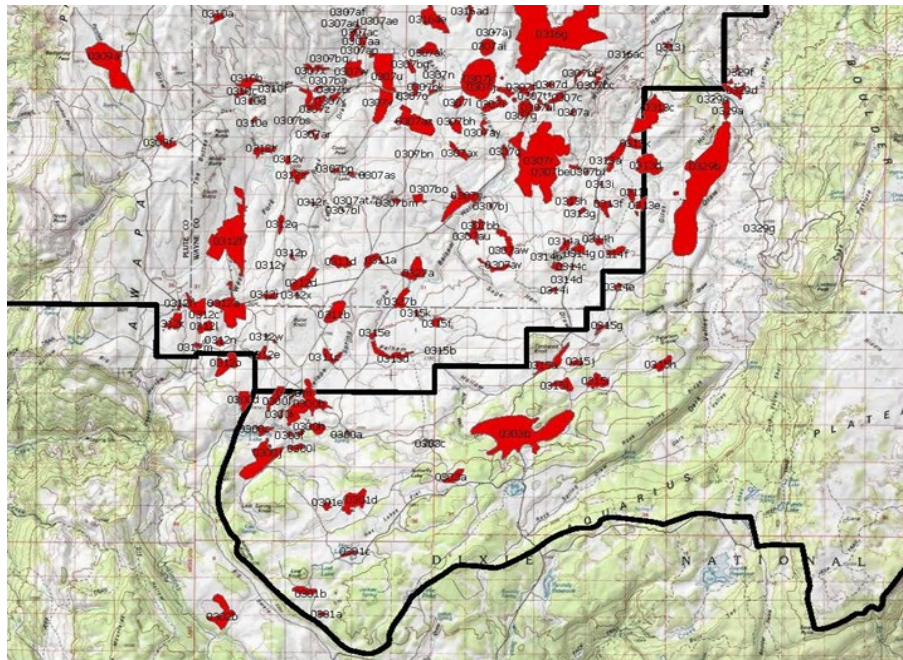


Figure 8. Occupied Utah Prairie Dog Colonies on or near the Fishlake National Forest

Additional habitat work is scheduled to improve and increase Utah prairie dog habitat.

Activity: Nongame Species

Monitoring Question

Are forest management activities and natural events affecting the ecological conditions indicated by the status of focal species?

Monitoring Indicator

Habitat across the planning area.

Monitoring Methods, Data, and Results

Nongame animals include a large number of species on the Fishlake Forest. These are represented by 19 Focal Species that are selected to represent forest habitats and species that

utilize those habitats. They are listed below with the habitats they represent (Table 9). Healthy populations of Focal Species are assumed to indicate healthy forest ecosystems.

Table 9. Focal species of the Fishlake National Forest

Species	Habitat/Ecosystem	Currently Monitored
Rydberg's Milkvetch	High Elevation/Alpine Meadow	Unsure
Mule Deer	General Forest/Multiple	Yes ¹
Rocky Mountain Elk	General Forest/Multiple	Yes ¹
American Goshawk	Mature Forest	Yes
Brewer's Sparrow	Sage Steppe	Yes ²
Vesper Sparrow	Sage Steppe	Yes ²
Sage Thrasher	Sage Steppe	Yes ²
Hairy Woodpecker	Mature Forest/Snags	Yes ²
Western Bluebird	Mature Forest	Yes ²
Mountain Bluebird	Mature Forest/Snags	Yes ²
Lincoln's Sparrow	Riparian	Yes ²
Yellow Warbler	Riparian	Yes ²
MagGillvray's Warbler	Riparian	Yes ²
Aquatic Macroinvertebrates	Stream Water Quality	No
Bonneville Cutthroat Trout	Streams	Yes
Rainbow Trout	Lakes and Rivers	Yes ¹
Brown Trout	Lakes and Rivers	Yes ¹
Brook Trout	Lakes	Yes ¹
Lake Trout	Lakes	Yes ¹

¹ Monitored by the Utah Division of Wildlife Resources

² Data from the Integrated Monitoring in Bird Conservation Regions (IMBCR) Website

A variety of monitoring and survey data are used to determine the status of these species and projects are developed with design features and best management practices to mitigate negative effects of these projects to wildlife species. Most projects have an ancillary goal to improve habitat for wildlife and fisheries and vegetation treatment projects are designed and implemented to increase diversity and a variety of seral stages and habitats. Monitoring methods vary by species.

Ryder's Milkvetch will not be discussed in this document. Mule deer and Rocky Mountain elk are discussed above in the big game section, while American Goshawk are addressed in several sections below. Hairy woodpecker, western bluebird and mountain bluebird are discussed below in the snag section, while aquatic species are addressed in the aquatic sections below. Sage steppe and riparian habitats are addressed here using migratory bird counts to monitor their status.

