



United States Department of Agriculture

Monitoring Report for the Inyo National Forest Plan 2024 –2025



Photograph of Dry Creek Prescribed Fire on Mono Lake Ranger District of Inyo National Forest in Spring 2024



Forest Service

September 2026

For More Information Contact:

Michèle Slaton
Assistant Natural Resources Staff Officer
351 Pacu Lane, Suite 200, Bishop, CA 93514
<https://www.fs.usda.gov/r05/invo/planning>

In accordance with Federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotape, American Sign Language, etc.) should contact the State or local Agency that administers the program or contact USDA through the Telecommunications Relay Service at 711 (voice and TTY). Additionally, program information may be made available in languages other than English.

To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at [How to File a Program Discrimination Complaint](#) and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Mail Stop 9410, Washington, D.C. 20250-9410; (2) fax: (202) 690-7442; or (3) email: program.intake@usda.gov.

USDA is an equal opportunity provider, employer, and lender.

About Our Plan Monitoring Program

Purpose

The purpose of this biennial monitoring evaluation report is to describe the evaluation of information gathered through the Inyo National Forest plan monitoring program during 2024 and 2025.

This report is not a decision document. Rather, this report has been developed in compliance with the National Forest Management Act policy 36 CFR § 219.12. This report is a vehicle for disseminating to the public timely, accurate monitoring information as well as recommended changes and adaptive management responses.

How Our Plan Monitoring Program Works

Forest plans are required to have plan monitoring programs that inform the management of resources in the plan area by testing relevant assumptions, tracking relevant changes, and measuring management effectiveness and progress towards achieving plan components like desired conditions and objectives (36 CFR § 219.12). The monitoring results help the responsible official determine whether a change is needed in forest plan direction, such as plan components or other plan content that guide management of resources in the plan area, management activities, the monitoring program, or whether a new assessment is warranted.

The Inyo National Forest plan monitoring program includes 23 questions that relate to specific plan desired conditions and one goal. Collectively, the monitoring questions cover the eight required topics. Some questions cover more than one topic. Our monitoring results were grouped into seven themes as described in the Inyo National Forest plan, including:

- (1) [watershed condition](#);
- (2) [status of select ecological conditions](#);
- (3) [ecological conditions for at-risk-species](#);
- (4) [visitor use, satisfaction, and progress toward meeting recreation objectives](#);
- (5) [climate change and other stressors](#);
- (6) [fire conditions](#); and
- (7) [social and economic sustainability](#).

The monitoring questions, indicators, and results you'll read about in this report address these themes.

Results Summary

This report describes the results of monitoring activities in fiscal years 2024 and 2025 for the Inyo National Forest. The Forest addresses 23 monitoring questions in the plan monitoring program. Some questions (8) were not answered in this cycle because data were not refreshed or their monitoring interval is longer than every two years. For the questions answered, nine indicated results were consistent with plan direction, two were not, and four were uncertain.

Monitoring results indicate that after the big monsoon summers and record-breaking

precipitation of 2022-2023, forest visitation, uses, and project activities have now returned to and exceeded levels generally experience pre-COVID.

Partnerships are incredibly valuable to our Forest. We recommend continuing to build valuable partnerships to work towards a common goal of repairing roads and trails, restoring degraded meadows, and maintaining intact systems. As monitoring expectations and management activities continue to expand, it has become more difficult to provide coverage across all areas with current staff. Partners are stepping in to help the forest to respond effectively.

The trend in pinyon-juniper woodlands observed during this monitoring period highlights the important information that tribal partners can provide to help achieve restoration goals. Improved conditions in some meadows also demonstrate how partnerships have been able to restore watershed condition and provide for sustained uses like livestock grazing.

We do not see the need for a new assessment. We propose to change some of the indicators and data sources in our plan monitoring program which is part of our land management plan. These changes are minor and would improve the clarity of the questions and take advantage of the best available scientific information and data sources (see Table 1). The most significant suggested change would be to include a new question addressing the currently combined themes of economic sustainability and productivity of the land that to date have relied on nationally derived indicators. For example, reporting sustained yield at the forest level along with actual timber volume produced, alongside reforestation efforts and/or effects to soils may help identify which activities are bringing us closer to consistency with plan direction, and where opportunities for improvement may be found.

We do propose considering a change to the forest plan component SPEC-SG-STD-05 that states “Require site-specific project mitigation if needed to insure no net loss of habitat within the Inyo National Forest due to project disturbance.” We have found the term “net loss of habitat” to be unclear in some circumstances, such as when considering disturbance in sage grouse habitat that may convert sagebrush ecosystems in the short-term, but be necessary to avert larger-scale losses (e.g. through wildfire) in the long-term that may occur in absence of proactive management, such as fuels reduction. Potential changes (which would require a plan amendment and further public engagement outside of this report) may include clarification of the language, and/or combining this plan component with others that target resilience in sage grouse habitat and sagebrush ecosystems.

Theme 1: Watershed Conditions		
Monitoring Questions	Results consistent with plan direction?	Recommended action, adaptive management, or change
WS01. To what extent are watersheds in proper functioning condition being maintained, and watersheds in altered or impaired condition being improved?	Yes. Priority watersheds are moving closer toward proper functioning condition as a result of management actions.	Additional priority watersheds should be identified to continue an upward trend through management.
AE03. What is the status of water quality in national forest waterbodies?	Uncertain. Most indicators are within normal ranges. However, data sources may not be sufficient to assess the question at a relevant scale.	Work with regional/national program managers to replace/improve indicators and data sources.
WS02. To what extent has erosion from temporary and permanent roads and trails affected water quality and soil sustainability in the national forest?	Uncertain. Due to limited capacity, the forest could not assess this question for this reporting cycle.	Seek opportunities to ensure this question can be answered in the next reporting cycle.
PR01. How does soil disturbance differ from pre- and post-activity for timber management?	Uncertain. Due to limited capacity, the forest could not assess this question for this reporting cycle.	Seek opportunities to ensure this question can be answered in the next reporting cycle. In addition, revise the Monitoring Guide to include this question with the 8 th monitoring theme, “Productivity of the Land”. Also see comments below for PC01.
Theme 2: Status of Select Ecological Conditions		
Monitoring Questions	Results consistent with plan direction?	Recommended action, adaptive management, or change
TE01. What is the status and trend of large trees and old forests in the Sierra Nevada montane forest?	N/A. This question is answered every third monitoring cycle and will be reported again for the 2026/2027 period.	N/A
TE02. What is the status of pinyon-juniper woodlands?	Yes. The declining health trend reported in the last monitoring cycle appears to be less severe now, with regeneration occurring in some areas of tree mortality. However,	Continue support for the Tribal Citizen Wunupu Monitoring in conjunction with western science to understand the trajectory of pinyon health and

	some stands continue to have poor cone production.	identify opportunities for restoration.
TE03. What is the condition of sagebrush communities?	Yes, but see recommendation. The forest is meeting the desired conditions for sagebrush except in areas that are burned by wildfires that are larger than just a few acres. In these areas, the fire effectively removes the seed source, prolonging sagebrush re-establishment beyond the average of 40 years.	Carry out small, strategically placed prescribed burn units (and/or mechanical fuel reductions) in sagebrush to reduce the likelihood of large wildfires that could exclude sagebrush for >40 years. Clarify or amend SPEC-SG-STD-05 that specifies “no net loss of habitat ... due to project disturbance”, to ensure appropriate disturbance maintains habitat in the long-term.
FS01. How is the abundance of cheatgrass and red brome (nonnative <i>Bromus</i> spp.) changing?	N/A. This question will be answered every other monitoring cycle and will be reported again for the 2026/2027 period.	N/A
AE01. What is the vegetative condition of selected grazed and ungrazed meadows?	No. Two meadows have received downgraded ratings, although most have remained stable or improved.	It is recommended that the forest address the causes of poor ratings in all meadows in Crooked Creek, Monache, Tres Plumas and Mazourka allotments by working with permittees and partners. Corrective management actions can include changes in grazing rotations, reductions in allowable use levels, grazing enclosure and/or structures to reduce erosion and improve floodplain connectivity.
AE02. To what extent are riparian areas functioning properly across different management areas and levels of disturbance?	No. Three meadows rated at proper functioning condition and five rated at functioning at risk, although others did improve.	Take corrective actions (same meadows as in AE01).
Theme 3: Status of Ecological Conditions for At-Risk-Species		
Monitoring Questions	Results consistent with plan direction?	Recommended action, adaptive management, or change

AR01. To what extent is the integrity of special habitats for at-risk plants and animals being maintained or improved?	Uncertain. Causes of change in some special habitats are not well understood. In other areas, impacts such as OHV trespass and wild horse use are degrading special habitats. There is also increasing pressure on special habitats to accommodate vegetation management activities (e.g. timber landings).	Special habitat definition/delineation requires clarification in the monitoring guide. It is recommended that the forest ensure mitigations are carried out in a timely manner and examine whether individual project mitigations are collectively consistent with plan direction to maintain or improve special habitats.
AR02. What is the quality of bighorn sheep winter range?	Yes. Recent wildfires appear to provide some habitat improvements for bighorn sheep.	None
AR03. How is the condition of seasonal sage-grouse habitats and connectivity changing?	N/A. This question will be answered every third monitoring cycle and will be reported again for the 2026/2027 period.	N/A
Theme 4: Visitor Use, Satisfaction, ROS Progress		
Monitoring Questions	Results consistent with plan direction?	Recommended action, adaptive management, or change
VU01. What are the trends in visitor use and satisfaction?	N/A. Monitored when national survey data are available, next anticipated in 2026.	N/A
VU02. To what extent are trails providing access to the activities as intended?	Yes. Road and trail repairs declined since the last monitoring cycle, but access was generally maintained.	None
VU03. How effective have Forest communications with the public been in considering diverse backgrounds?	Yes. Although limited capacity contributed to reduced public outreach, the forest continued quarterly forums with tribal governments, continued the annual partnership with Sierra Forever (formerly Eastern Sierra Interpretive Association) and Eastside Sports to host the Eastern Sierra Youth Outdoor Program	None
VU04. To what extent is designated wilderness being managed to preserve wilderness character?	Yes. Baseline assessments are complete for all nine Inyo National Forest wildernesses. Five-year trend assessments were completed for Boundary Peak Wilderness (declining trend) and White Mountains Wilderness (offsetting	The future of the wilderness character monitoring program is uncertain. The forest anticipates continuing collection and reporting of monitoring data but may not have the capacity to complete

	stable trend).	additional trend assessments without additional support. If unsupported in future years, recommend selecting a subset of indicators for reporting.
PC03. To what degree is the national forest using partnerships to provide additional capacity for visitor services?	Yes. In 2025, the forest relied more significantly on volunteers and partner organizations to support functions like staffing visitor centers.	None
Theme 5: Climate Change and other Stressors		
Monitoring Questions	Results consistent with plan direction?	Recommended action, adaptive management, or change
CC01. How are high-elevation white pines responding to the effects of changing conditions and other stressors?	N/A. This question is answered every third monitoring period and will be reported again for the 2026-2027 reporting period.	NA
CC02. What changes have occurred to the timing, amount, and duration of natural and managed runoff into the national forest's waterways?	Uncertain. Effects of earlier snowmelt have yet to be fully realized and their effects understood for the forest.	Recommend improving data sources to include additional watersheds and a longer time interval to better understand trends, their causes, and potential adaptive management measures.
Theme 6: Fire Conditions		
Monitoring Questions	Results consistent with plan direction?	Recommended action, adaptive management, or change
CC03. How are fire regimes changing compared to the desired conditions and the natural range of variation?	N/A. This question is answered every third monitoring period and will be reported again for the 2026-2027 reporting period.	N/A
PC02. What management actions are contributing to the achievement of desired conditions relating to fire regimes?	Yes. The forest continues to implement prescribed burning and fuel reduction treatments towards achieving plan objectives.	None
Theme 7: Social and Economic Sustainability		
Monitoring Questions	Results consistent with plan direction?	Recommended action, adaptive management, or change

PC01. What are the economic conditions in local communities and what are the economic contributions of forest-based uses such as recreation, forest products, mining and grazing, and ecological services, to the local community?	N/A. This question is answered every third monitoring period and will be reported again for the 2026-2027 reporting period.	See comments above for PR01. Recommend either adding an 8 th theme, or combining this theme with the 8 th (Productivity), to include a question related to sustained yield, projected wood sale quantity, and potentially indicators related to soils, range, or others.
---	---	--

Table 1. Monitoring results consistency with the Inyo National Forest Land Management Plan (2019) and recommendations for action, adaptive management, or change. Monitoring results cover fiscal years (FY) 2024 and 2025.

Opportunity for Public Engagement and Partnerships

We welcome your questions, suggestions, and feedback. We also welcome opportunities for partnerships to implement this plan monitoring program. Please reach out to the Assistant Natural Resources Staff Officer, Michèle Slaton at michele.slaton@usda.gov to share your ideas and feedback. This biennial monitoring evaluation report describes the key results from our monitoring; in depth results, including additional graphics and tables, are available in the supplemental report and raw data is available upon request.

What Comes Next

The next reporting cycle for Inyo National Forest's plan monitoring program would cover monitoring activities conducted during fiscal years 2026 and 2027.

Forest Supervisor's Message

This report describes the results of monitoring activities that occurred from fiscal years 2024 and 2025 on the Inyo National Forest.

