FIRE MANAGEMENT

Forest Thinning to Restore Fire Resilience at Lassen Volcanic National Park

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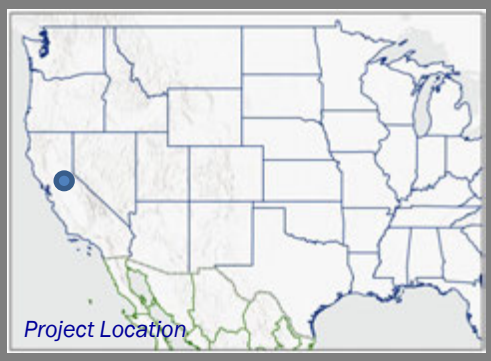
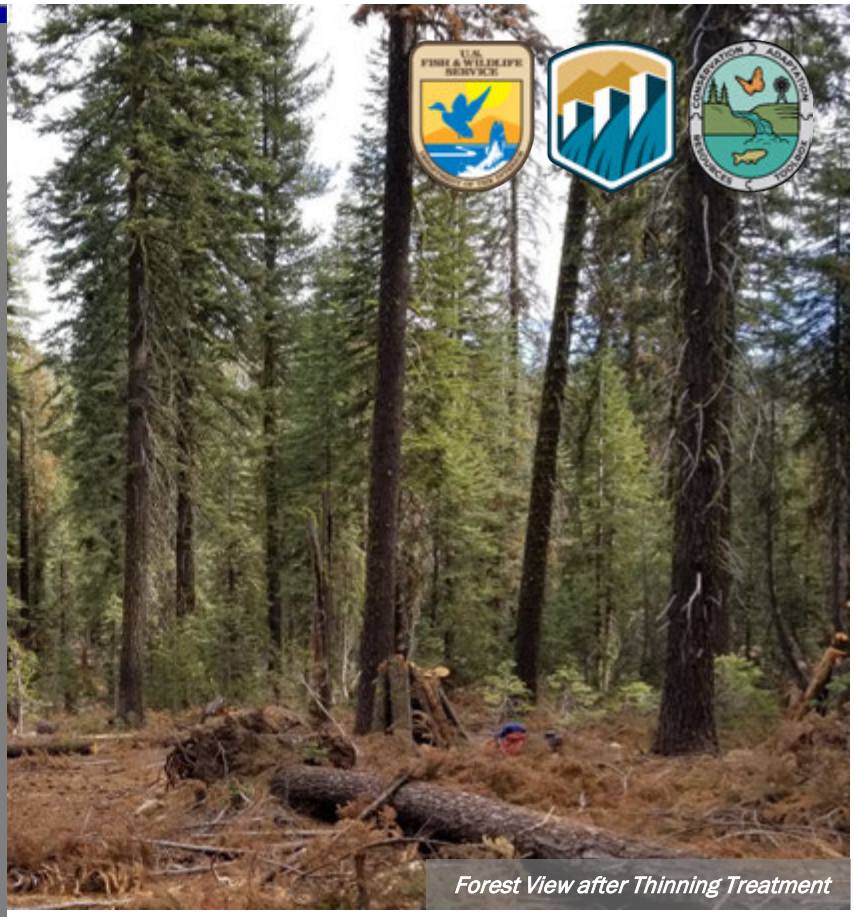
INTRODUCTION

Lassen Volcanic National Park (LAVO), located in northern California, is the convergence of four watersheds dominated by mixed conifer and red fir forests. Historically, fire regimes at LAVO ranged from 5 to 15 years in meadows and low-elevation forests, and over 200 years on its high-elevation peaks. The Atsugewi, Yana, Yahi, and Maidu practiced seasonal cultural burning on the landscape LAVO now occupies. State and federal fire suppression policy has displaced natural and cultural burning and increased the density of fuels. As a result, LAVO experiences catastrophic wildfires that harm ecosystems and risk destroying historic structures. In 2019, the North Fork Feather River Headwaters Forest Restoration Project was created to reduce fuels and reintroduce natural fire regimes.



Project Location



Forest View after Thinning Treatment

KEY ISSUES ADDRESSED

Since LAVO is composed mainly of federally designated wilderness, it must prescribe non-mechanized forest thinning treatments in compliance with Section 4c of the Wilderness Act. However, hand tools require more time and staff to prepare firelines in LAVO's forests.

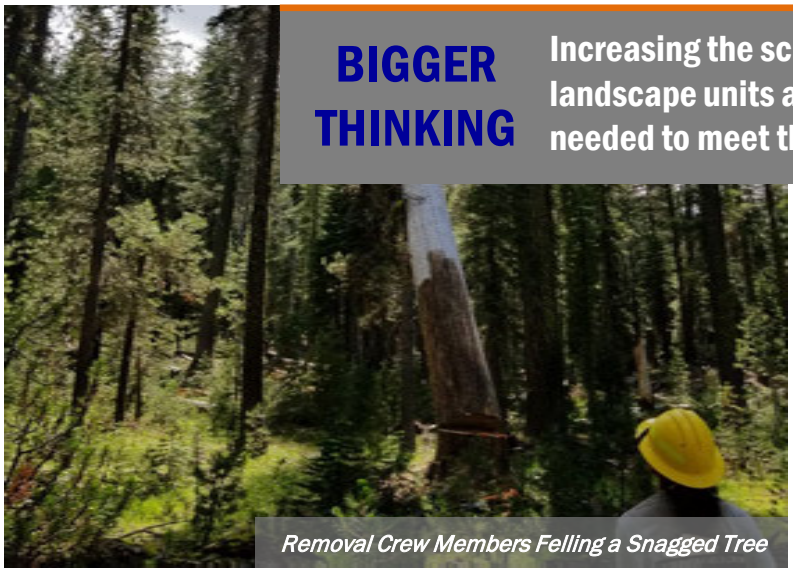
Without the routine thinning work of frequent, low-intensity fires, LAVO's fuel load has increased in recent decades. The increase in density of shade-loving trees in the forest understory has increased the severity and intensity of fire, which is detrimental to ecosystem health. Historic man-made structures are also at risk due to increased fire hazards. This includes buildings and indigenous cultural sites that are preserved and protected within park boundaries.