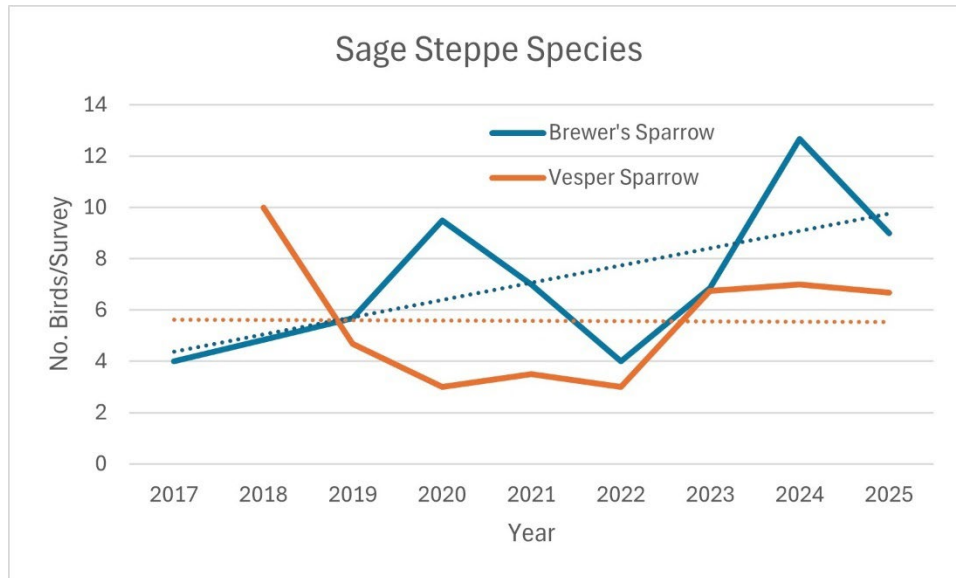


Figure 10. Survey data from 2017 -2025 for Brewer's and Vesper Sparrow as Indicators of sage steppe habitat health.

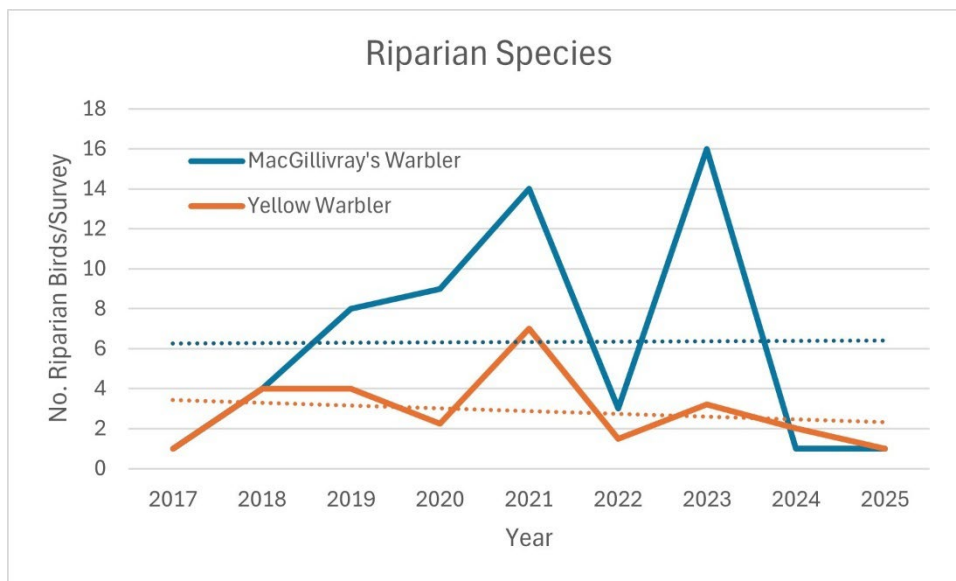


Figure 9. Survey data from 2017 -2025 for MacGillivray's Warbler and Yello Warbler as indicators of riparian habitat health.

Currently, there are healthy populations of Brewer's and Vesper sparrow – both indicators of healthy sage steppe habitats (Figure 8). This habitat is critical for wintering mule deer and elk and for year-round use of sage grouse. Consequently, Habitat projects to reduce pinyon and juniper encroachment have been implemented to improve this habitat in several areas of the Forest.

Riparian habitats make up a small portion of the Fishlake Forest but are critical for over 90 percent of wildlife species on the forest. Riparian species that reflect the health of riparian habitats include MacGillivray's and Yellow Warblers. Trends for both species are static or

slightly negative, indicating that riparian habitats are static or may be slightly degraded (Figure 9).

Activity: Snag management

Monitoring Question

Are snags in condition to meet needs of cavity nesters?

Monitoring Indicator

Snag condition.

Monitoring Methods, Data, and Results

Focal species that utilize snags and therefore are good indicators of snag conditions on the Forest include Mountain Bluebirds and Hairy Woodpeckers. Breeding bird surveys have been conducted on the Forest at multiple stations since 2017. These surveys show variable and increasing populations of Mountain Bluebirds and decreasing populations of Hairy woodpeckers (Figure 11).

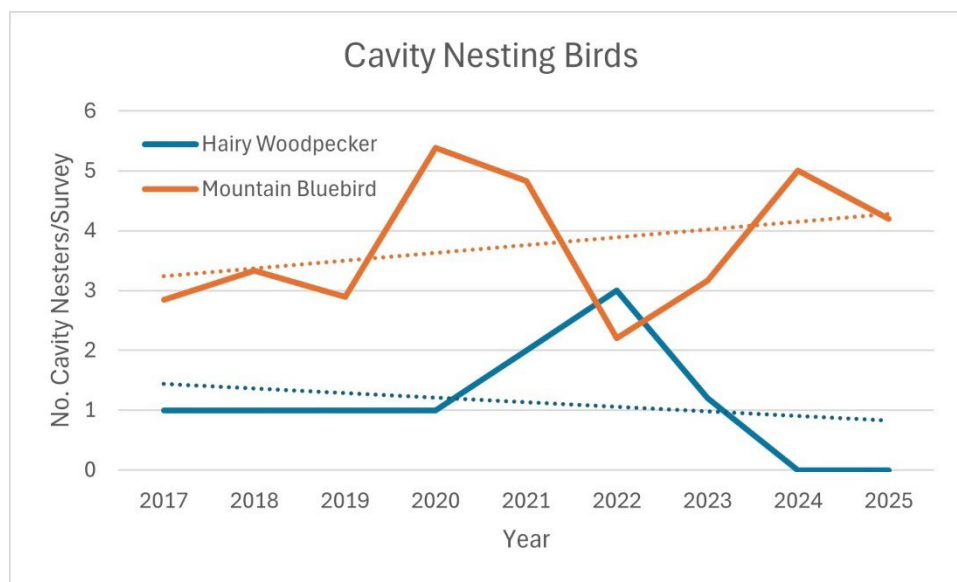


Figure 11. Number of mountain bluebirds and hairy woodpeckers per survey counted on the Fishlake National Forest from 2017-2025.