I have found that there are no recommended changes to the plan components contained within the 2019 Land Management Plan and management activities. However, SPEC-SG-STD-05, which specifies there should be no net loss of sage grouse habitat due to disturbance, should be clarified. The intent of habitat protection acknowledges that net loss – and maintenance – occurs in the both the short- and long-term, and may require introduction of disturbance such as fire to maintain habitat structure and function, particularly sagebrush regeneration. I am also recommending modifications to improve the plan monitoring program which is part of the land management plan.

I plan to accomplish a deeper examination of the recommended changes to the plan monitoring program through engagement with resource specialists and the public. Information about recommended changes and ways to comment will be posted at:

<https://www.fs.usda.gov/r05/inyo/planning>

STEPHANIE HELLER

Digitally signed by STEPHANIE
HELLER

Date: 2026.09.28 11:10:41 -07'00'

Stephanie Heller

Date

Acting Forest Supervisor

Watershed Conditions

The Inyo National Forest was established in 1907 for the purpose of protecting lands needed to build the Los Angeles Aqueduct. The headwaters and tributaries into Mono Lake, the Owens River, and Owens Lake are important for the supply of water to the City of Los Angeles and local communities. At a regional level, water runoff from the national forest also flows into the Upper San Joaquin River to the west and the Upper Kern River to the south. Water on the Inyo is used for development of hydroelectricity that powers homes and businesses in the region. Water from the Inyo is also important to local communities and Tribes, providing drinking water, recreational amenities, and economic and cultural opportunities.

Protecting water and soil quality are key components of National Forest management. Water and soil quality can be affected by most management activities and are integral in supporting healthy ecosystems. While water and soil quality are assumed to be good overall on and downstream of the Inyo National Forest, data is needed to understand where that may not be the case and which management activities need to be altered to better protect watershed conditions.

Monitoring Questions

- WS01. To what extent are watersheds in proper functioning condition being maintained, and watersheds in altered or impaired condition being improved? The indicator associated with this question includes the Watershed Condition Framework Classification.
- AE03. What is the status of water quality in national forest waterbodies? The indicators associated with this question include bacteria levels and Clean Water Act (CWA) § 303(d) status.
- WS02. To what extent has erosion from temporary and permanent roads and trails affected water quality and soil sustainability in the national forest? The indicators associated with this question include: (1) road and motorized trail condition, (2) implementation and effectiveness monitoring results from the Best Management Practice Evaluation Program, and (3) number and type of stream crossing and bank stabilization projects. ***No new data 2024-2025.***
- PR01. How does soil disturbance differ from pre- and post-activity for timber management? The indicators associated with this question include soil compaction, displacement, and erosion. ***No new data 2024-2025.***

Key Results

Watersheds (WS01)

Out of the 171 HUC 12 watersheds on the Inyo National Forest, 160 are rated as “proper functioning,” 11 are rated as “functional-at-risk,” and 0 watersheds rated as “non-functional.” Of the 11 watersheds rated as “functional-at-risk,” 2 have been designated priority watersheds: Oak Creek watershed and Deadman Creek watershed (Fig 1). For the Deadman Creek watershed, 14 out of the 18 Essential Projects have been completed, bringing the watershed closer to a “proper functioning” condition. The most recent work to have been completed in this watershed within the past 5 years are the Jeffery Pine Forest Health Project and the June Mountain Vegetation Management Project. Currently there are plans for the near future to

implement the Glass Creek Stabilization project and the Eastern Sierra Fire Restoration and Maintenance within this watershed, two of the last remaining Essential Projects in the WRAP. For the Oak Creek watershed, 11 out of the 13 Essential Projects have been completed, bringing the watershed closer to a “proper functioning” condition.

Water Quality (AE03)

For Dissolved Oxygen (DO), *E. coli*, Nitrates and Nitrites, Phosphates, pH, Temperature and Total Dissolved Solids (TDS):

- 65.6% of water samples from seven different water quality indicators were within acceptable ranges.
- The two indicators with the most out of range samples on the Inyo National Forest were dissolved oxygen with 20.3% of samples being within range and phosphates with 50% of samples being within range.
- The two indicators with the most out of range samples collected in HUC8 watersheds associated with the Inyo National Forest but outside the administrative boundaries were *E. coli* (CFU/100ML) with 74.5% of samples being within range and dissolved oxygen (mg/l) with 76.5% of samples within range.
- The spatial distribution of the data used varies widely, from far outside the boundary of the Inyo National Forest, to tight clusters in one area (Fig 2).

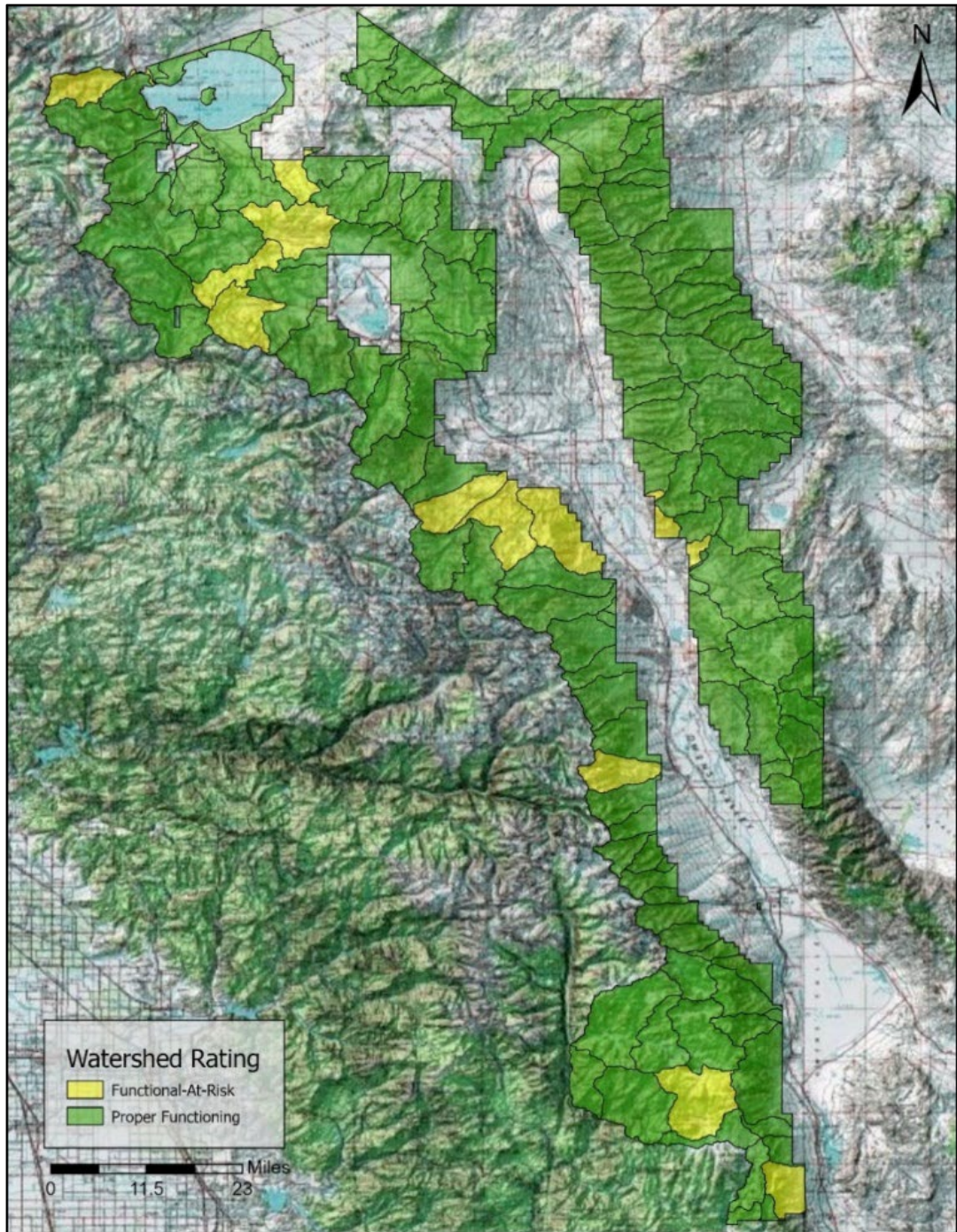


Figure 1. HUC12 watersheds on the Inyo National Forest and their associated rating.

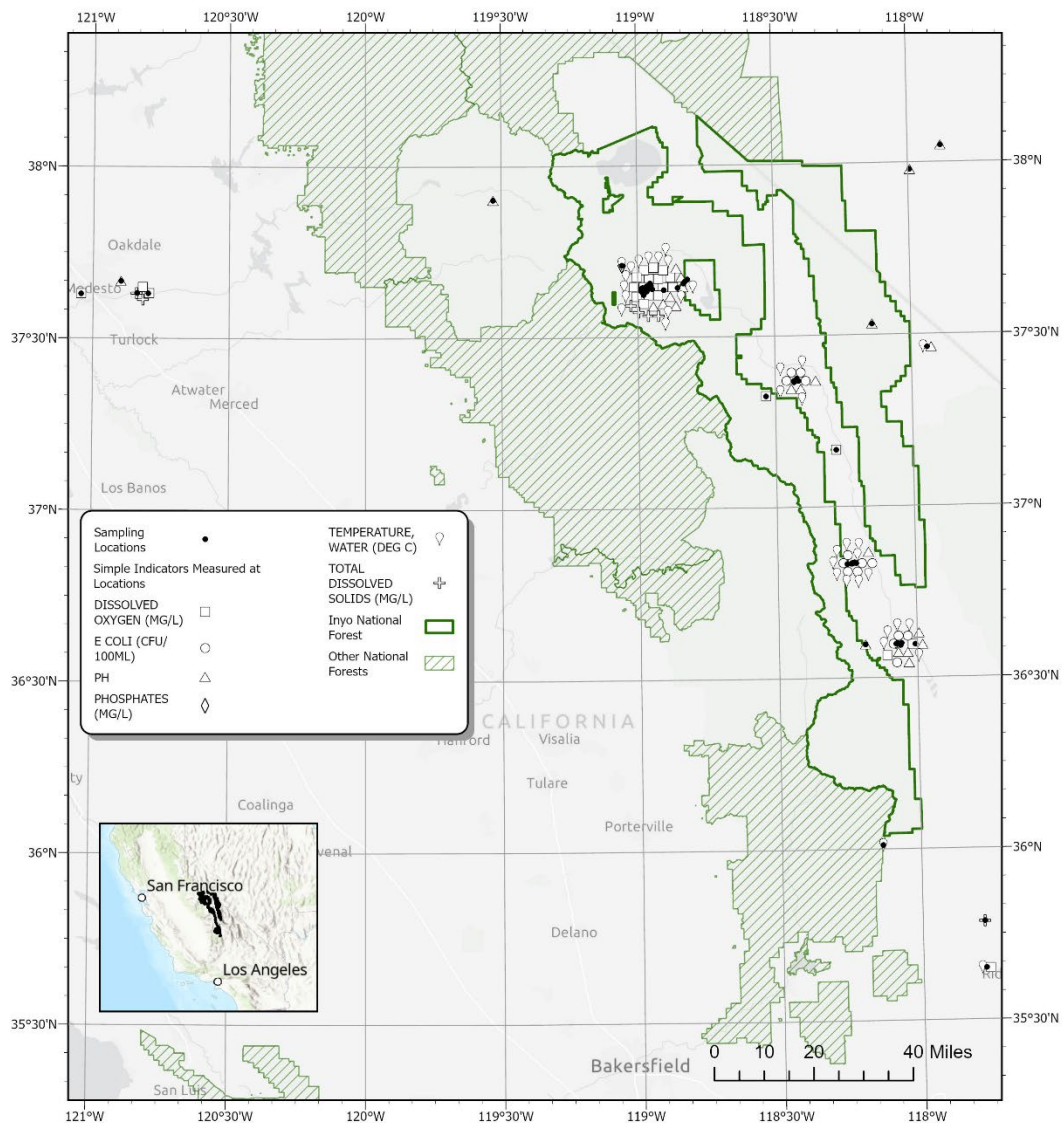


Figure 2. Location of flagged water quality samples collected in HUC8 watersheds overlapping the Inyo National Forest. The figure shows that many samples are collected significant distances from the forest and are concentrated only in certain areas.

Recommended Changes

Watersheds (WS01)

- Based on key results, the current two priority watersheds have almost all their Essential Projects completed. Therefore, a focused effort should be placed on completing the remaining Essential Projects in the next two years and the watersheds should be re-rated to assess if completion of the Essential Projects brought the watersheds to a “proper functioning” condition.
- The Forest should designate at least 2 more “functional-at-risk” watersheds as priority watersheds to focus on over the next 5 years and bring those watersheds to a “proper functioning” condition. All HUC 12 watershed on the Forest should be reassessed. Since the last assessments occurred over a decade ago, many of the indicators within the watersheds have changed. Reassessments should be prioritized to better reflect the current condition of each watershed and where to focus restoration efforts.

Water Quality (AE03)

- Based on the spatial distribution of the data used, with some of the data occurring far outside the Inyo National Forest boundary and other data points being clustered closely together, some of the conclusions drawn in the key results may be misleading.
- An exploration of potential data that may be available or could be collected across a broader swath of the Inyo National Forest is recommended for a better representation of water quality for the entire Forest. If better data cannot be collected, we recommend omitting this question from future monitoring.

Status of Select Ecological Conditions and Focal Species

The 2019 land management plan focuses on desired conditions for various ecosystems, and on improving their resilience to various stressors, such as drought, extreme weather,, grazing, fire suppression and uncharacteristic fire. These ecosystems provide a variety of ecosystem services including wildlife habitat, clean water, and biodiversity, and are closely related to the monitoring questions related to at-risk species.

