



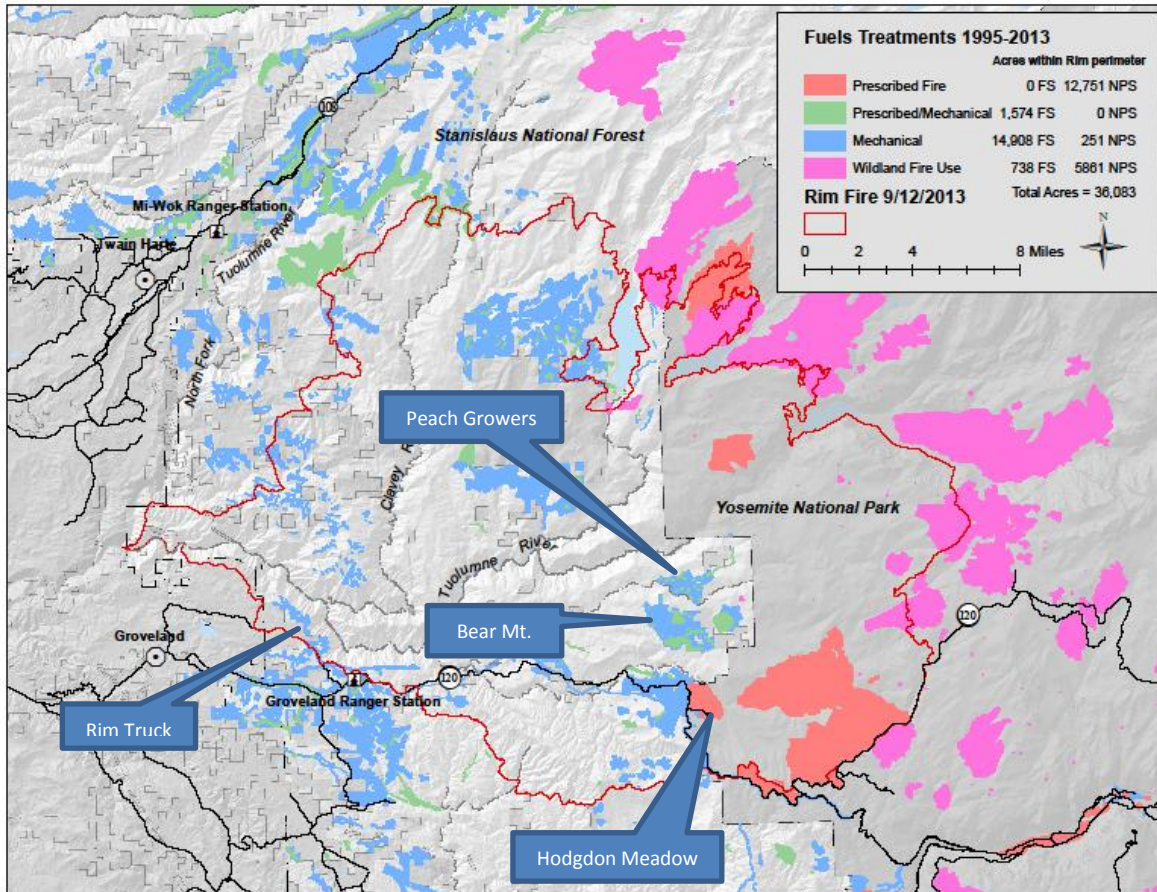
RIM FIRE – Preliminary Fuel Treatment Effectiveness Report

USDA Forest Service, Pacific Southwest Region, Stanislaus National Forest
DOI National Park Service, Pacific West Region, Yosemite National Park



This report is intended to provide a very brief and preliminary look at the interactions between the Rim fire and a select number of areas where management actions designed to mitigate the negative impacts from wildfire and improve natural resource conditions were implemented over a period of several years prior to the fire on the Stanislaus National Forest and Yosemite National Park. Each of these treatments is designed to reduce the overall amount of fuel on site in a way that will reduce the intensity of wildfires and allow suppression options. It is estimated that over 36,000 acres of these intentional management actions were affected by the Rim fire, 17,222 acres on Stanislaus NF and approximately 18,863 acres on Yosemite NP. The following are just a few examples of what has been observed to date, recognizing that these are preliminary observations and there are hazards in drawing conclusions until the full assessment is complete. A more thorough scientific examination of the fuel treatment and wildfire interactions is ongoing and will take several months to complete.