Landscapes throughout the Forest have been impacted from endemic and epidemic outbreaks of spruce bark beetle resulting in large areas of dead spruce across the Forest. Wildfire in mixed conifer stands have also resulted in large areas of dead standing wood. These events have led to an excess of snags in many forested habits. Other species, such as ponderosa pine, are not as plentiful nor as widespread and snags are less plentiful.

The Fishlake Forest Plan provides strong protection for the management of snags of all tree species across the Forest. Based on observations while conducting northern goshawk and general wildlife surveys during project clearance analyses, snags are adequate to support healthy well distributed populations of cavity-dependent species and secondary obligates across the Forest.

Fisheries

Activity: Fish-Bonneville Cutthroat Trout (BCT)

Monitoring Question

Are Forest management activities and natural events affecting the ecological conditions indicated by the status of the focal species?

Monitoring Indicators

BCT population estimates.

Monitoring Methods

Complete population surveys were conducted during 2024 in the following streams on the Fishlake National Forest as part of the Middle Sevier River Bonneville cutthroat trout (BCT) monitoring effort by Fishlake National Forest, Utah Division of Wildlife Resources (UDWR), and Dixie National Forest: Clear Creek (5 stations), Fish Creek (5 stations), East Fork Fish Creek (1 station), Picnic Creek (2 stations), Mill Creek (4 stations), Pole Creek (4 stations), Skunk Creek (2 stations), Sam Stowe Creek (3 stations), Shingle Creek (4 stations), Manning Creek (3 stations), Barney Creek (1 station), East Fork Manning Creek (1 station), Vale Creek (1 station), Pine Creek (Bullion Canyon) (3 stations(2 sampled in 2024)), Salina Creek (4 stations), Niotche Creek (4 stations), Beaver Creek (2 stations), and Tenmile Creek (3 stations). Standard protocol for BCT monitoring in the Southern Bonneville Geographic Management Unit (GMU) calls for surveying all known populations within the selected drainage during a single field season (Hadley et al., 2015).

Additional surveys on Fishlake National Forest in 2024 included Ivie Creek near Maple Grove Campground on Fillmore Ranger District. The Pleasant Creek station downstream of the Pleasant Creek campground was surveyed on the Teasdale portion of Fremont River Ranger District

In 2025, the Escalante Desert and Virgin River Hydrological Units (HUCs) were sampled. All the Escalante Desert and Virgin River stations are on the Dixie National Forest and Bureau of Land Management administered lands and did not involve the Fishlake National Forest.

Sampling efforts on Fishlake National Forest in 2025 included biennial Index Monitoring fish population surveys conducted in Pine Creek (Sulphurdale), Beaver Ranger District. This survey effort is coordinated between UDWR and Fishlake National Forest fisheries personnel and was conducted by UDWR.

Fish populations were sampled using backpack electrofishing units (Smith-Root models 12-B, LR-20B, and/or LR-24; Halltech model HT2000B/MK5). UDWR, Dixie National Forest, and Fishlake National Forest personnel conducted surveys when stream conditions allowed for effective sampling. Surveys were generally conducted at a similar time of year as previous surveys. A minimum of two 100-m stations were electrofished in each second or higher order stream, while at least one 50- to 100-m station was surveyed in first order tributaries. Fish populations were sampled in each station using the multiple-pass removal method (Zippin, 1958). Crews attempted to collect all trout except young-of-the-year (<75 mm), though relative abundance of Age-0 fish was documented. (In general, young-of-the-year measured less than 75 mm in total length.). Total length (TL) (mm) and weight (g) were recorded for all yearling, sub-

adult, and adult trout collected. Presence and/or relative abundance of other native fish species was also recorded.

Mean wetted stream width (m) was determined by measuring ten random transects within each survey station. Population estimates were calculated by the program MicroFish 3.0 (Van Deventer, 1989 (Demo Version)). Stream dimensions were combined with population estimates and mean trout weight to calculate trout density (fish/km, fish/hectare) and biomass (kg/ha). Upstream and downstream ranges of BCT were determined in each surveyed stream through electrofishing, ocular observation, or professional judgement. Range limits, stream distances, and barrier locations were documented and/or measured with a global positioning system (GPS) unit, U.S. Geological Survey topographical maps, and ArcGIS software (by Esri). Reaches currently occupied by BCT were classified as occupied habitat. BCT biomass and distribution were compared to results from previous surveys. Trends were classified as increasing, decreasing, or stable, depending on if current values differed by more than 10 percent from previous surveys.

Results

Survey results for the 2024 BCT surveys in the Middle Sevier River Drainage are still being analyzed. A summary of the results is included below and in Table 10. Further analysis will be available in the Round et al. report which will be published later in 2026.

Stream surveys in 2024 showed that Bonneville Cutthroat Trout (BCT) remain the dominant salmonid species across most of the streams monitored, with Brown Trout concentrated mainly in upper Fish Creek, Salina Creek, and Beaver Creek. Brook Trout were not found in Salina Creek despite prior accounts of them occupying off-channel ponds in the upper reaches. Several native non-salmonid species – including Sculpin, Mountain Sucker, Speckled Dace, and Regional Forester Sensitive Southern Leatherside – were documented across multiple streams, with especially high Leatherside numbers in Clear Creek.