Monitoring Questions

- TE01. What is the status and trend of large trees and old forest in the Sierra Nevada montane forest? The indicators associated with this question include proportion of area with large trees and number of large trees, snags, large downed logs per acre by forest type. ***Monitored every third reporting cycle; the next evaluation will be in 2026-2027.***
- TE02. What is the status of pinyon-juniper woodlands? The indicators associated with this question include pinyon-juniper spatial extent and number, type, and extent of disturbance events (such as wildfire, disease, drought). ***Although not planned for monitoring until 2026-2027, tribal-led monitoring over the last two years enabled reporting on this question for the current cycle.***
- TE03. What is the condition of sagebrush communities? The indicators associated with this question include: (1) proportions of seral classes, sagebrush cover, (2) acres of treatment to improve age class distribution, (3) acres of wildland fire, (4) percent native understory vegetation, (5) percent sagebrush community lost to development by ecological subregion, and (6) acres of sagebrush regeneration.
- FS01. How is the abundance of cheatgrass and red brome (nonnative *Bromus* spp.) changing? The indicators associated with this question include the spatial extent and percent cover of cheatgrass and red brome. ***Monitored every other reporting cycle; the next evaluation will be in 2026-2027.***
- AE01. What is the vegetative condition of selected grazed and ungrazed meadows? The indicators associated with this question include: (1) rangeland ecological condition; (2) species richness, species diversity, and plant functional groups; (3) range greenline monitoring; and (4) vegetation community types.
- AE02. To what extent are riparian areas functioning properly across different management areas and levels of disturbance? The indicators associated with this question include vegetation cover, structure, and composition as well as floodplain and channel physical characteristics.

Key Results

Pinyon-juniper woodlands (TE02)

Indicators associated with this question include pinyon-juniper spatial extent and number, type, and extent of disturbance events such as wildfire, disease, or drought in pinyon-juniper woodlands. However, in the last reporting cycle, these indicators were recommended for

modification to allow for better focus on areas of high tribal importance, recreation, or other values. In addition, a focused monitoring plan for pinyon pine on the Inyo National Forest was recommended for development in collaboration with local tribes, other federal agencies, academic researchers, and other partners. This plan would serve as the basis for development potential restoration actions.

As a result of those recommendations, reporting methods differ from the previous cycle. Previously, aerial detection and remote sensing techniques were used to evaluate the extent and health of pinyon-juniper woodlands. Although those methods should be utilized again in the future to highlight certain health issues, for this reporting cycle, the forest relied upon the Tribal Citizen Wunupu (Pinyon, Pine Nute Tree) Monitoring led by the Bishop Paiute Tribe. Tribal members, in collaboration with academic, local, and Bureau of Land Management and Forest Service partners, as part of the Pinyon Community Climate Action Network, asked the question: What is the potential for community-based woodland monitoring, guided by Indigenous Knowledge, to reveal spatial and environmental variation in cone production, tree health, and juvenile density?

Key Results and Discussion as Provided by the Bishop Paiute Tribe, the Big Pine Paiute Tribe, and the Washoe Tribe of Nevada

The wunupu (the pine nut or pinyon trees) that are so important to the Nuumu, Newe, Washishu, and other Indigenous communities are showing signs of threats from disease, pests, fires, and changing climate. As a Tribal community we want to provide a way for Tribal citizens to visit wunupu groves that we care about and observe and evaluate information about tree health. We have always gone to the woodlands to collect tuba (pine nuts). They are important places for other plants and animals, and now we have a simple method to record some data. This monitoring process was designed to be something that anyone can do without any special tools. Information could be collected on a paper form or on a phone using the Survey123 application. The information was transmitted and maintained by the Tribe, with precise locations of results remaining confidential, and summaries provided at a broad scale (Fig 3).

Across 516 monitoring observations (2024–2025), cone production varied spatially and demographically: trees in poor condition produced ~50% fewer cones, and large trees produced ~60% more cones. Most trees were healthy (83%), yet juvenile density was low (mean = 3.85). Mean cone production and health was generally higher on the Sierra Nevada side of the Inyo National Forest than in the White and Inyo Mts. The number of mean juveniles tended to be higher in areas with poorer health, indicating that stand regeneration may compensate for overstory loss in some areas.

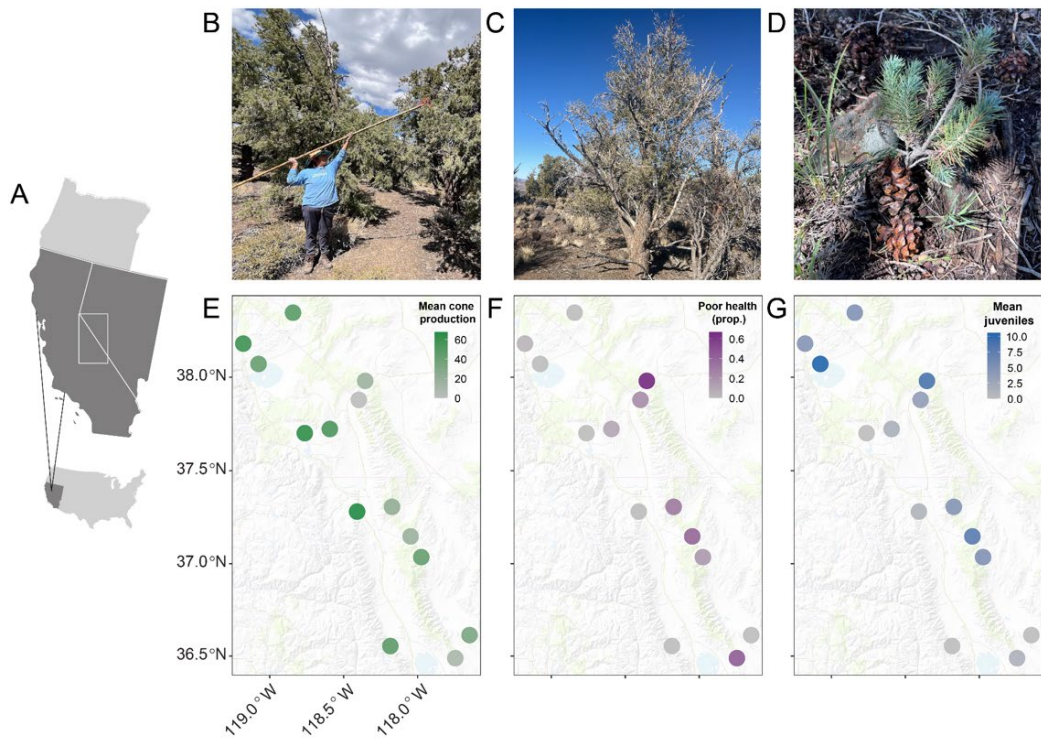


Figure 3. Indigenous-led stewardship of pinyon woodlands across the Eastern Sierra Nevada. (A) Location of the study within United States. (B–D) Field observations of woodland conditions included cone harvesting, tree health, and seedling and sapling (juvenile) density. (E–G) Spatial variation in cone production (E), tree health (F), and juvenile density (G) across monitoring sites. For each site, metrics were summarized from tree- and plot-level observations by calculating average cone production across trees, the proportion of trees with poor health, and the mean combined number of seedlings and saplings per 10-m plot. Point colors represent continuous gradients, with darker colors indicating higher cone density (green), greater proportion of poor health (purple), and higher juvenile density (blue).

Sagebrush (TE03)

Sagebrush Indicator 1. Proportions of seral classes, sagebrush cover

Inyo National Forest ecology plot measurements of sagebrush cover were available for year 2025, resampling plots measured 2-4 times since 2004. Long Valley and Mono Basin were prioritized for monitoring because they serve as important habitat for the bi-state sage grouse. Fewer recently disturbed plots were visited as compared to the previous reporting cycle due to time constraints of reaching more remote burned areas. As a result, changes in seral stage can only be described qualitatively. Of the 42 plots measured in 2025, none had experienced disturbance severe enough to cause reassignment to an earlier seral stage. However, two plots were reassigned from a decadent or late stage to an earlier one, resulting from either the recovery of previously partially dead crowns or from soil disturbances caused by browsing. Previously burned or otherwise disturbed plots remained stable, or progressed toward later seral stages, with increased shrub cover. The exception was a single plot within the geothermal plant

area, where severe mechanical disturbance resulted in persistent non-native herbaceous cover and minimal shrub cover gain over the last 2 years.

Mean shrub cover increased within burned areas, indicating a generally positive trend for sagebrush post-fire (Fig 4). In areas with no recorded fires, mean sagebrush cover also increased slightly. This change can be attributed to post-drought recovery in sagebrush. For example, during the drought (peak in 2016), several areas saw a decline in sagebrush while other species increased. These areas have since exhibited significant recovery of sagebrush (Fig 4).

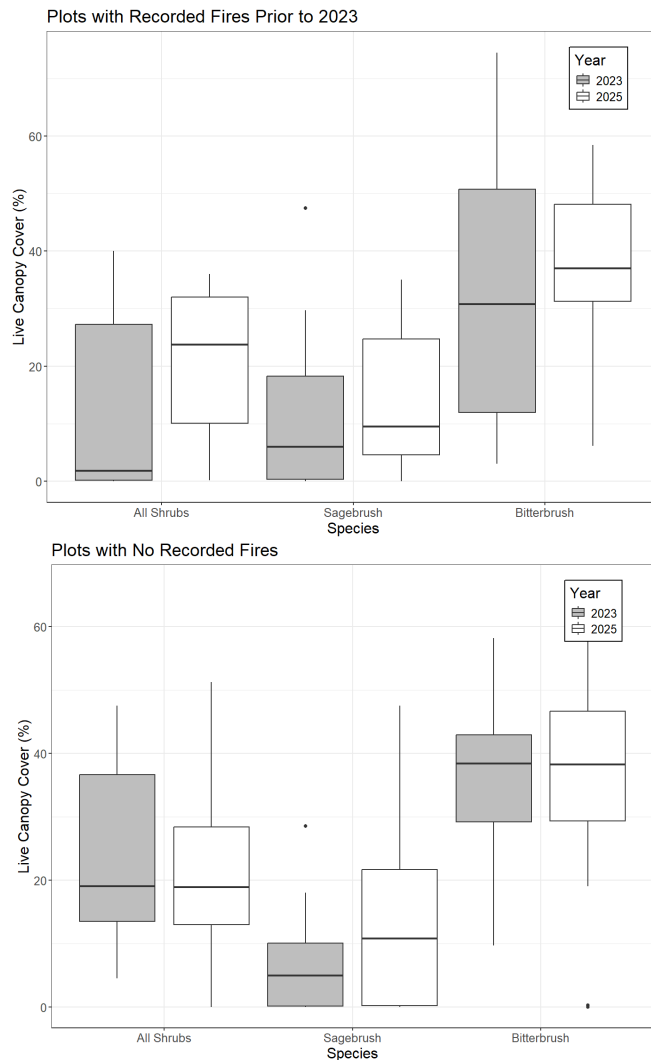


Figure 4. Change in live cover of sagebrush, bitterbrush, and total shrub cover from 2023 to 2025 based on plot data collection in Long Valley/Mono Basin area in plots with either no recorded fires prior to 2020 (n = 159 plots), or within recorded burn perimeters (n = 75 plots), that occurred 1960's-2021.

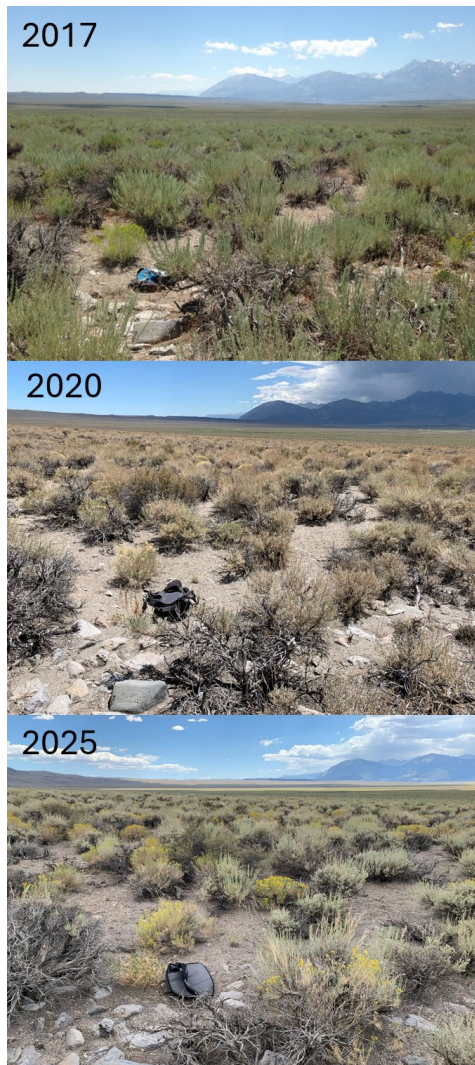


Figure 4. Change in sagebrush cover in an unburned area of northern Long Valley on the Mono Lake Ranger District of the Inyo National Forest. Shrubs with drought-induced mortality evident in 2020 displayed partial recovery by 2025.

A new analysis of all post-burn plots across the forest measured 2004-2025 was summarized for the South and North zones (Fig 5). For both zones, on average, 35-40 years are required for burned sites to achieve pre-burn sagebrush cover levels (12 and 21% cover for South and North zones, respectively). Plots with slower than average recovery are characterized by drier settings (e.g. south-facing slopes or ridgetops), and often with significant competition from non-native cheatgrass (*Bromus tectorum*) or native California lilac (*Ceanothus* spp.; a group of shrub species prolific in post-fire environments). Plots with faster than average recovery tend to be more productive sites in swales or drainages with live sagebrush nearby as a seed source.