Figure 1. 2013 Rim fire in relation to various fuel reduction treatments conducted on the Stanislaus National Forest and Yosemite National Park



Background: The Rim fire started on August 17, 2013 on the Stanislaus NF about 20 miles east of Sonora, California. Over the next several weeks it eventually moved to the north and east into Yosemite National Park (NPS) and burned across more than 250,000 acres of both US Forest Service and NPS Lands making it one of the largest fires in California history. Fire behavior exhibited was generally high to extreme with the fire making runs of 30,000 to 50,000 acres on two consecutive days.

Rim Truck Fuel Break – This treatment is a cooperative effort of the Southwest Interface Team (SWIFT) which is a local collaborative between federal, state, and local entities. The treatment is a 15 mile long shaded fuel break with total treatment area estimated at 420 acres. The primary responsibility for



Photo #1. Rim Truck shaded fuel break where under growth has been removed to create a strategic advantage for fire control.

accomplishing the treatment was divided between CalFire/Tuolumne County (11 miles) and Stanislaus NF (4 miles). The treatment was designed to afford the communities of Pine Mountain Lake, Groveland, and Big Oak Flat some measure of protection from wildfire coming out of the Tuolumne River drainage which lies to the north of these communities. The project was largely completed as of 2012 and was in a maintenance regime where periodic upkeep was needed on a recurring basis.

After the Rim fire started on August 17th, it progressed south into the Tuolumne River drainage and by August 19th had come out of the Tuolumne to the south towards Highway 120 and the community of Groveland. Firefighters were able to establish a dozer line within the existing fuel break

and were successful in holding the fire along the fuel break, effectively keeping it out of all communities it was designed to protect. From a September 3 news article:

"The fuel breaks played a critical role in reducing the intensity of the fire in the Pine Mountain Lake community, their purpose was to reduce fuel loads and the work done the past five to seven years made the difference," said SWIFT coordinator Allen Johnson.

Recounts of the firefighting efforts along the portion of line where the Rim Truck fuel break was utilized describe a difficult engagement where the fire did spot over the fireline a number of times but the open fuel condition aided firefighters in containing those spots where they occurred in the fuel break. At this stage of our analysis, it appears that the fuel



Photo #2. Rim Truck fuel break where dozer line was easily completed to support burn-out operations on the 2013 Rim fire.

break did serve as a feature from which safe and effective firefighting actions could be initiated from and quite possibly had a significant role in the successful defense of these communities along the southern edge of the Rim fire.

Peach Growers – This treatment area is approximately 742 acres in size and is entirely on Stanislaus NF land surrounding a summer home tract with several leased cabins and a developed campground. The project objective was to reduce wildfire intensity and mitigate the consequences of a potentially damaging wildfire. Activities included mechanical thinning of trees as well as hand thinning, hand piling, tractor piling, burning of the piles, as well as broadcast burning. In addition to the treatment of the surrounding vegetation, the area in and around the Forest Service lease summer home tract was also treated in consultation with the permit holders to remove small diameter and insect attacked trees in and around the cabins creating a more open stand condition.

As the Rim fire approached from the west, firefighters were able to effectively protect the summer home group using dozer line around the structures and burning out around them. There has been mention by those involved that they might not have been willing to undertake the defense of these cabins had it not been for the fuel treatments which provided a safe place to work and a relatively good chance of having a successful operation. In addition to the success of the cabin protection, the surrounding forest also saw significant change in fire behavior as the fire transitioned from very high intensity in untreated stands to low or moderate intensity as it entered stands where fuels reduction work had occurred.



Photo #3 – Peach Growers recreation cabins area where firefighters were able to easily construct fireline and burn out fuels (foreground) to protect the cabins as well as the scenic and recreational values.