BCT occupied stream length remained stable in most streams. Declines occurred in Sam Stowe, Tenmile, and Pine creeks due to varying impacts such as drought, flooding, and wildfire impacts. Sam Stowe experienced dewatering in the downstream reach, Tenmile lacked pool habitat and has been impacted by flood events, and Pine Creek (Bullion) was impacted by the 2024 Silver King fire. BCT occupied habitat was reduced in Salina Creek as Brown Trout expansion has increased over the years. Despite declines in occupied stream length, an increase in BCT occupied habitat came from documenting 22 km of BCT in Niotche Creek, raising total known occupancy in the Middle Sevier drainage from 135.1 km in 2017 to 137.12 km in 2024.

BCT biomass trends varied widely. Clear and Fish creeks stayed stable, eight streams declined, and six increased. Some declines likely reflect the fading of 2017 stocking effects rather than true population losses. Flooding reduced biomass in Manning and Tenmile creeks, and Skunk Creek's greater than 10 percent decline was likely nonsignificant as the stream still supported the largest BCT density observed in 2024. Pole Creek saw a significant biomass increase due to successful establishment throughout the stream and reproduction. Despite rising Brown Trout pressure in Salina and Beaver creeks, BCT biomass increased there. This may be due to larger fish or habitat concentration under competition. Brown Trout expansion in these systems remains a concern.

Securing BCT populations in streams on Fishlake National Forest is a high priority for natural resource management agencies. As survey results reveal the presence of nonnative trout, plans are put in place to remove them to preserve BCT and their habitat. A rotenone treatment was

conducted in Fish Creek by UDWR and Fishlake National Forest to remove nonnative brown trout in 2025. Additionally, plans to remove brown trout from Salina Creek and its tributary Beaver Creek are in process. Nonnative brown trout were observed between 2017 and 2024 Middle Sevier River BCT monitoring in Manning Creek, however, high flow events following prescribed fire treatments in the drainage have reduced salmonid biomass and density and no brown trout were observed in 2024 monitoring. Additionally, fish passage barrier improvements including repairing the lower barrier and installation of a second, water diversion barrier upstream, appear to have secured the population of BCT in the stream. Effective monitoring assists natural resource managers in maintaining BCT populations across the Forest.

The table below shows the current (2024) population status of Bonneville Cutthroat Trout in the Middle Sevier River drainage by individual stream compared to previous known conditions. Trends are noted as an increase (↑), decrease (↓), or no/negligent change (↔) if values changed by more than 10%; >0 indicates that trout were present but biomass or range was not measured. Biomass presented is a mean of all sampling stations within the stream where BCT were detected.

Table 10. Bonneville Cutthroat Trout Population Status

State water identification number	Stream/tributary (indentation denotes tributaries)	Year	<u>Occupied Habitat</u>		<u>Biomass</u>		Comments
			km	Trend	kg/ha	Trend	
VI AA 360	Clear Creek	2009 2017 2024	0 19.2 19.2	-- ↑ ↔	0 44 40	-- ↑ ↔ ¹	Nonnative trout present BCT restored 2011-16 Population established
VI AA 360E	Fish Creek	2009 2017 2024	0 17.2 17.2	-- ↑ ↔	0 47 51	-- ↑ ↔	Nonnative trout present BCT restored 2012-16 Population established
VI AA 360E 02	Picnic Creek	2009 2017 2024	0 4.6 4.6	-- ↑ ↔	0 80 72	-- ↑ ↓ ¹	Nonnative trout present BCT restored 2013-15 Population established
VI AA 360C	Mill Creek	2009 2017 2024	0 12.3 12.3	-- ↑ ↔	0 50 42	-- ↑ ↓ ¹	Nonnative trout present BCT restored 2013-16 Population established
VI AA 360D 01	Pole Creek	2002 2009 2017 2024	>0 0.8 10.7 10.7	-- ↑ ↑ ↔	>0 78 18 120	-- ↑ ↓ ² ↑	Unconfirmed remnant 100% BCT Nonnative trout removed 2011-12 Population expanded to entire stream
VI AA 360D 01B	Skunk Creek	2009 2017 2024	>0 1.9 1.9	-- ↑ ↔	>0 178 155	-- ↑ ↓	Unconfirmed remnant Nonnative trout removed 2011-12 Population stable
VI AA 360A	Sam Stowe Creek	1995 2002 2010 2017 2024	0 5.1 5.1 5.1 1.4	-- ↑ ↔ ↔ ↓	0 52 50 30 54	-- ↑ ↔ ↓ ↑	Hybrids found Restored in 1995 Population stable Marginal habitat Marginal habitat lower reaches