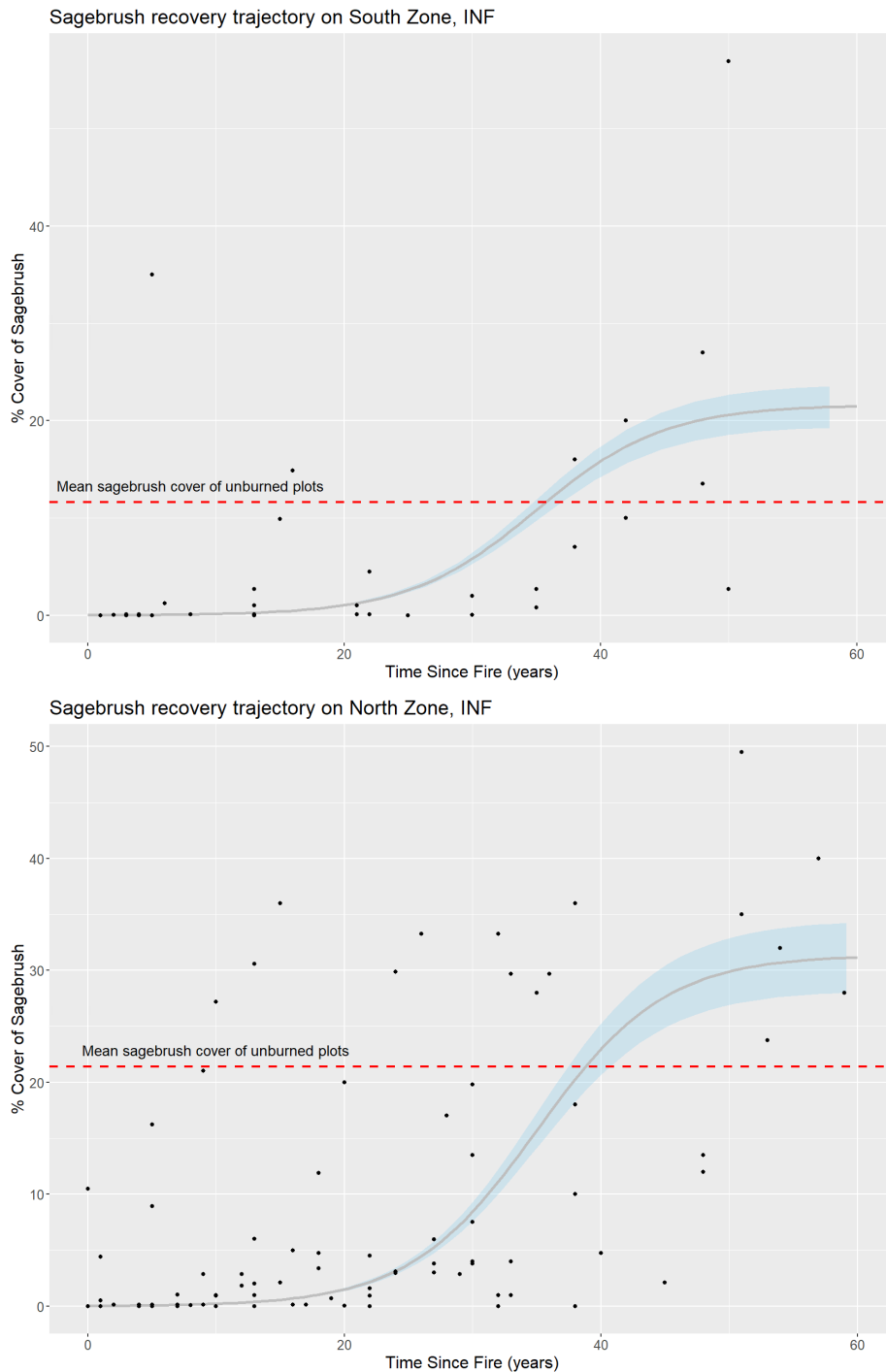


Figure 6. Sagebrush recovery trajectories showing change in cover as a function of time since fire. Points represent individual plots and are modeled with a logistic growth curve function and 10% confidence intervals. For South zone, $n=39$ plots for 8 different fires that burned 1985-2019; for North zone, $n=77$ plots for 14 different fires that burned 1962-2021.

Sagebrush Indicator 2. Acres of treatments to improve age class distribution

Acres of treatments within sagebrush ecosystems have varied over the last 15 years, and since the last reporting cycle, with relatively high acreage in 2024, but no treatments in 2025 (Fig 7).

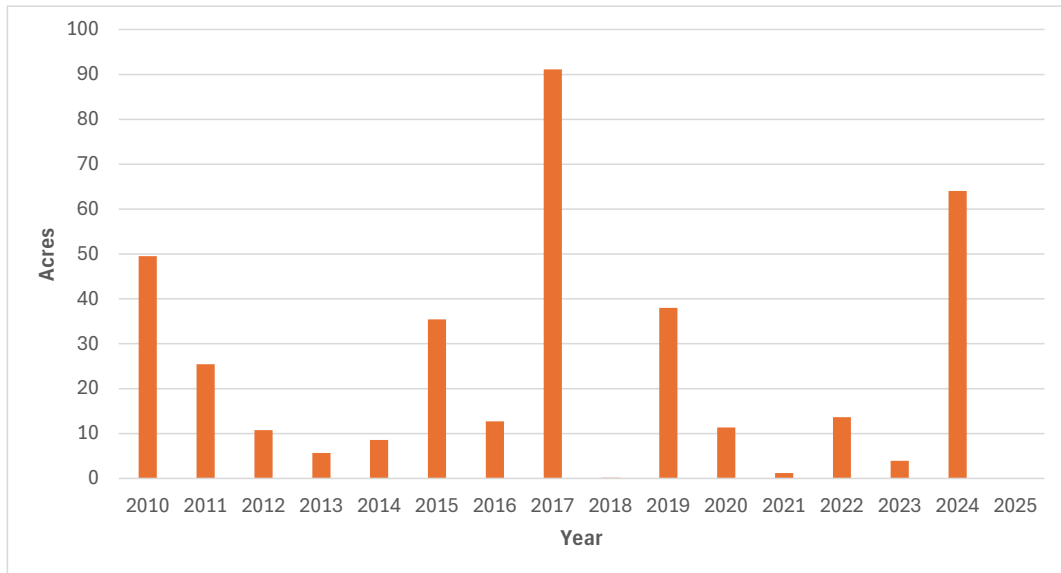


Figure 7. Acres of treatments to improve age class distribution, from the FACTS database in sagebrush ecosystems for the Inyo National Forest.

Sagebrush Indicator 3. Acres of wildland fire

Acres of wildland fire in sagebrush have varied from 0 to over 6000 annually since 2010. Recently, the Pizona Fire (2024) and Pack Fire (2025) have impacted sagebrush ecosystems. Cheatgrass invasion is a concern on the Pack Fire, especially on south-facing slopes.

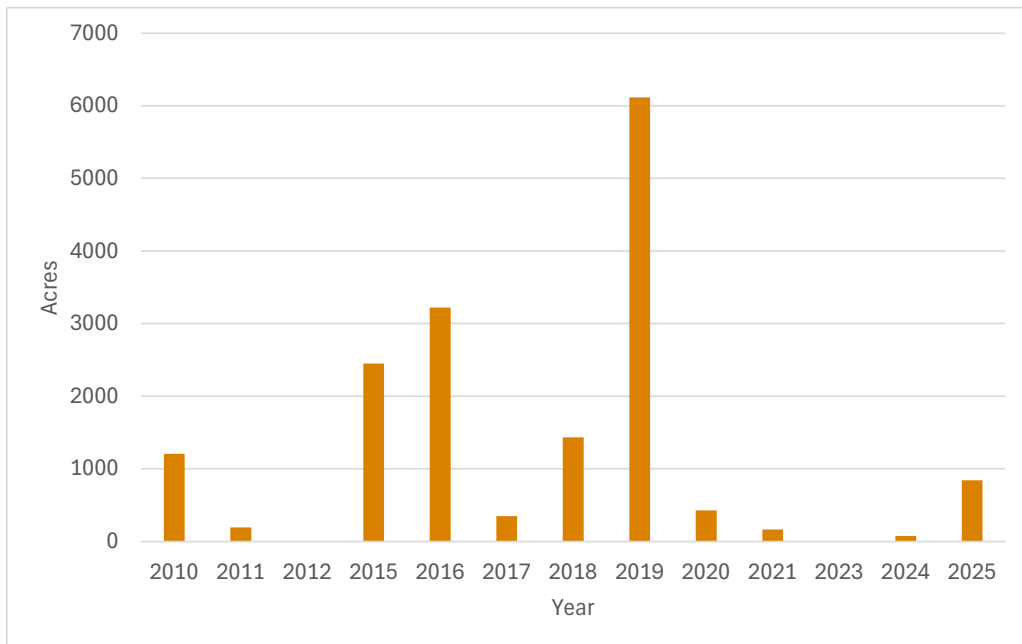


Figure 8. Acres of wildland fire in sagebrush ecosystems for the Inyo National Forest.

Sagebrush Indicator 4. Percent native understory vegetation

Understory cover in sagebrush ecosystems remains dominated by native species in most locations, with a mean of 97% native cover for the 47 plots measured in 2025 in Long Valley and the Mono Basin. Areas with the highest proportion of non-native species include south-facing slopes in fire footprints, and in mechanically disturbed areas near the geothermal plant.

Sagebrush Indicator 5. Percent sagebrush community lost to development by ecological subregion

There was no loss of sagebrush community to development in any ecological subregions.

Meadows (AE01)

The indicators for this question include rangeland ecological condition, species richness, species diversity and plant functional groups, range greenline monitoring, and vegetation community types. The Forest Monitoring Team conducted Inyo National Forest Watershed Assessments at three grazed meadows and one ungrazed meadow in 2024 and six grazed meadows in 2025. Additionally, the Region 5 Range Monitoring Team visited nine plots in 2024 and zero plots in 2025 due to limited capacity. Going forward, Inyo National Forest staff will be responsible for visiting these plots. While multiple field visits were scheduled, staff were only able to visit one plot in 2025. . Additional data for ungrazed meadows will be available in AE02. Key findings from meadow monitoring include:

- Cold and Long Canyon Meadows in Monache have received downgraded ratings (Table 2) primarily due to rills, gullies and numerous active headcuts present.

- Cave Fork and Boghole meadows have held stable at a fully functional rating while the Casa Vieja East and Redrock meadow remain functional at risk. The remaining meadows did not have previous ratings documented to conclude a trend.
- Vegetation Condition ratings for the Region 5 Range monitored meadows (Table 3) show that six meadows have maintained a stable excellent condition while two condition ratings have improved. No meadows that were surveyed in 2024 had downgraded. Greenline data has yet to be analyzed.

Table 2. Forest Monitoring Team Meadow Condition Ratings (Amendment 6)

Allotment	Meadow	Year	Elevation (ft)	Grazed?	Meadow Condition	Previous Rating
Crooked Creek	County Line Meadow	2024	10,600	Yes	Functioning at Risk	N/A
Tres Plumas	Tres Plumas Creek	2024	10,200	No	Functioning at Risk	N/A
Crooked Creek	Cave Fork	2024	10,000	Yes	Fully Functional	Fully Functional
Crooked Creek	Wyman Creek below Roberts Ranch	2024	8,100	Yes	Fully Functional	N/A
Monache	Casa Vieja Meadow East	2025	8,330	Yes	Functioning at Risk	Functioning at Risk
Monache	Cold Meadow	2025	9,150	Yes	Degraded	Fully Functional
Monache	Redrock Meadow	2025	8,720	Yes	Functioning at Risk	Functioning at Risk
Monache	Long Canyon Meadow	2025	8,860	Yes	Functioning at Risk	Fully Functional
Monache	Boghole Meadow	2025	8,500	Yes	Fully Functional	Fully Functional
Mazourka	Sidehill Spring	2025	9,400	Yes	Degraded	N/A



Figure 9: Incised channel with bank instability in Redrock Meadow (left); deep hummocks and braiding erosional paths in Sidehill Spring (right); good sinuosity and floodplain connection in Crooked Creek (bottom).