PROJECT GOALS

- Manually reduce the density of trees and drought-dried flammable wood to create fuel breaks and reintroduce natural fire regimes in compliance with the Wilderness Act.
- Reintroduce more frequent fires to 4,000 acres of wilderness to create a more fire-resilient landscape and prevent large, damaging fires.
- Create removal prescriptions that protect backcountry structures including historic Drakesbad Guest Ranch.

BIGGER THINKING

Increasing the scale of forest restoration by working on larger landscape units and increasing the size of individual treatments is needed to meet the scale and pace of the wildfire crisis.



Removal Crew Members Felling a Snagged Tree

PROJECT HIGHLIGHTS

Crosscut Saws Increase Safety in Wilderness: Crosscut saws comply with the Wilderness Act requirements, are more cost-effective, and are safer to use than chainsaws. Crosscut saw crews often worked in remote backcountry areas where responding to potential injuries is difficult. Using crosscut saws allowed crews to hear and feel changes in the wood fibers of unstable trees and respond appropriately, reducing the risk of injury.

Removing Fuels Preserves Historic Buildings: Crosscut saw crews prioritized removing fuels around important federally-owned historic structures to mitigate fire damage. The preemptive fuels reduction work of crosscut crews allowed emergency crews to move in and quickly mitigate fuels adjacent to structures at the Drakesbad Guest Ranch during the Dixie Fire of 2021. These efforts preserved many structures within LAVO that would have otherwise been lost due to the intensity of the fire.

Thinning by the Numbers: Between 2019 and 2020, a 5- to 6-person crew removed 1,311 trees above 8 inches in diameter and 17,484 trees below 8 inches in diameter from the forest to break up fuel continuity and assist fire fighting personnel. As of 2021, 1,400 acres of land and 12 miles of the LAVO trail system were prepared for prescribed fire.

Collaborators

- Lassen Volcanic National Park
- Sierra Nevada Conservancy
- See online for full list of partners

LESSONS LEARNED

Climate variability due to climate change has posed challenges for LAVO to complete project goals in a timely manner. This includes hotter summers creating hazardous working conditions for crosscut saw crews. Additionally, quicker changes from summer to winter conditions have created setbacks for planned prescribed burns to be performed in the forest at appropriate intervals.

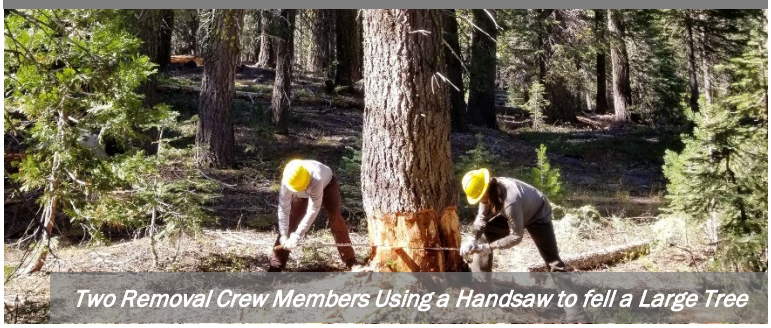
The thinning work of crosscut crews was not done early enough, or at a large enough scale to prevent the worst effects of the climate-change fueled Dixie Fire of 2021. The scale and pace of thinning and other forest restoration work needs to increase. **However, areas treated by crosscut crews were not as severely impacted by the fire as untreated areas.**

LAVO included a trained biologist on each crosscut saw crew instead of having biologists work independently from crosscut saw crews. **Having a trained biologist on each crosscut crew helped LAVO meet compliance for monitoring of endangered species, and ensured the crosscut crews did not disrupt native birds** during mating seasons.

NEXT STEPS

- Implement rescheduled prescribed fires in 2027 and 2030 to reintroduce natural fire regime to the landscape to increase fire resilience
- Expand forest thinning work to cover other areas of the park outside of the project area
- Restore areas of the park, including historical structures, damaged by the Dixie Fire before continuing with prescribed burns

For more information on this project, contact Steve Buckley: steve_buckley@nps.gov



Two Removal Crew Members Using a Handsaw to fell a Large Tree

CART Author: Alexandra Gerber, University of Arizona, May 2024.
Photos courtesy of National Park Service
For more information on CART, contact Genevieve Johnson (gjohnson@usbr.gov) or Karlee Jewell (karlee_jewell@fws.gov).

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