VI AA 360F	Shingle Creek	2009 2017 2024	0 10.5 10.5	-- ↑ ↔	0 98 46	-- ↑ ↓ ¹	Nonnative trout present BCT restored 2011-16 Population established
VI AA 430	Manning Creek	1995 2001 2008 2017 2024	0 15.8 15.8 15.8 15.8	-- ↑ ↔ ↔ ↔	0 69 78 76 39	-- ↑ ↑ ↔ ↓	Restoration in progress Population expansion Population stable Population stable Impacted by fire/flooding
VI AA 430D	Barney Creek	1995 2001 2008 2017 2024	0 0.9 0.9 0.9 0.9	-- ↑ ↔ ↔ ↔	0 6 21 51 >0	-- ↑ ↑ ↑ ↓	Restoration in progress Population expansion Seasonal use in limited habitat Seasonal use in limited habitat Seasonal use in limited habitat
VI AA 430B	Vale Creek	1995 2001 2008 2017 2024	0 1.6 1.6 1.6 1.6	-- ↑ ↔ ↔ ↔	0 84 102 47 112	-- ↑ ↑ ↓ ↑	Restoration in progress Population expansion Population established Seasonal use in limited habitat Seasonal use in limited habitat
VI AA 400	Pine Creek (Bullion Canyon)	2002 2009 2017 2024	0 >0 5.2 3.08	-- -- ↑ ↓ ³	0 >0 104 64	-- -- ↑ ↓ ¹	Nonnative trout present Restoration in progress BCT restored 2007-16 Impacted by Silver King Fire
VI AA 200	Salina Creek	2002 2009 2017 2024	>0 18.1 18.1 9.60 ²	-- ↑ ↔ ↓	>0 43 33 43	-- ↑ ↓ ↑	Unconfirmed remnant 100% BCT Brown trout expanding Brown trout expanding significantly
VI AA 200D	Niotche Creek	2017 2024	>0 22.0	-- ↑	>0 140	-- ↑	Unconfirmed remnant Varying hybridization upper drainage
VI AA 200G	Beaver Creek	2002 2009 2017 2024	>0 2.2 2.2 2.2	-- ↑ ↔ ↔	>0 42 13 21	-- ↑ ↓ ↑	Unconfirmed remnant 100% BCT Brown trout expanding Pop fluctuates due to brown trout
VI AA 440	Tenmile Creek	1995 2002 2008 2015 2024	0 >0 8.9 8.9 3.2	-- ↑ ↑ ↔ ↓	0 >0 62 38 8	-- ↑ ↑ ↓ ↓	Nonnative trout present Restored 2002 Population expansion Marginal due to flooding Maybe functionally lost

¹ – Elevated biomass in 2017 was the result of recent stocking. 2024 biomass may be more reflective of a stable, established population.

² – Mean biomass reduced by low BCT density in lower reaches of Pole Creek where the population was still establishing

³ – BCT biomass shows an increase due to decreased occupied habitat in Salina Creek as a result of extensive brown trout expansion, displacing BCT.

⁴ – Flooding following the Silver King Fire may have eradicated BCT downstream of the south fork confluence.

Fish population monitoring in 2024 in Ivie Creek near Maple Grove campground indicated a biomass of 128.26 lbs. per acre which is above average for Fishlake National Forest trout populations. Species caught included brown trout and rainbow trout. The area is a popular camping area and has seen disturbance in riparian habitat along the stream. The Fillmore Ranger District constructed a post and pole enclosure fence in recent years to alleviate impacts to the riparian area.

Pleasant Creek was sampled using fish population monitoring protocol in 2024. Results indicated a trend of an increase in biomass for brook trout the stream. Pleasant Creek is located on the east slope of Boulder Mountain on Dixie National Forest and is considered the Teasdale portion of the mountain, which Fishlake National Forest administers.

Population Index surveys were conducted in Pine Creek (Sulpherdale) in 2025. Index surveys were developed as part of a monitoring plan to efficiently track BCT population trends within each Geographic Management Unit (GMU). It is based on a power analysis that identified the sampling effort needed to detect true changes over time. For each GMU, at least two representative streams were chosen to be monitored every other year. The plan integrates fisheries, habitat, and streamflow measurements to assess long-term trends.

The 2024 Forest Monitoring Report results for the 2023 BCT surveys in the Upper Beaver River Drainage are still being analyzed in Roundy et al. (in press) and will be included in the next monitoring report.

Activity: Macro-invertebrate

Monitoring Question

Are Forest management activities and/or natural events affecting aquatic habitats?

Monitoring Indicator

Aquatic habitat condition.

Monitoring Methods, Data, and Results

Macroinvertebrate sampling results (BCI: Biotic Control Index).

Macroinvertebrate samples were not collected on Fishlake National Forest in 2024/2025. Further analysis of lab results is required to obtain Biological Condition Index (BCI) scores due to changes in lab analysis processes.

The Forest Plan Monitoring Plan of sampling five streams/year was met in 2021 and 2022 but not in 2023, 2024, or 2025. Staff reductions in the aquatics program along with recent laboratory processing changes have impacted the Forest aquatics programs ability to collect and process macroinvertebrate samples.

Activity: Habitat Condition Inventory

Monitoring Question

Is aquatic habitat maintained to meet Forest Plan Desired Conditions?

Monitoring Indicators

Aquatic and riparian condition; in-stream channel condition.

Monitoring Efforts and Results

The monitoring indicators for determining whether aquatic habitat is being maintained to meet Forest Plan Desired Conditions include aquatic and riparian condition as well as in-stream

channel condition. Monitoring efforts by Fishlake Fisheries and Hydrology personnel resulted in data collected that reflect Forest Plan Desired Conditions.

The following highlights some of the monitoring and aquatics work that is being conducted across the Forest:

- Monitored streams temperature (deployed/retrieved probes and downloaded data) for Shingle Creek and Pine Creek (Fremont River). Data has found that water temperatures are generally within cold water fisheries thresholds (less than ~20 degrees Celsius/~70 degrees Fahrenheit) on the Fishlake National Forest. Areas that have been identified which exceed these levels are typically low-flow, high elevation streams with minimal or low shading, and some low elevation streams, particularly with minimal shading.
- Boreal toad surveys on Monroe Mountain, Thousand Lake Mountain, and Boulder Mountain. Boreal toads are a species of concern but were only relatively recently added to the Region 4 Sensitive Species list. A major concern is a fungus infection called Bd or chytrid that is causing issues for amphibians worldwide. There are historic records of boreal toad in the Beaver River drainage and Seven Mile drainage that are not currently occupied, indicating these were probably extirpated prior to the Forest Plan.
 - Monroe Mountain was considered one of the strongest boreal toad populations in Utah prior to chytrid being documented there in 2012. After a comprehensive NEPA analysis, extensive vegetation cutting and burning projects have been undertaken to restore aspen on Monroe Mountain. Due to the chytrid-caused boreal toad population decline, some elements of the boreal toad monitoring plan were not able to be implemented. In 2024, the Forest conducted frequent monitoring of some of the known historic breeding sites in early summer on southern Monroe Mountain to ensure that no natural or land management impacts occurred to any potential boreal toad breeding habitat. Boreal toad breeding was documented in 2024 with a notable observation of breeding at a historic breeding site at Manning Meadows Reservoir in 2024. This site had not seen breeding since 2013. In 2025, planned western toad surveys were interrupted by the Monroe Canyon Fire and annual occupancy modeling surveys were postponed to 2026. Fishlake and UDWR aquatics personnel surveyed some sights post-fire to investigate impacts. Breeding was noted in 2025 on the south part of the Mountain range. Impacts from the fire will be assessed and analyzed in future surveys.
 - In 2024, the Forest conducted occupancy modeling at 20 established known historic boreal toad sites with the UDWR and Hogle Zoo. In addition, this same interagency crew conducted inventory monitoring at 5 sites in 2024.
 - The breeding site, inventory, and occupancy surveys indicate boreal toads appear to be absent from the middle and northern portions of Monroe Mountain and stable at low numbers in the southern portion of their range on Monroe Mountain. It is possible that boreal toads could be present in middle or northern Monroe Mountain in extremely low numbers.
 - The Forest, UDWR, and Hogle Zoo conducted boreal toad monitoring on Thousand Lake Mountain in 2024 and 2025. Three historic breeding sites were checked in both years, four inventory sites were checked in 2024, and seven sites in 2025. Localized reproduction was documented on Thousand Lake Mountain at differing sites each year. The Thousand Lake Mountain population of boreal toads appears to be stable.
 - In 2024 and 2025, the Forest, UDWR, and Hogle Zoo conducted boreal toad monitoring on Boulder Mountain. Two historic breeding sites were checked each year. In 2024 one

juvenile and one adult were observed at Grass Lake – South. No breeding was documented at either site in 2025. In 2024, two inventory sites were checked and six inventory sites were checked in 2025. No toads were observed at the historic population stronghold in Pine Creek for the seventh consecutive year. This site has been impacted by the absence of beaver and a loss of ponded habitat, wildlife and domestic livestock grazing, and drought. Boulder Mountain seems to have considerable unoccupied habitat and the boreal toad population appears to be declining and low. Based on survey results, discussion is beginning on taking management steps to improve the former western toad stronghold in Pine Creek.

Goshawk

Activity: Goshawk territory occupancy at the forest level

Monitoring Question

Are known goshawk territories on NFS lands remaining occupied?

Monitoring Indicator

Goshawk territory occupancy.

Results

Goshawk territories on the Fishlake National Forest are not remaining occupied. Occupancy – the percent of territories with goshawk activity - has declined from over 50% in the mid-2000's to just 4% in 2023, but rose to 15% in 2025 (Figure 7). Goshawk population trends are also down throughout in Utah, across the Intermountain region, and across all survey areas. Goshawk population numbers across the Fishlake National Forest are a reflection of these region-wide trends. Suggested monitoring changes would include new searches for active nesting pairs and abandoning the monitoring of nests that have been destroyed by wind and fire or territories that have been abandoned for many years. Suggested management changes would include planning efforts at the Forest level to protect and enhance mature/old growth habitat for wildlife species dependent on this habitat type.

Several factors may be contributing to the continued decline in occupied Goshawk territories. These include recent drought conditions, large wildfire impacts, Forest activities, and monitoring methods.

Environmental conditions have been shown to affect goshawk nesting success. Drought from previous years has been correlated to a reduction in small mammal production, an important component of the food supply for Northern Goshawk. The years 2018, 2020, 2021, 2022 and 2025 were marked by severe drought and may have negatively impacted Goshawk nest survival.

A number of nest territories in two districts were destroyed by fire in the last 12 years. The Monroe Mountain fire covered over 70,000 acres and likely destroyed an unknown number of nest sites. These have not yet been replaced by new territories, but in some cases have continued to register unoccupied during monitoring.

Forest activities that have been shown to negatively impact Northern Goshawk nesting include prescribed fire, timber harvest and grazing. Goshawk territories are monitored annually by standard methods. However, when nest sights are burned, blown down, or abandoned for long periods of time, the current protocol does not adapt to those changes and biologists are directed to

continue monitoring these sites. This leads to a perceived decrease in occupancy, when in reality, the same nesting goshawks may have simply moved to nearby habitats.