Table 3. Region 5 Range Monitoring Team Vegetation Condition Ratings

Plot Name	Date	Site Type	Ratliff Score ¹	Vegetative Condition Class	Rating Previous 1-5 years	Previous Rating 6-10 years	Previous Rating 11-20 years
INY9902- Locked Gate Meadow	9/13/2024	Mesic Meadow	75.5	Excellent	N/A	Excellent	Excellent
INY9905- Sawmill Meadow	9/10/2024	Wet Meadow	100	Excellent	N/A	Fair	Excellent
INY9906- McGee Meadow	9/11/2024	Mesic Meadow	76.5	Excellent	N/A	Excellent	Good
INY9907- Clover Patch Meadow	9/10/2024	Wet Meadow	89.7	Excellent	N/A	Excellent	Excellent
INY9909- Johnny Meadow	9/11/2024	Mesic Meadow	99.2	Excellent	Excellent	Excellent	Excellent
INY9910- Little Hot Creek	9/12/2024	Mesic Meadow	89.2	Excellent	Excellent	Excellent	Excellent
INY9911- Laurel Meadow	9/14/2024	Mesic Meadow	98.4	Excellent	Good	Excellent	Excellent
INY9916 -Big Whitney Meadow 1	8/14/2024	Mesic Meadow	43.3	Fair	Fair	Fair	Fair
INY9908- Greenline ²	9/11/2024	N/A	N/A	N/A	N/A	N/A	N/A
INY0070- Crooked Creek Greenline ²	9/3/2025	N/A	N/A	N/A	N/A	N/A	N/A

1 See Ratliff (1985) for an explanation of condition ratings, based on rooted frequency and species composition. Source: Ratliff, Raymond D. 1985. Meadows in the Sierra Nevada of California: state of knowledge. Gen. Tech. Rep. PSW-GTR-84. Berkeley, CA: Pacific Southwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture; 52 p

2 See Winward, Alma H. (2000). Monitoring the vegetation resources in riparian areas. Gen. Tech. Rep. RMRS-GTR-47. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 49 p

Proper Functioning Conditions of Riparian Areas (AE02)

The indicators associated with this question include vegetation cover, structure, and composition as well as floodplain and channel physical characteristics. Meadows for assessment were determined based on most recent assessment dates or lack thereof, as well as accessibility and time constraints of the Forest Monitoring Team.

Packstock Grazing Meadow Monitoring

The Inyo National Forest conducted regular packstock meadow monitoring trips from 2022 to 2024, but limited capacity impacted the forest's ability to do so in 2025. Monitoring these meadows on a consistent basis is still a goal so trends over time can be identified.

In 2024, the seven meadows that were monitored were all rated as proper functioning condition, reflecting the desired conditions in the plan components (Table 4). Four of these meadows allowed grazing and three do not allow grazing or will remain unavailable until further notice.

Table 4. Wilderness Packstock Grazing Meadow Assessment

Meadow	Year	Elevation (ft)	Grazing Allowed?	PFC Rating*
Purple Lake Meadow	2024	10,100	Yes	PFC
Duck Lake Beach (Lentic)	2024	10,600	Yes	PFC
Pika Shoreline (Lentic)	2024	10,560	Unavailable until further notice	PFC
Tullyhole	2024	9,530	No	PFC
Horse Haven	2024	9,680	Yes	PFC
West McGee Pass	2024	10,570	No	PFC
Big McGee Meadow (Lentic)	2024	10,600	Yes	PFC
Big McGee Meadow	2024	10,600	Yes	PFC

* Proper Functioning Condition (PFC), Functioning at Risk (FAR), and Non-Functional (NF). Packstock meadows were assessed as lotic unless specified as otherwise.

Livestock Grazing Meadow Monitoring

Three meadows were monitored in an active allotment in 2024 and five meadows in 2025 using the Proper Functioning Condition for Lotic Areas protocol.

- Three meadows rated at proper functioning condition and five rated at functioning at risk (Table 5). Redrock Meadow and Cave Fork meadows had a downgraded rating from proper functioning condition to functioning at risk, Horseshoe Meadow and Ninemile Creek stayed at proper functioning condition and functional at risk, respectively, and Long Canyon Meadow had an improved rating from functioning at risk to proper functioning. The remaining meadows did not have documentation of previous ratings.

- Functioning at risk meadows were primarily associated with knickpoints, headcuts, and incising channels that are removing floodplain access.

Table 5. Proper Functioning Condition Ratings for Grazed Meadow

Allotment	Meadow	Year	Elevation (ft)	Grazed?	PFC*	Previous Rating
Mulkey	Horseshoe	2024	9,920	Yes	PFC	PFC
Crooked Creek	Cave Fork	2024	10,000	Yes	FAR	PFC
Tres Plumas	Tres Plumas Creek	2024	10,200	No	FAR	N/A
Monache	Casa Vieja Meadow East	2025	8,830	Yes	FAR	FAR
Monache	Cold Meadow	2025	9,150	Yes	FAR	N/A
Monache	Redrock Meadow	2025	8,630	Yes	FAR	PFC
Monache	Long Canyon Creek	2025	8,860	Yes	PFC	FAR
Crooked Creek	Wyman Creek	2025	8,100	Yes	PFC	N/A

*Proper Functioning Condition (PFC), Functioning at Risk (FAR), and Non-Functional (NF).



Figure 10: Installation of buck and rail fence around sensitive fen in Birch Creek Meadow (left) and construction of Zeedyk restoration structure in Davis Creek Meadow (right)

Recommended Changes

Pinyon-juniper woodlands (TE02)

Effective co-stewardship depends on Indigenous leadership, institutional support, and attention

to how environmental values are socially structured, offering a model for co-stewardship under accelerating environmental stressors and limited resources. Continued support for the Tribal Citizen Wunupu Monitoring in conjunction with western science remote sensing or other methods will help to understand the trajectory of pinyon health across the forest and identify opportunities for restoration.

Sagebrush (TE03)

It is recommended that the Inyo National Forest consider a more active program of small, strategically-placed prescribed fire burn units in sagebrush to reduce the likelihood of large wildfires that have the potential to exclude sagebrush for 40+ years. Additionally, fire surrogate (i.e., mechanical fuel reduction) treatments in sagebrush could further reduce the likelihood of large wildfires, especially near communities. Data presented in this report illustrates that sagebrush recovery following fire requires, on average, 40 years, and is accelerated for sites near sagebrush seed sources and in moister and cooler sites that favor sagebrush over more warm-desert adapted species. Strategically designed treatments could improve the long-term resilience of sagebrush by encouraging recruitment, while reducing hazardous fuel loads.

The LMP currently includes a standard (SPEC-SG-STD-05) that requires site-specific project mitigation to ensure no net loss of habitat within the Inyo National Forest due to project disturbance. This standard is recommended for re-evaluation because “loss of habitat” is not well-defined, and some level of disturbance (i.e. small patches in weed-free, resilient systems) are needed to maintain diversity in age-classes and seral stages to ensure sagebrush persistence over longer timeframes.

Meadows (AE01) and Proper Functioning Conditions of Riparian Areas (AE02)

It is recommended that the forest address the causes of poor ratings in all meadows in the Crooked Creek, Monache, Tres Plumas and Mazourka allotments. Corrective management actions can include changes in grazing rotations, reductions in allowable use levels, grazing exclosure and/or structures to reduce erosion and improve floodplain connectivity. In addition it is important to work with grazing permittees and partners to develop and implement corrective actions.

As examples, successful actions implemented following the 2022-2023 monitoring report to address the at-risk, functional at-risk, and non-functional ratings included:

- Installed beaver dam analogs (BDAs) and post-assisted log structures (PALS) in Dutch Meadow in Mulkey grazing allotment in 2024 and 2025 to address headcuts and floodplain connectivity.
- Extended boundary of electric fence exclosure in Diaz Meadow in 2025 to address migrating headcut and bank slumping.
- Installed Zeedyk structures and BDAs in lower Davis Creek Meadow in 2025 to address erosion, slumping and bare soil.

- Installed three buck and rail enclosure fences around three fens in the Birch Creek key area of the Buttermilk grazing allotment in 2024 (Fig 10).
- Installed a temporary enclosure fence around the Upper Cabin Creek key area of the Indian Creek allotment in 2025.
- Began planning process for erecting temporary electric fencing around three springs and implemented low-tech restoration in the Upper Chiatovich key area on the Davis Creek Allotment.

Status of Ecological Conditions for At-Risk Species

Special habitats and the at-risk species like Sierra Nevada bighorn sheep and bi-state sage grouse are locally unique and specifically called out in the land management plan as important to manage. While bighorn sheep and sage-grouse are extensively studied by other agencies, special habitats are the focus only of the Inyo National Forest. Quantitative data on special habitat extent and condition is generally lacking or has not been compiled, and systematic tracking and monitoring is limited for most habitat types. This monitoring program attempts to improve our understanding of threats to special habitats and any management changes that could improve their condition.

Monitoring Questions

- AR01. To what extent is the integrity of special habitats for at-risk plants and animals being maintained or improved? The indicators associated with this question include special habitat extent (acres) and health (e.g., species composition), and number, type, and extent of disturbance events (e.g., adverse effects from authorized or unauthorized use).
- AR02. What is the quality of bighorn sheep critical habitat? The indicators associated with this question include acres of vegetation management (prescribed fire, mechanical and hand thinning) in critical habitat for bighorn sheep and tree cover in bighorn sheep critical habitat.
- AR03. How is the condition of seasonal sage-grouse habitats and connectivity changing? The indicators associated with this question include spatial extent (acres) of area with annual grasses and percent cover of annual grasses. ***Monitored every third reporting cycle; the next evaluation will be in 2026-2027.***

Key Results

Special Habitats (AR01)

Special habitats are generally small-scale habitat or vegetation types that may support unique assemblages of plants and animals, especially at-risk species.

Special Habitat (Bats)

Gar Watt mine on White Mountain Ranger District is considered special habitat and provides bat roosting habitat. There are three adits that are identified as maternity roosts for bats. All adits pose a risk to recreation without permanent closures (bat gates). Additionally, recreation at the site poses a disturbance to the bat colony. This site is within designated wilderness and Bureau of Land Management administered by the Inyo National Forest.

Gar Watt mine is surveyed annually because it hosts a Townsend's big-eared bat maternity colony, and has year-round recreational activities. Bats have shifted roosting locations over the years between the various adits and bat biologists believe these shifts are likely due to high recreational use. Prolonged disturbance to maternity roosts would be detrimental to the Gar Watt bat population.

Gar Watt mine has been proposed for mitigation since 2022. In February 2024 and 2026, the forest took the initial steps to prioritize this mine for bat gate closures. This special habitat is provided the protections found in the Inyo National Forest plan components as a Potential Management Approach - "Protect known bat hibernacula or maternity colonies that may be adversely affected by recreational, management, or other activities by either installing bat gates at the entrances of caves and mines or restricting access by other means." Signs and fencing at Gar Watt Mine remain in place but without bat gates these mitigations do not prevent access by the recreational community and continue to threaten disturbance to bats.

Extent of Special Habitat (Vegetation)

Special vegetation habitats typically include uncommon substrates in terms of mineral composition or geomorphic formation that support unique vegetation communities. Because of this definition, special habitat extent is generally not expected to change year to year. It is recommended that this indicator be removed from the forest monitoring guide and that the definition of special habitats be refined to ensure there is greater clarity about where management direction for special habitats applies. Currently, over 100,000 acres of special habitat has been identified on the forest, but of those areas, management activities are most concentrated in relatively few areas, such as dry forb communities on the pumice flats on the North Zone and meadow perimeters of the Kern Plateau (Fig 11).

Special Habitat Health

Forest botanists and contracted biologists conducted qualitative field assessments and monitoring visits to a sample of special habitat sites in 2024 and 2025 as a part of project surveys, targeted monitoring for known impacts, and incidental observations. Data from the 2024 Aerial Detection Survey (ADS) and Ecosystem Disturbance and Recovery Tracker (eDaRT) was used to identify special habitat units with concerning levels of tree mortality and cover loss. There were no significant fires in special habitat units in 2024 and 2025.

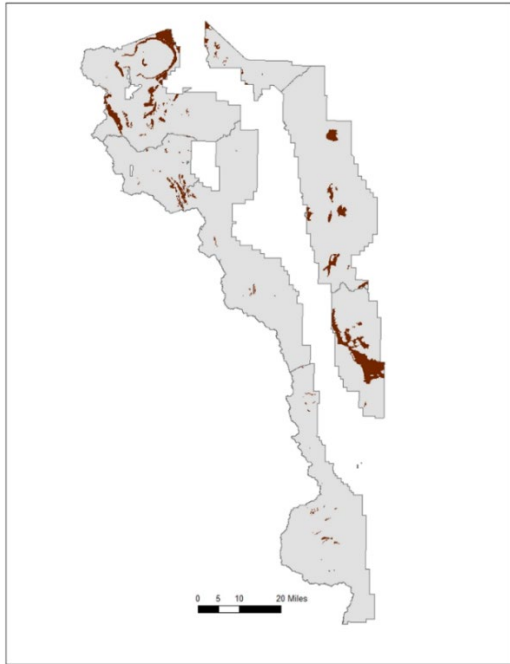


Figure 11: Spatial extent of special habitat units on the Inyo National Forest

The Ecosystem Disturbance and Recovery Tracker (eDaRT) is an automated system for satellite image processing, including a suite of advanced algorithms and a software toolbox that detects and categorizes changes in forested, shrubland, and herbaceous ecosystems. We utilized the Mortality Magnitude index (MMI) to estimate live canopy cover loss from 2019 to 2024 as a proxy for community health in select forested and shrubland ecosystems. Special habitat units with concerning canopy cover decline over this period included eolian-sand sheets, sand dunes, limestone and the metasediment of the gull lake roof pendant (Fig 12).

In 2020, the Beach fire burned through the eolian-sand sheet habitat unit, removing essentially all shrub canopy cover in the fire footprint. Recovery in this area has been slow over the past 5 years with minimal shrub recruitment across the fire. A large-scale restoration project is in planning and work is scheduled to begin as soon as 2026. Cause for the decline in shrub cover in the sand dune habitat is unclear but may be related to drought, an increase in disturbance from wild horses, or an artifact of the data set, given the relatively low percent cover in the habitat. Cover loss in the Limestone habitat in the White and Inyo Mountains, and roof pendant habitats including the Gull Lake Roof pendant in the Sierra Nevada mountains is likely driven by drought-related mortality and from mountain pine beetle, based on ADS surveys over the 5-year period. In the White and Inyo mountains Limestone mortality is primarily in limber pine, with severe mortality in 400 acres recorded in 2024. In the roof pendant units of the Sierra Nevada, mortality has been almost exclusively in whitebark pine.

