## **BURNING FOR BETTER:**

In the High Divide, a cross-boundary collaboration aims to reduce wildfire risk and improve rangeland resiliency in premium sagebrush steppe territory November 2024

## Billie Ratcliffe, a fourth-generation

Montanan, understands the imminent threat of wildfire risk on her 1,000-acre property in Madison County's Mill Gulch area.

"It's just a matter of time," she tells herself and her neighbors. As part of her commitment to active rangeland stewardship, Ratcliffe has set out to leaving her land in better condition than she found it.

Since 2018, the <u>Southwest Montana</u> <u>Sagebrush Partnership</u> (SMSP), in collaboration with agencies such as the Department of Natural Resources and Conservation (DNRC), has restored more than 55,000 acres of sagebrush steppe by removing encroaching conifers across public and private lands in southwest Montana. The High Divide's unique climate – cooler temperatures, higher elevation, and ample precipitation – makes this region critical for preserving sagebrush habitat in the western U.S.

In 2023, Sean Claffey, The Nature Conservancy's Southwest Montana Sagebrush Conservation Coordinator, identified Mill Gulch as an ideal site for a prescribed burn. Working alongside Cody Nelson, DNRC Forestry Assistance Specialist at the Central Land Office, and the team at DNRC's Dillon Unit, they outlined key objectives: reduce conifer encroachment, improve rangeland health and reduce fuel loading to nearby homes.



"WORKING COLLABORATIVELY ACROSS BOUNDARIES MEANS WE CAN MAKE REAL PROGRESS TOWARD LANDSCAPE-SCALE CHANGE."



The first prescribed burn in Mill Gulch on 70 acres of stateowned land adjacent to Ratcliffe's property was successful.







Sagebrush and native grasses thrive in the High Divide's cooler and wetter climate.

Collaborative efforts like the Mill Gulch project align with Montana's Forest Action Plan, which exemplifies cross-boundary strategies to improve forest health and reduce wildfire risks. Nelson highlights the importance of such partnerships between DNRC and SMSP.

"Working collaboratively across boundaries means we can make real progress toward landscapescale change," Nelson said. "It's a maturing partnership."

Although the Forest Action Plan refers to forests, many of its recommended goals and implementation strategies – like restoring resilient landscapes with prescribed fire (page 45) – apply to other Montana landscapes.

The project has also benefited from funding provided by HB 883, a bill passed in the 2023 Montana legislative session that increased funding toward projects aimed at reducing wildfire risk and improving forest health. Nelson noted that the Mill Gulch project will serve as a cornerstone for DNRC's Central Land Office to build a prescribed fire and fuel reduction program across southwestern and central Montana.

When Claffey reached out to Ratcliffe about collaborating on this project, she was all in. She allowed her land to rest in summer 2023 – a crucial preparation step for the prescribed burns planned for fall 2024 and spring 2025. These controlled burns will cover 1,300 acres, spanning state, Bureau of Land Management (BLM) and private lands.

Despite an economic loss from resting her pasture, Ratcliffe believes the investment will yield a more resilient rangeland with reduced wildfire risk.

## Sagebrush habitats face threats from

invasive grasses, human-caused landscape conversion and conifer encroachment. The Mill Gulch area is burdened by the latter – when coniferous trees grow into and, sometimes, take over shrub-, grass- and rangelands.

Historically, southwest Montana's rangelands experienced frequent, low-severity fires that revitalized sagebrush and native grasses while selectively thinning small trees. However, early 20th-century fire policies suppressing all wildfires allowed conifers to spread into rangelands without regular disturbances, shading out sagebrush and diminishing habitats for species like the near-threatened sage-grouse.

The issue is not unique to Ratcliffe's property. A 2019 SMSP analysis identified conifer encroachment as the number one threat to sagebrush steppe in southwest Montana, impacting over 1 million acres.

Many of the encroaching Douglas fir trees are already dead due to spruce budworm infestations, posing heightened wildfire risks. Management typically involves mechanical removal, though without follow-up treatment, Douglas fir populations will return to pre-cut amounts within roughly 25 years. However, combining tree removal with prescribed burning can extend regrowth cycles to over 50 years – providing a more sustainable investment benefiting the fire-adapted ecosystem.



Douglas fir and juniper grow densely in the higher elevation Tobacco Root Mountains. Conifer encroachment occurs when trees and their seedlings spread into rangelands. Sagebrush needs full sunlight to thrive. Conifers shade-out sagebrush and native grasses.



Conifers were broken into smaller pieces and left to dry out in a "lop and scatter" method.



Claffey was on scene at the first prescribed fire in Mill Gulch in September 2024.

"Just like fire is a critical component of our low elevation, dry forests in Montana, the same applies to our high elevation, relatively wet sagebrush. It's also a fire-adapted ecosystem," Claffey said. "We need fire every 25-40 years to keep conifers from expanding and reducing habitat diversity as we lose rangeland."

Charlie Gilman, a sixth-generation Montanan, has leased Ratcliffe's land since the late 1990s and uses prescribed burning as a management tool on his own property. He likens it as a "shock to the ecosystem," mirroring natural fire cycles that benefit rangeland health.



Flames travel across the surface of the range floor, consuming vegetation on and low to the ground.



Aerial view of the September 2024 prescribed burn.

Post-burning, native grasses have more space and water to regrow quickly, recycling nutrients into the soil and fostering a resilient ecosystem for the near-threatened sage-grouse. As an added benefit, cattle will be able to maneuver the landscape more easily, dispersing utilization.

In restoring her own land, Ratcliffe is also protecting her neighbors. Gilman, a volunteer firefighter with Alder Fire District, emphasized the difficulty of responding to a wildfire on or near Ratcliffe's property due to rough roads, scarce water and increasing development.

"If something happened up there on a hot, dry, windy day, that fire would just run," Gilman said.

Local landowners in the area have taken steps to reduce their wildfire risk by grazing cattle in common areas to reduce the fuel load and mowing sagebrush to create fire breaks. Ratcliffe's conifer reduction and prescribed fire will further their efforts to make the area safer.



A Remote Automated Weather System (RAWS) provided weather data necessary to implement the burn.



Watch on Instagram: Mill Gulch prescribed burn.

## In September 2024,

Ratcliffe witnessed her first prescribed fire in Mill Gulch. Alongside partners from Madison County, USFS firefighters, The Nature Conservancy, the BLM and private landowners, DNRC successfully burned 70 acres of state land adjacent to Ratcliffe's property.

When the environmental conditions are right in Spring 2025, DNRC and partners will burn the remaining rangeland, including Ratcliffe's. She can't wait to see the work come to fruition.

Learn more about how fire has shaped Montana landscapes for tens of thousands of years at <u>mtforestinfo.org</u>.



The 70-acre area within the red line and blue shading was successfully burned.



Wildland firefighters from DNRC, USFS and Madison Valley Rural Fire Dept. assisted with the prescribed burn.



Ground crews use drip torches in a staggered pattern to carefully ignite receptive fuel beds.