Photo #4 – Peach Growers fuel reduction area where Rim fire approached with high intensity from untreated area on downhill side of road (left) to an area recently thinned above the road (right) where resulting fire intensities were reduced as evidenced by needles still present in the crowns.

Bear Mountain – The Bear Mountain treatments cover an area approximately 1,813 acres in size within the Stanislaus NF. The treatments included mechanical thinning using a variety of techniques such as lop and scatter, thin from below, and selective tree removal. Prescribed fire was also utilized as a follow-up treatment on a number of these units after the mechanical thinning was complete.

With the extreme burning conditions posing a threat to firefighter safety and relatively few life or community property concerns as compared to other parts of the fire, the Bear Mountain area saw little if any firefighting actions initiated as the Rim fire move aggressively to the east through these treated units. In examining them post-fire, it appears that there was significant variability between the effectiveness of each treatment unit depending on a number of factors such as slope, type of treatment, proximity to untreated vegetation, etc. Initial impressions are that in general, the treated units saw reduced fire intensity when compared to the surrounding untreated vegetation. In addition, it was notable that those units where prescribed burning was a follow-up to mechanical treatment, fire intensity was significantly lowered and the survival of these stands appears to be quite likely.



Photo #5 – Bear Mountain, where recent mechanical thinning and prescribed burning appears to have reduced the intensity of the 2013 Rim fire as it passed through the area. Fire did move through the area as evidenced by the ground fuels consumed, but with low flame heights leaving the overstory relatively unaffected by fire.



Photo #6 – Bear Mountain fuel treatment, where prescribed fire following mechanical thinning may have saved this stand from high intensity wildfire experienced during the 2013 Rim fire. Brown needles and char on trees appear to be from the prescribed fire conducted this spring and not from 2013 Rim fire. The Rim fire did not carry continuously in this stand as evidenced by the ground cover still present and browned needles still on the trees rather than consumed. Surrounding untreated stands are either completely consumed or severely scorched, leaving little chance for tree survival, whereas this stand appears likely to survive.

Hodgdon Meadow Residential Area - Hodgdon Meadow is located within Yosemite National Park (YOSE) at the western part of the park. Hodgdon Meadow has several structures and infrastructure due to the District Office for Yosemite being located here. Facilities include but are not limited to; the District Office, employee housing, sewage treatment plant, maintenance yards, NPS campgrounds, the Entrance Gate and roads. The Hodgdon Meadows Residential area was right in the main path of the Rim Fire and was expected to be impacted by the wildfire.

In the 1990's Yosemite (YOSE) started an active prescribed fire program around this area for reduction of hazardous fuels. In 2001 and again in 2003 mechanical treatment applications were applied along the road and structures to further reduce the fuels. Most recently in 2011 and 2012 prescribed fires were conducted around the north and east portions of Hodgdon Meadow (see Photos 7 & 8). Total area of treatment is 1,066 acres in size in and immediately adjacent to the residential area. The 2011 prescribed fire was done in a collaborative effort with the Stanislaus National Forest.

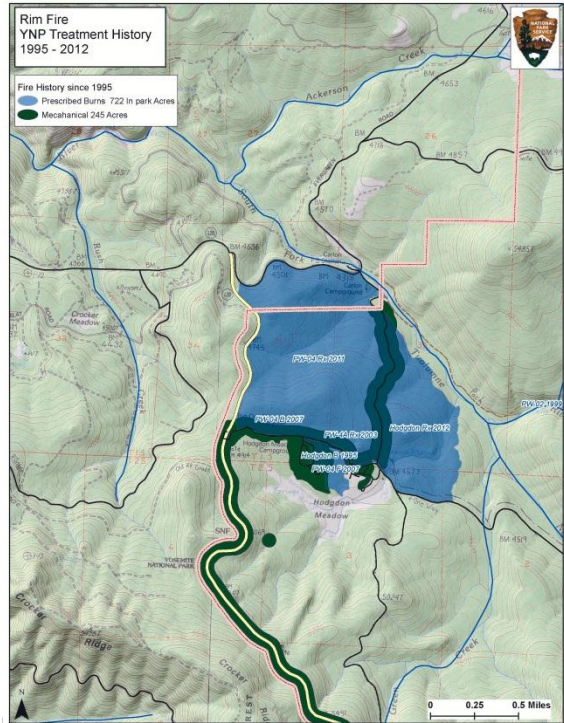


Figure 2. The Hodgdon Meadow prescribed fire burn unit boundary (shown in blue) and mechanical treatment areas (shown in green).