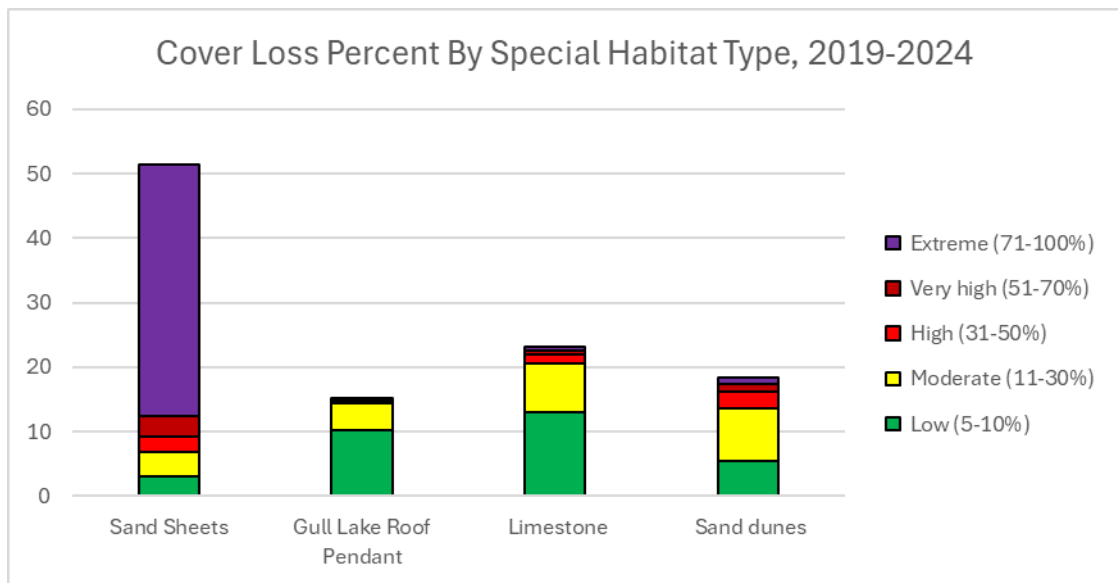


Figure 12: Cover loss for special habitat types as estimated using the eDaRT remote-sensing change detection system.

Invasive species are also present in multiple special habitat units, although cover does not exceed 1% of any special habitat unit, except for cheatgrass in Volcanic-warm soils. The highest priority species for management include Perennial Pepperweed, Canada thistle, Russian Olive, and Tamarisk, in the alkali flat and limestone habitat units. In 2024, Fivehorn smotherweed was re-mapped on Twain islet in Mono lake in the Alkali flat habitat in preparation for treatment with prescribed fire to improve California Gull habitat. However, due to available funding restrictions and limited burn windows this treatment was not implemented. Plants are hand pulled annually by the Mono Lake Committee and volunteers. Due to a large seed bank and high propagule pressure eradication is unlikely but prescribed burning would significantly improve gull habitat for multiple years.

Disturbance Events in Special Habitats

Implementation of fuels reductions projects on the forest is generating large amounts of cut materials, and difficulties with transport and disposal have created a need for long term storage (3-10 years) near the units. Storage locations in dry forb pumice special habitat are being considered for use. For the duration of the project this would degrade the integrity of the immediate area and require off-site mitigation and active restoration after the project is complete to maintain the ecological integrity of the unit.

OHV trespass into special habitats is ongoing across the forest. The various Dry forb habitats, plus hornfels and alkali flats, continue to be the most impacted due to their easy road access, lack of protective vegetation and very soft soils. OHV program staff and technicians monitored special habitat units, raked out vehicle tire tracks where appropriate, installed barriers at 7 locations with repeated trespass. Educational signs were installed or maintained at an additional 9 locations.

In 2023, an unauthorized airstrip was constructed in the Dry Forb special habitat unit impacting 1.96 acres. This area was plowed and graded, removing vegetation and disturbing the soil. Vegetation in this special habitat unit is extremely fragile due to the poor soils and harsh growing conditions. Natural revegetation of this site is expected to be very slow. The airstrip was decommissioned and will not be utilized in the future.

Wild horses ranging outside of the Montgomery Pass Wild Horse Territory have also had a significant negative impact to vegetation and soils in multiple special habitat units including alkali flats, dry forb, eolian sand sheets, eolian dune field, sand dunes and sand dune deposits. Severe trampling and heavy grazing is ongoing. Wild horses are also likely spreading seeds from invasive plant populations to new areas and increasing the severity of existing infestations. Due to the widespread and pervasive impacts, specific boundaries were not delineated.

Several projects and special use permits include activities and uses within special habitats, including: Ormat Dixie Valley, Inc. (Ormat right-of-way (ROW) grants for the Dixie Valley Generator Interconnection Transmission Line (Transmission Line) and ongoing utility infrastructure maintenance and operations. Projects incorporate mitigations designed to protect habitats. Providing additional clarity on special habitat definitions and mapping could help ensure mitigations are achieving desired outcomes.

Bighorn Sheep Critical Habitat (AR02)

The Forest did create a gap in forest cover (greater than 10 acres in size) in subalpine and alpine ecosystems within the range of Sierra Nevada bighorn sheep herd units between 2024 and 2025. In 2025, the Horseshoe wildfire burned on October 30 across both Forest Service and Bureau of Land Management jurisdictions and in the range of the Mt. Langley Sierra Nevada bighorn sheep unit (see map below). This wildfire occurred within the boundary of critical habitat although suppression actions had no effect on primary constituent elements or to individual bighorn sheep.

Wildfires in the subalpine and alpine zone are not far departed from their natural return interval; 57% of this zone within its natural fire return interval. In comparison, 32% of the subalpine/alpine ecological zone are highly departed with wildfires burning too infrequently.

Management in the subalpine and alpine zones is infrequent; critical habitat for the species is largely in designated Wilderness and Inventoried Roadless Areas.

Wildfires managed for objectives other than full suppression are important for bighorn sheep habitat and are important for answering this question. For example, where wildfires provide management opportunities that overlap with bighorn sheep range (wilderness), strategies will be considered to allow burning in wilderness to improve vegetation forage value, increase escape terrain, and create unforested patches that encourage movement between herd units and dispersal corridors. These opportunities are rare, but the forest recognizes the benefits.

In 2025 and 2026, Inyo National Forest biologists continue to coordinate with the California Department of Fish and Wildlife (CDFW) including the Sierra Nevada Bighorn Sheep (SNBHS) lead, to develop a more meaningful monitoring question for this Federally Endangered species.

Observations indicate that certain herd units may be utilizing areas affected by recent wildfires (Fig 13). These examples suggest that vegetation management in the form of wildfire may enhance forage availability within subalpine and alpine ecosystems. However, further evaluation is needed to better understand this relationship. Site assessments and GIS Gap assessments are recommended for the Inyo Creek (2021) and Horseshoe1 (2024) fires in 2026-2027.

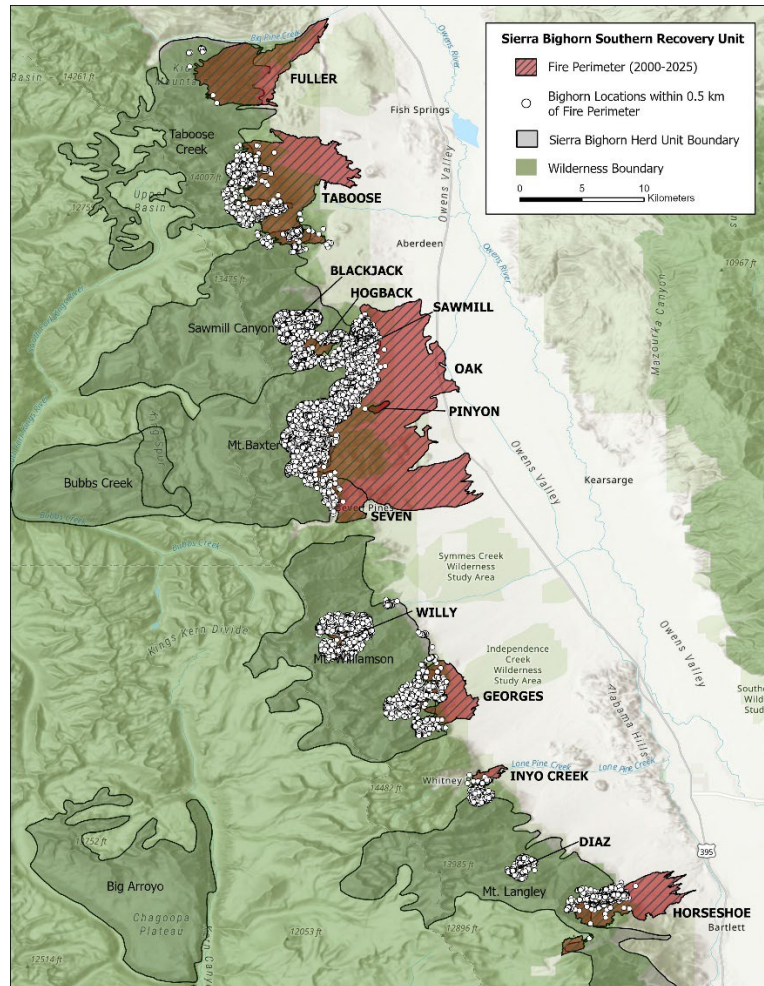


Figure 13: Bighorn locations within 0.5 km of fire perimeters within the Sierra Bighorn Southern Recovery Unit.

Recommended Changes

Special Habitats (AR01)

Recommendations include:

- Consider whether plan direction is sufficient to ensure ecological integrity of special habitats. In particular, Dry Forb habitat is at risk when identifying suitable decking locations or other areas needed for operations in support of timber harvest, fuels reduction, and energy development/infrastructure projects on the North Zone.

- Maintenance and restoration activities should be pursued in special habitats where ecological integrity is being degraded. This includes post-fire restoration in the Beach Fire footprint, efforts to deter OHV trespass in Dry Forb units, invasive species treatments in Alkali Flats and the Gar Watt mine closure.
- Remove Indicator 1 (Spatial extent of special habitats) and move description/definition of special habitats to monitoring guide. Extent of special habitat units is not expected to change over time as they are based on static landforms not sensitive to management actions or natural events.

Bighorn Sheep Critical Habitat (AR02)

It is recommended that the forest continue to consider the use of managed wildfire to enhance bighorn sheep habitat. In addition, site visits and GIS analysis will improve our understanding of how bighorn are responding to and utilizing burned areas.

Visitor Use, Satisfaction, and Progress on Recreation Objectives



The Inyo National Forest is a popular destination, and recreation is what draws the majority of visitors and their associated economic benefits to the area. The Inyo is within a 4-hour drive of nearly half of the 37 million people who live in California. This large pool of potential visitors is one of the most ethnically diverse in the world, challenging the staff of the Inyo to look at nontraditional methods of providing service. Over 2 million users visit the Inyo National Forest yearly, with the majority of visitors coming from southern California and the Bay Area. The Inyo also receives many international visitors.

Effective communication is necessary to ensure that visitors can access the information they need to enjoy the forest responsibly. Long-term changes in visitor use patterns and satisfaction metrics can indicate the need for greater access to specific recreational activities or the need to improve the quality of services and opportunities available to the visiting public.

Monitoring Questions

- VU01. What are the trends in visitor use and satisfaction? The indicators associated with this question include visitor use and satisfaction and visitor recreational activity type. ***Monitored when national survey data are available, next anticipated in 2026.***
- VU02. To what extent are trails providing access to the activities as intended? The indicators associated with this question include total miles of motorized and nonmotorized roads and trails and percentage of miles maintained.
- VU03. How effective have Forest communications with the public been in considering

diverse backgrounds? The indicators associated with this question include Number and types of public outreach activities and visitor demographics.

- VU04. To what extent is designated wilderness being managed to preserve wilderness character? The indicators associated with this question include wilderness performance measures and elements classification.
- PC03. To what degree is the national forest using partnerships to provide additional capacity for visitor services? The indicators associated with this question include the number of agreements with partners that are supporting visitor services and the number of volunteers, partner personnel, hours contributed, and value of contributions by partners that are supporting visitor services.

Key Results

Visitor Access (VU02)

According to the agency database of record, the Inyo National Forest has 1,057 miles of nonmotorized system trails and 457 miles of motorized system trails. The trail system is used both to access specific recreation destinations like high country lakes as well as to provide for recreation activities like hiking, horseback riding, and off-highway vehicle use.

Annual maintenance of trails includes clearing fallen trees, removing rocks, cutting back brush, cleaning out drainage dips, and other tasks. Each year, the Inyo works with many volunteers and partners including the Town of Mammoth Lakes, Mono County, California Conservation Corps, Eastern Sierra Conservation Corps, Friends of the Inyo, and Wilderness Volunteers to accomplish this work on the most popular trails.

In addition, the Forest conducts heavy maintenance on degraded trails as funding allows. This work can include rebuilding foot logs, hardening stream crossings, replacing erosion control structures, repairing retaining walls, and other technical tasks. Heavily used trails typically need this level of intensive maintenance every 5-10 years.

In 2024, the Inyo National Forest and partners completed annual maintenance on 567 miles of non-motorized trails. The Forest also conducted 13 miles of heavy maintenance on Duck Pass and connecting trails, working with the California Conservation Corps Backcountry Trails Program. The year saw an increase of 81 miles (7% of forest trail miles) in non-motorized trail maintenance compared to 2023. The additional accomplishment was likely due to an increase in wilderness/trails staffing and an average snowpack allowing for a longer working season in the high country.