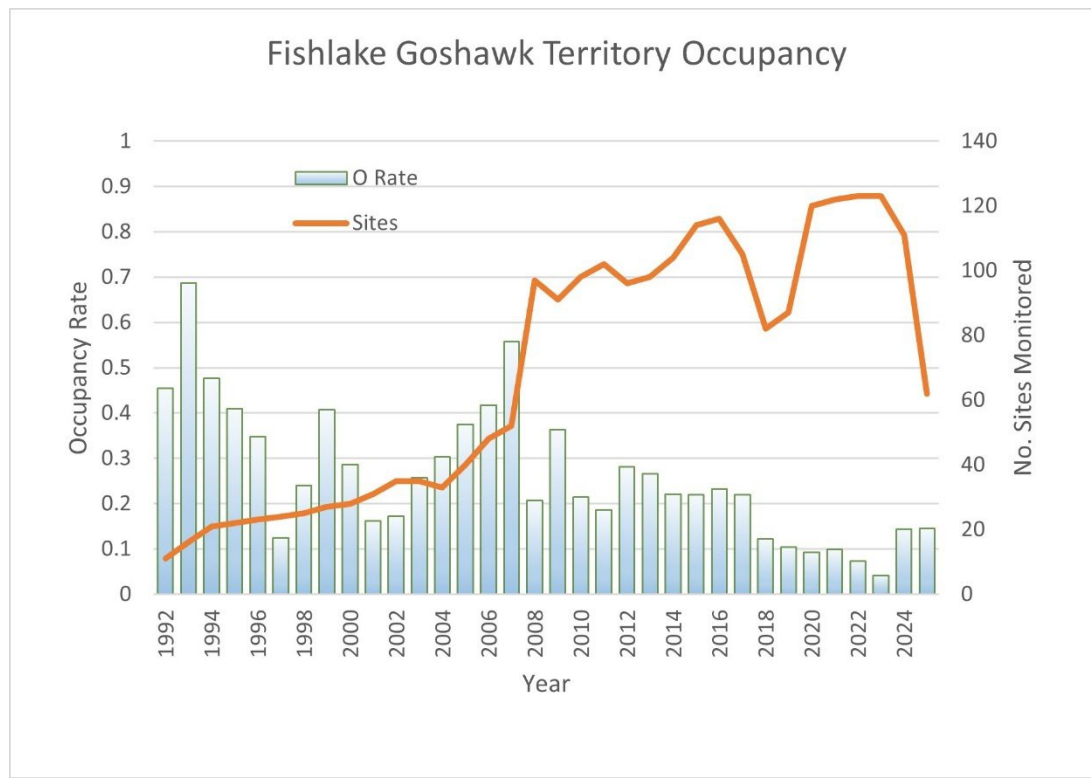


Figure 12. Fishlake National Forest Goshawk territory occupancy rates, (1992-2025).

Activity: Goshawk territory occupancy following vegetative management treatments

Monitoring Question

Are goshawk territories remaining occupied following vegetation management?

Monitoring Indicator

Goshawk territory occupancy.

Results

In general, goshawk territories are not remaining occupied regardless of vegetation management. However, in some territories, it appears that management activities may have reduced occupancy of some territories. Nest monitoring on the Fishlake Forest declined from 123 nests in 2023 to only 62 in 2025. This decline was due to the loss of seasonal monitoring staff and the large Monroe Mountain wildfire that took much of our Forest resources and prevented access to nesting sites. Of the 62 territories monitored in 2025 9 (~15%) were occupied. Some of these nest monitoring sites occurred in our near treatment areas. Territory abandonment due to vegetation management projects is difficult to determine as birds may not re-nest in a territory for a number of reasons. For example, bark beetle impacts have decreased habitat effectiveness across the Forest as well as impacts from fire and weather events. Still, it appears that some of these territories were abandoned as a result of vegetation management at these sites.

Activity: Dispersion and patch size of mature/old forest groups

Monitoring Question

Is mature and old forest habitat connectivity being adequately maintained?

Monitoring Indicator

Percent and distribution of mature and old forest cover.

Results

The northern goshawk is an indicator of old, or mature forests and is identified in the Fishlake LRMP as such. A significant portion of the Fishlake's mature and old growth forest stands were logged over at a time prior to today's contemporary science-based practices. As a result, habitat for wildlife species dependent on mature and old growth forests is often lacking. During project development analysis mature and old growth stands (VSS 5 & VSS 6) are assessed and project specific design features are incorporated into proposed actions to protect mature and old growth stands. Currently, there is a lack of stand exam data collected from which to base conclusions. From 2023 through 2025 a total of 99 stand exams were recorded in the FSVEG database. These exams indicate that approximately 12.8% of existing forested habitats are mature or old.

Activity: Snag densities/sizes within a 100-acre treatment block

Monitoring Question

Is snag habitat being maintained in desired spatial arrangement?

Monitoring Indicator

Density and distribution of snags.

Results

Snag density data are collected as part of regular Stand Exam data on the Fishlake Forest. However, these data represent a small portion of the forest. A total of 79 surveys included data to quantify snags from 2024 through 2025. These data show an average of 16.5 snags per acre from 8 to 18 inches in diameter. In addition, visual inspections show that snag numbers in the spruce/fir and aspen types are well distributed and abundant across the Forest. The abundance of snags is lowest in Ponderosa Pine habitats. In general, snag density has increased over time due to bark beetle and wildfire impacts. These natural events have added to the habitat effectiveness of the spatial arrangement of snags on the landscape.

Specific snag management recommendations are in the Fishlake LRMP and are being implemented across the Forest in all vegetation management projects, thus providing a desired spatial arrangement.



Figure 13. Snag created by wildfire. These will eventually topple and add to the downed wood already in place.

Activity: Down log and woody debris amounts/sizes within a 10-acre treatment block

Monitoring Question

Is downed wood being maintained in sufficient amount, size, and location?

Monitoring Indicator

Quantity of downed logs and woody debris.

Results

Within the Fishlake LRMP specific down woody debris recommendations are listed by cover type. These recommendations are required on each vegetation management project that occurs in Northern goshawk habitat across the Forest and is providing downed woody debris in sufficient size, amount, and distribution.

While surveys for downed wood are lacking, the large number of snags in the Forest leads to a high volume of downed wood, measured as tons per acre. Fire suppression efforts accompanied with large beetle kills have resulted in an overabundance of downed wood in conifer and mixed aspen/conifer habitats. In addition, large wildfires in several areas of the Forest have resulted in excess downed wood. Only in ponderosa forest habitats appear to have limited downed wood. Periodic under-burning in these stands can reduce downed wood below recommended levels.

Activity: Ungulate grazing practices in identified at-risk locations

Monitoring Question

Are appropriate adjustments to grazing practices being made where grazing is contributing to at-risk conditions?

Monitoring Indicator

Ungulate grazing practices in at-risk locations.