The two prescribed fire units had very little fuel accumulation following the fuel reduction treatments within them. The two-year old unit (2011) was made up mostly of leaf litter and pockets of heavier fuels that did not burn hot during the spring execution of the burn. The adjoining unit that was one-year old (2012 burn) was nearly void of fuel and litter except the area that was excluded along the river during



Photos # 7 & 8. Examples of low to moderate fire behavior during the Hodgdon Prescribed Burn (2012) which reduce fuels and later provided firefighters with the advantage of a safe stand and defensible space for protecting structures from the 2013 Rim fire.

the burn.

The combination of these prescribed fire and mechanical thinning efforts provided fire crews the opportunity to be proactive in their response for protection of Hodgdon Meadow during the 2013 Rim fire instead of reactive. The time afforded by the reduced fire behavior allowed for significant structure protection to be put in place to protect this developed area. This allowed fire crews to direct the Rim fire around Hodgdon Meadow with little to no fire impacts and no loss of structures.

Both of the prescribed fire units had embers land in them during the 2013 Rim fire. This occurred in the first unit when the fire progressed up Highway 120 to the east as embers ignited downed logs and stumps. These spots were easily suppressed by engine crews patrolling along the road way. The second unit received ember fall-out as the fire was directed around Hodgdon Meadows. Firefighters not



Photo # 9. The Rim fire approached this handline near Hodgdon Meadow from the west (left side) and was contained at this point. Burn severity from the previous prescribed fire (2012) was low as evidenced by the remaining vegetation, yet initial impressions are that the treatment was still effective at reducing the fire behavior of the 2013



Photo # 10. The 2013 Rim fire produced a mosaic of burn severities as it passed through the 2012 Hodgdon prescribed burn area, burning primarily with low intensity with some evidence of higher intensity where it appears larger fuels not previously available during prescribed fire conditions ignited under the drier conditions experienced

familiar with the previous prescribed fire treatments tried to burn the unit as part of the control effort but found it would not sustain fire due to the lack of fuels. Any large fuels that did ignite mostly smoldered and were easily put out. One firefighter had this to say regarding the role that fuel treatments played in this engagement:

“The treatment along the road way made it safe for [firefighting] units to travel in and out of the housing area as well as provided a viewing area to see any smokes or spots in the area. This made crews and engines comfortable operating in area knowing they had means of egress. This also became the fall back if the meadow line to the South became indefensible or we received more spots than we could handle. – Bernard Spielman (Division Supervisor Hodgdon Meadows)”

At this stage of the assessment it would appear that the treatments to Hodgdon Meadow over the course of the last twenty years and the successful management of the fuels in this wildland urban interface afforded firefighters an advantage in protecting this valuable area from the 2013 Rim fire.

Yosemite Fire Management

Yosemite National Park has a long standing history of managing fire for ecosystem health and promoting the natural process of fire on the landscape. Yosemite has managed fires through prescribed fire treatments, wildland fires for resource benefits and mechanical treatments in order to return fire in to a healthy state back into these fire dependent vegetation communities. Restoring condition classes and fire regimes to the landscape and making it possible for fire to maintain itself without negative impacts to urban interface or the ecosystem has been part of the fire management objectives within the Park. Yosemite fire management efforts have not included any treatments in the footprint of the Ackerson fire which occurred in 1996 and was approximately 49,000 acres. The Rim Fire burned through this old fire but due to the previous mosaic wildfire results where it burned through with the Ackerson Wildfire, fire behavior and severity was reduced in this footprint during the Rim Fire.

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