In 2025, the Inyo National Forest and partners completed annual maintenance on 470 miles of non-motorized trails. The Forest also conducted 8 miles of heavy maintenance on the Golden Trout Creek Trail working with the CCC Backcountry Trails Program. The Inyo National Forest and Federal Highway Administration also completed the replacement of the bridge on the Pacific Crest Trail where it crosses the Middle Fork San Joaquin River in Reds Meadow Valley. This bridge was destroyed during the record winter of 2023-2024.

In 2025, the Inyo National Forest maintained 93 fewer miles of trail than the previous year. At 44% of total trail miles, this was the lowest amount in the past five years. While snowpack was

again around average, the Inyo lost many permanent-seasonal staff working in wilderness/trails and the Forest Service did not hire non-fire temporary staff that summer. Although Inyo National Forest partners increased their assistance, the loss of skilled staff and field supervisors resulted in a 9% decline in miles maintained.

Table 6. Miles of Trails Maintained

	2021	2022	2023	2024	2025
Non-motorized miles maintained	477 (45%)	536 (51%)	486 (46%)	567 (53%)	470 (44%)
Motorized miles maintained	161*	13 (3%)	7 (2%)	None reported	None reported

*2021 includes roads and motorized trails

Communications (VU03)

The 2016 National Visitor Use Monitoring survey found that visitors to the Inyo National Forest were 3% American Indian/Alaska Native, 9% Asian, 3% Black/African American, 2% Hawaiian/Pacific Islander, 89% White, and 10% Hispanic/Latino (Categories are from the survey. The total is over 100% because respondents could choose more than one category.). The 2021 survey did not include demographic data due to pandemic restrictions on in-person interviews. The next Inyo National Forest survey will be in 2026.

In 2024-2025 the Inyo National Forest continued quarterly forums with tribal governments to share information about projects and concerns.

The Eastern Sierra Youth Outdoor Program, which the Inyo National Forest supports annually in partnership with the Sierra Forever and Eastside Sports, strives to reach a representative youth population and provide free opportunities to learn outdoor skills.

Due to limited capacity, the Inyo National Forest did not issue news releases or social media posts other than those directly related to wildfires, prescribed fire, public meetings, or safety hazards. Limited capacity also precluded the effort to improve annual tracking of public outreach communications as recommended in the 2022-2023 monitoring report.

Wilderness (VU04)

The national wilderness character monitoring program measures trends in wilderness character within the Forest Service to provide a coherent understanding of how wilderness character is changing over time. This monitoring is designed to be nationally consistent across every designated wilderness administered by the Forest Service enabling the agency to carry out the central mandate of the Wilderness Act—to preserve the wilderness character of every wilderness for present and future generations. Monitoring occurs on a five-year cycle.

For the Inyo National Forest, wilderness character initial baseline assessments are completed for Owens River Headwaters, Boundary Peak, Ansel Adams, John Muir, Golden Trout, South Sierra, White Mountains, Inyo Mountains, and Hoover wildernesses.

The first five-year trend assessment for Boundary Peak and White Mountains were completed in 2025 with help from the Society for Wilderness Stewardship and many Inyo National Forest staff. The Boundary Peak Wilderness assessment showed an overall degrading trend in wilderness character during the 2020-2024 monitoring period. Declining indicators of the natural quality of wilderness character included the impact of nonindigenous terrestrial animals and commercial livestock use. While the measure of amount of haze (air quality) improved, the net effect was a decline in the natural quality. The quality of solitude or primitive and unconfined recreation also declined due to the presence of new recreation site impacts. Overall, the declining trend in the natural quality and in the solitude or primitive and unconfined recreation quality overrode the stable trends in the untrammelled and undeveloped qualities to indicate a decline in wilderness character for the Boundary Peak Wilderness.

The five-year assessment for the White Mountains Wilderness concluded that wilderness character is in an “offsetting stable” condition, meaning that some indicators improved while others declined, resulting in no net change overall. The untrammelled quality saw a decline in authorized trammeling actions and an increase in unauthorized actions (unpermitted research activities) resulting in an offsetting stable finding for this quality of wilderness character. Two measures of the natural quality declined (nonindigenous terrestrial animals and commercial livestock use) while one measure (amount of haze) improved, resulting in an overall decline in the natural quality of wilderness character. The undeveloped quality showed an improving trend due to a decrease in authorized non-recreational development and a decrease in authorizations for use of motorized equipment in the wilderness. The measures for the solitude or primitive and unconfined recreation quality remained the same.

Baseline assessments are complete for all nine Inyo National Forest wildernesses. Owens River Headwaters, Hoover, Ansel Adams, and John Muir wildernesses are scheduled for five-year assessments in 2026. However, the future of the wilderness character monitoring program is uncertain. The Inyo National Forest anticipates continuing collection and reporting of monitoring data, but the forest may not have the capacity to complete additional five-year trend assessments without the substantial support previously provided by the Forest Service national wilderness program.

Partnerships (PC03)

Volunteers and partners are critical for the successful delivery of visitor services on the Inyo National Forest. Many tasks such as trail maintenance, visitor education, interpretive presentations, campground hosting, archeological site surveys, wilderness campsite restoration, trash removal, sign installation at recreation sites, etc. would not be possible without their support. As of 2024, the Inyo National Forest no longer had a forest volunteer coordinator which limited the collection and reporting of accomplishment data.

Collection of volunteer data was incomplete in 2024. 2025 saw a substantial increase in volunteer and partner help compared to 2023 when the record winter delayed many projects. During 2025, the Inyo National Forest significantly relied on volunteers and partner

organizations to support functions like staffing visitor centers. . Sierra Forever, the Inyo National Forest’s interpretive services partner, temporarily took on most of the staffing support necessary to keep five visitor centers and the Minaret Vista entrance station functioning. While this surge in partner support was successful in keeping most public recreation facilities open, some services were curtailed and partner resources were significantly stretched.

Table 7: Volunteer and Partner Contributions 2019-2025

	2019	2020	2021	2022	2023	2024	2025
# volunteers & partner personnel	852	228	863	805	285	34*	989
Volunteer & partner hours	32,778	18,949	85,630	37,700	42,056	25,600*	126,596
Value of contributed time (\$)	833,545	514,413	2,443,880	1,129,115	1,337,381	860,000	4,404,275
# individual & group volunteer agreements	33	25	37	33	50	n/a	20
partner agreements	6	6	17	6	10	n/a	8

*Reporting incomplete

Recommended Changes

Communications (VU03) is recommended for removal from monitoring in future assessments. Data are not sufficient to quantify this indicator or to inform meaningful changes in forest plan direction or implementation. For Wilderness (VU04), consider identifying a subset of measures and indicators that can be adequately assessed using local staff. No new recommendations are made for Visitor Access (VU02) or Partnerships (PC03).

Climate Change and Other Stressors



Drought, extreme weather, and other stressors have the potential to drastically alter ecosystems on the Inyo National Forest, impacting forest health, sustained timber yield, trail and road maintenance, among other assets and resources.

Monitoring Questions

- CC01. How are high-elevation white pines responding to the effects of changing conditions and other stressors? The indicators associated with this question include: (1) spatial extent, by forest type, (2) tree mortality, incidence of insects, disease, and pathogens, and (3) spatial extent of tree regeneration. ***Monitored every third reporting cycle; the next evaluation will be in 2026-2027.***
- CC02. What changes have occurred to the timing, amount, and duration of natural and managed runoff into the national forest's waterways? The indicators associated with this question include annual in-stream flow regime (center of mass runoff and highest mean daily flows) for selected waterways (not those regulated by the Federal Energy Regulatory Commission).

Key Results

CC02 Indicator 1: Annual Runoff

- Annual runoff for the Eastern Sierra is divided into two basins: the Owens River Basin and the Mono Lake Basin (Figure 14).
- Data collection began in 2009, the earliest date on record on LADWP's website. Data show that for the thirteen years on record, annual runoff has varied from a low of 148,600 acre-feet to a high of 950,600 acre-feet for the Owens River Basin (Figure 15).

Similarly, the Mono Lake Basin had a low of 30,400 acre-feet and a high of 268,100 acre-feet (Figure 16).

- To adequately capture the effects changing conditions and others stressors have on runoff, larger datasets are needed.

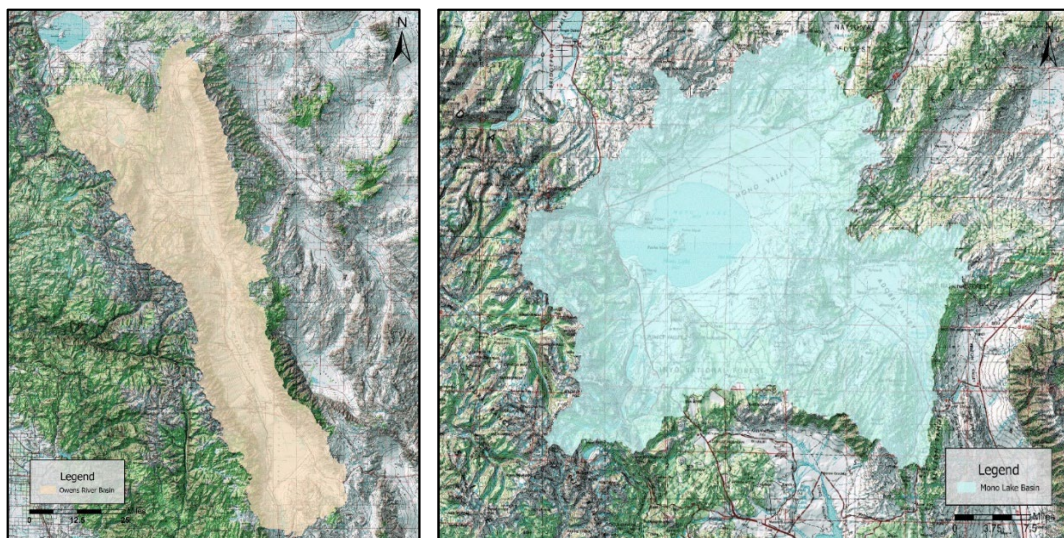


Figure 14. The Owens River Basin (left) and the Mono Lake Basin (right).

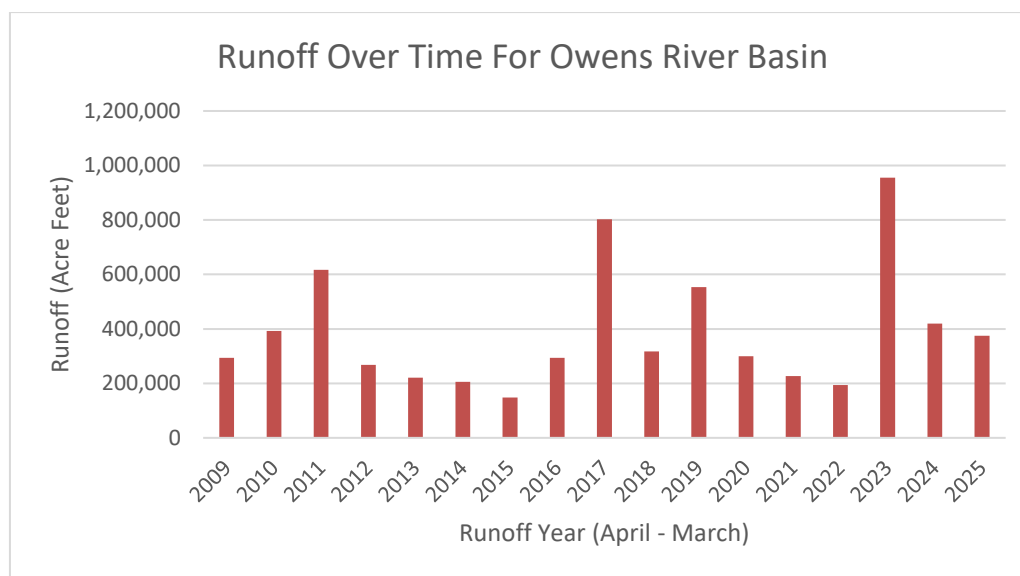


Figure 15. Owens River Basin annual runoff.

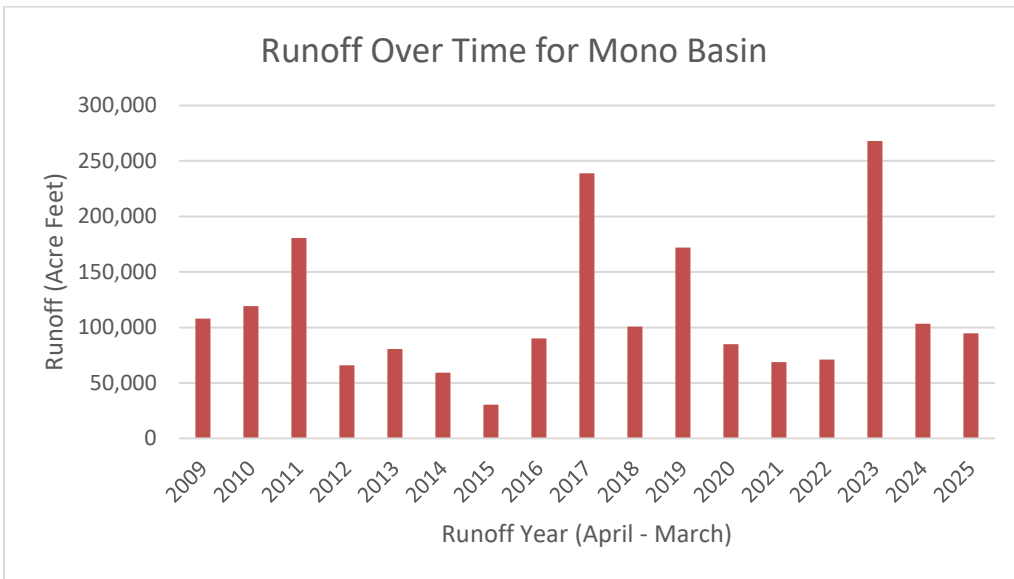


Figure 16. Mono Lake Basin annual runoff.