Results

Grazing impact monitoring is conducted regularly. Based on monitoring of range trends across the Forest, no “at risk” conditions were identified. Grazing was not impacting the allotments reviewed or contributing to a decrease in habitat effectiveness for goshawk prey species. The greatest risk of impacts from grazing is to riparian habitat. Riparian exclosures have been, and continue to be used, to reduce impacts to those resources. In addition, range specialists review utilization data and discuss grazing impacts with permittees during annual permit review meetings. Despite these efforts, recent drought conditions have significantly reduced forage resources and have increased areas at risk. To adjust for these conditions, livestock numbers and dates of use may be reduced on many allotments in the Fishlake National Forest.

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Appendix

Table 11. Monitoring and Evaluation Program

Program	Activity	Monitoring Question	Monitoring Indicator
Recreation	Developed Sites; Actual Use	Are recreation sites developed meeting Forest Plan standards for use, and are visitors satisfied?	Developed site use and visitor satisfaction
	Developed Sites; Condition	Are developed recreation sites meeting Forest Plan standards for condition?	Developed site condition
	Dispersed Actual Use	Are dispersed recreation sites meeting Forest Plan standards for use, and are visitors satisfied?	Dispersed site use and visitor satisfaction
	Dispersed campsite condition	Are dispersed recreation sites meeting Forest Plan standards for condition, and are visitors satisfied?	Dispersed site condition
	Trail condition	Are trails meeting Forest Plan standards for use and condition, and are visitors satisfied?	Trail use, and visitor satisfaction; miles of motorized trail managed to standard; miles of non-motorized trail managed to standard
Cultural Resources	Sites located and protected	Are historical and cultural resources being protected both from forest plan implementation activities and from vandalism or neglect?	Number of historical or cultural sites adversely impacted by projects or the public
Fish and Wildlife	Wildlife Habitat Diversity	Is the diversity of wildlife habitat being maintained?	Diversity of forest and rangeland vegetation
	Modification of Ecosystem	Are forest management activities and/or natural events affecting the structure and function of upland and riparian ecosystems?	Structure and function of forest and riparian ecosystems
	Big game habitat condition	Is big game habitat maintained to meet Forest Plan desired conditions?	Big game habitat condition
	Fish (BCT)	Are forest management activities and natural events affecting the ecological conditions indicated by the status of focal species?	BCT population estimates
	Threatened Plant Species	Are TEPC plant habitats being protected from forest plan implementation activities?	Number of TEPC plant locations adversely impacted
	Nongame Species	Are forest management activities and natural events affecting the ecological conditions indicated by the status of focal species?	Habitat across the planning area
	Macro-invertebrate	Are forest management activities and/or natural events affecting aquatic habitats?	Aquatic habitat condition
	T&E and Sensitive Animals	Are TEPC animal habitats being protected from forest plan implementation activities?	TEPC habitat conditions retained across the planning area
	Habitat Condition Inventory	Is aquatic habitat maintained to meet Forest Plan desired conditions?	Aquatic and riparian condition; in-stream channel condition
	Snag Management	Are snags in condition to meet needs of cavity nesters?	Snag condition

Program	Activity	Monitoring Question	Monitoring Indicator
Range	Permitted AUM	Are goods and services being provided in accordance with Forest Plan goals and objectives?	Level of permitted livestock grazing
	Forage Utilization	Are goods and services being provided in accordance with Forest Plan goals and objectives?	Forage utilization
	Range Trend	Do rangeland plant communities have desired species composition and is ground cover adequate?	Range condition and trend
Timber	Assure that timber manipulation will not favor an increase in forest pests (insects, diseases, etc.).	Are forest vegetation conditions stable or moving toward Forest Plan desired conditions?	Extent of insect and disease infestations
Water	Water Quality	Are beneficial uses, identified by the state of Utah, being maintained for all water bodies?	Impairment or degradation of water quality
	Changes in riparian Areas Due to Management	Are forest management activities affecting riparian ecosystems?	Riparian ecosystem condition
	Best Management practices effectiveness and compliance with land disturbing projects	Which forest management activities may affect riparian ecosystems?	BMP compliance and effectiveness
Soils	Accelerated Soil Loss Forest wide	Are forest management activities impairing soil productivity of the land?	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
Facilities	Transportation System Management	Are adequate road access and maintenance being provided?	Miles of classified road open for public use
	Road Maintenance	Are open roads maintained to standard?	Miles of road maintained to standard
Protection	Fuel Treatment	Are fuel treatment projects protecting property, human health, and safety, and reducing the potential for unwanted fire effects?	Effectiveness of fuel treatments in reducing unwanted fire effects
	Insect & Disease	Are forest vegetation conditions stable or moving toward Forest Plan desired conditions?	Extent of insect and disease infestations
Goshawk	Goshawk territory occupancy at the forest level	Are there known goshawk territories on NFS lands remaining occupied?	Goshawk territory occupancy
	Goshawk territory occupancy following vegetative management treatments	Are goshawk territories remaining occupied following vegetation management?	Goshawk territory occupancy
	Dispersion & patch size of mature/old forest groups	Is mature and old forest habitat connectivity being adequately maintained?	Percent and distribution of mature and old forest cover

Program	Activity	Monitoring Question	Monitoring Indicator
	Snag densities/sizes within a 100-acre treatment block	Is snag habitat being maintained in desired spatial arrangement?	Density and distribution of snags
	Down log & woody debris amounts/sizes within a 10-acre treatment block	Is downed wood being maintained in sufficient amount, size, and location?	Quantity of downed logs and woody debris
	Ungulate grazing practices in identified at-risk locations	Are appropriate adjustments to grazing practices being made where grazing is contributing to at-risk conditions?	Ungulate grazing practices in at-risk locations