CC02 Indicator 2: Annual In-stream Flow

- To capture the potential impacts of changing conditions and other stressors on the timing and duration of flows, both the center mass of runoff and the highest daily mean flow was calculated for each watershed.
- Due to time constraints, two streams with undisturbed watersheds were chosen to represent flows coming off the Forest: Parker Creek and McGee Creek (Figure 17).
- Even with a rather small dataset, there is a slight trend toward both the “highest daily mean” and “center mass of runoff” occurring earlier (Figures 18 and 19). This is observed with the trendline shifting higher to the left. This basically means that snow is melting earlier, and the streamflow peaks earlier, and recedes earlier. There is lower flow in later summer as a result.

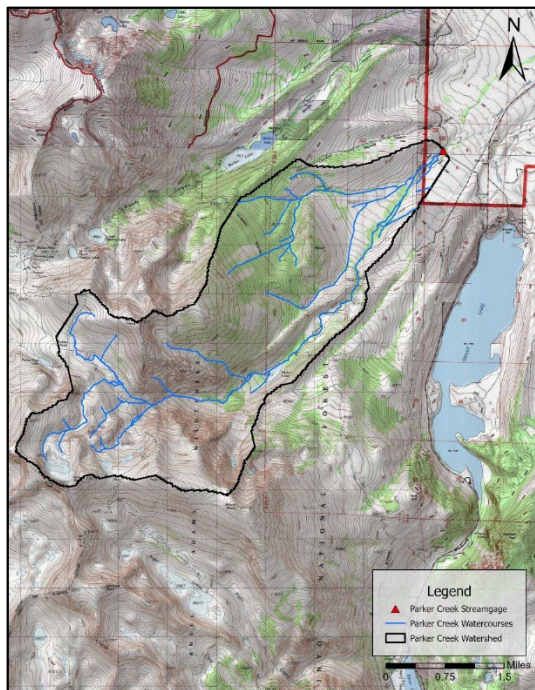


Figure 17. Parker Creek stream gage site and contributing watershed.

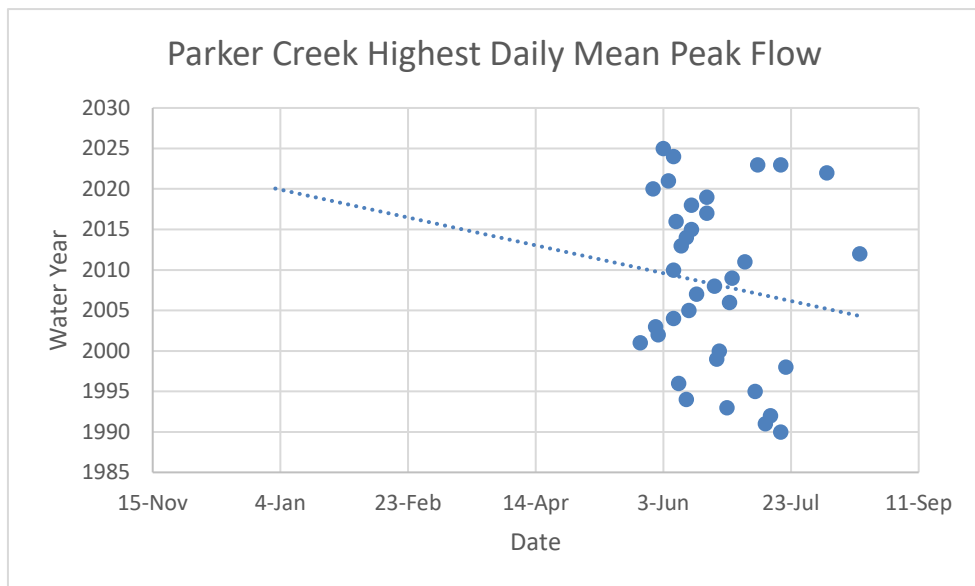


Figure 18. Highest daily mean for the Parker Creek with trendline. Graph represents 30yrs of flow data going back to 1990.

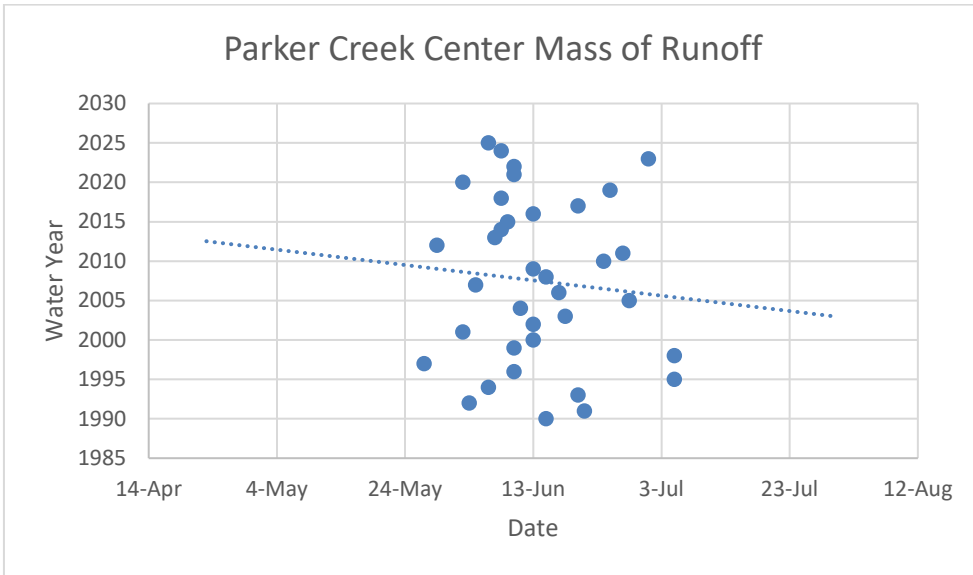


Figure 19. The center mass of runoff for Parker Creek with trendline. Graph represents 30yrs of data going back to 1990.

Recommended Changes

For the next reporting cycle, acquire annual runoff data going back 50 years to improve our understanding of the trend over time and interacting drivers. Acquire additional data for both disturbed and undisturbed gaged watersheds to show differences in change over time.

Fire Conditions

Wildland fire is a necessary ecological process, integral to the sustainability of fire-adapted ecosystems. The wildland fire regime has been altered in many terrestrial and riparian ecosystems by decades of fire suppression. For example, some forest ecosystems (e.g., eastside Jeffrey pine) are burning too infrequently and severely compared to the natural range of variation (NRV), resulting in the loss of forest ecosystem resilience and health. The Inyo Land Management Plan gives guidance to move the landscape towards the NRV for fire regimes and to test whether management actions contribute to this trend.



Monitoring Questions

- CC03. How are fire regimes changing compared to the desired conditions and the natural range of variation? Indicators associated with this monitoring question include: (1) fire return interval departure, (2) number and acres of fire by ecological zone, and (3) fire severity by ecological zone. ***Monitored every other reporting cycle; the next evaluation will be in 2026-2027.***
- PC02. What management actions are contributing to the achievement of desired conditions relating to fire regimes? Indicators associated with this monitoring question include: (1) acres of fires managed for resource objectives by ecosystem type, (2) acres of fire by objective within each fire management zone, (3) acres of prescribed fire including pile burning, and (4) acres of mechanical and hand treatment.

Key Results

Management Actions (PC02)

Wildfire acres

- From 2024 to 2025 the Inyo National Forest had a total of 3,473 acres of wildfire, with all acres occurring under a full suppression strategy.
- Of the total 3,473 acres occurring, 93 acre occurred in the Community Wildfire Protection Zone, 562 acres occurred in the General Wildfire Protection Zone, 22 acres occurred in the Wildfire Restoration Zone, and 2,796 acres in the Wildfire Maintenance Zone.

Table 8a. Acres of wildfire implemented from fiscal year 2015 through 2025, by fire management zone.

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total Acres
Community Wildfire Protection	132	1182	2	22	12	1	134	1	0	1	92	1579
General Wildfire Protection	2633	4233	62	1731	4987	4482	2093	1	324	5	557	21108
Wildfire Restoration	2114	2889	272	1052	10509	3022	1324	3	2	1	21	21209
Wildfire Maintenance	1003	151	2444	1700	2372	9875	12	0	3	1275	1521	20356
Grand Total of Acres Per Year	5882	8455	2780	4505	17880	17380	3563	5	6	1282	2191	64252

Table 8b. Acres of wildfire by management strategy from fiscal year 2015 through 2025.

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total Acres
Full Suppression	5882	8455	2779	4504	9390	17380	3563	5	6	1282	2191	55439
Managed for Objectives other than Full Suppression	0	0	0	0	8490	0	0	0	323			8813

Prescribed Fire

- From 2024 to 2025 the Inyo National Forest implemented 2,316 acres of prescribed fire.
- Of the total 2316 acres, 1,100 acres were located in Community Wildfire Protection Zone, 907 acres were in the General Wildfire Protection Zone, 305 acres were in the Wildfire Restoration Zone, and 4 acres were located in the Wildfire Maintenance Zone.
- All acres burned in 2025 are contributed to pile burning occurring during the winter. An overall increase of 138 acres in prescribed burning from the previous two years was largely due to external support from implementation partners. Pile burning was added to the analysis for all years.

Table 9. Acres of prescribed fire implemented from fiscal year 2015 through 2025, by fire management zone.

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total Acres
Community Wildfire Protection	198	754	30	640	438		462	423	261	698	402	4306
General Wildfire Protection	23	235	139	536	119	1	64	44	179	869	38	2247
Wildfire Restoration	0	70	185	956	1548	361	0	17	1249	291	14	4691
Wildfire Maintenance	368	0	0	263	116	0	0	5	0	4	0	456
Grand Total of Acres Per Year	589	1059	354	2395	2221	362	526	489	1689	1862	454	12000

Fuels Reduction:

- From 2024 to 2025, the Inyo National Forest implemented 4,445 acres of thinning.
- Of the 4,445 acres, 2,481 acres were located in the Community Wildfire Protection Zone, 1,308 acres within the General Wildfire Protection Zone, 651 acres within the Wildfire Restoration Zone, and acres in the Wildfire Maintenance Zone.
- The acres thinned and piled in 2024 and 2025 were mainly funded through stewardship agreements. One timber sale was completed in 2024 for 81 acres. Fuel breaks created by mastication and mowing were completed by the Inyo National Forest fuels equipment module. Continued development of partnerships and internal vegetation staff and has allowed the forest to maintain implementation and out year planning acreages.

Table 10. Acres of fuels reduction implemented from fiscal year 2015 through 2023, by fire management zone

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total Acres
Community Wildfire Protection	1382	1402	897	829	1528	1701	734	1240	402	1071	1410	12596
General Wildfire Protection	734	1059	681	999	820	423	311	327	293	1087	221	6953
Wildfire Restoration	459	2107	611	2261	5786	480	0	181	1276	623	28	13812
Wildfire Maintenance	370	1	47	1955	130	12	108	44	0	4	0	2672
Grand Total of Acres Per Year	2943	4568	2236	6044	8264	2616	1153	1793	1971	2786	1659	36032

Recommended Changes

- Consider opportunities to manage wildfires for objectives other than full suppression, including resource objectives, in the montane zone when safe and effective. Wildfires that burn in the montane zone during years of higher snowpack and precipitation may be especially suitable for producing fire severity patterns within NRV and desired conditions. Prescribed fire can also be highly effective at restoring natural fire regimes and reducing elevated fuels to montane forest landscapes on the Inyo National Forest.
- Full suppression actions are recommended for wildfires that burn in the arid shrublands and woodlands ecological zone and when conditions are unsafe or unlikely to meet Inyo Forest Plan objectives, often resulting in undesirable and negative long-term impacts to terrestrial ecosystems, wildlife habitat, communities, and other high valued resources and assets.

Social and Economic Sustainability

Forests provide economic contributions to communities through activities such as forest products, recreation visitation, grazing and mining as well as through the employment of forest service staff. Monitoring changes in these contributions can provide insight as to how forest management may be supporting economic and social conditions in these communities.

The Inyo National Forest spans two states (California and Nevada) and four counties that have differing economic foundations. Understanding the conditions and trends of the diverse communities affected by forest management provides insight into community resilience to changes in management activities. Specifically, communities facing challenging economic conditions and communities more dependent on forest activities for local fiscal resources, are potentially more susceptible to changes in forest management.

Monitoring Question

- PC01. What are the economic conditions in local communities and what are the economic contributions of forest-based uses such as recreation, forest products, mining and grazing, and ecological services, to the local community? Indicators associated with this monitoring question include: (1) local economic conditions and (2) forest contributions. ***Monitored every third reporting cycle; the next evaluation will be in 2026-2027. In particular, it is recommended that in the next monitoring report, the forest consider the Projected Wood Sale Quantity (projected timber sale plus fuelwood volume), given as 35-50 million board foot per decade in the LMP (2019).***