



Zion National Park Fire Management



Clear Trap Prescribed Burn

As is generally the case, good planning is far more important than good fortune in deciding whether a fire management project is considered a success. Then there are the times when both are in your favor. So it was with Zion National Park's recently completed Clear Trap Prescribed Fire (Rx). A solid burn plan coupled with some appropriately-timed weather events combined to make the largest prescribed fire in the park's history an overall success.

The 4,400-acre Clear Trap Rx had been in the planning process for over five years. There were two previous occasions when all the gears were in motion to implement the burn, but on each, the forecasted weather proved to be incorrect so they were canceled. Finally, all the weather conditions and resources came together during the last week of September and the burn became a reality.

The burn unit is located on the east side of the park, adjacent to the Zion Ponderosa Ranch. The objectives of the Clear Trap Rx were to provide protection for surrounding property and structures, reduce fuel loading and increase the success of remaining ponderosa pine forests to withstand natural fires. The area (officially known as East Zion) had been previously identified as one of six wildland urban interface "Focus Areas" located in the Color Country Interagency Fire Management Area that required some type of immediate fuel reduction treatment to protect communities/properties at risk from the threat of wildland fire.

A total of 80 interagency firefighting personnel and 6 wildland fire engines from Color Country, along with numerous overhead, were involved in the implementation of the burn. Assistance was provided to the National Park Service by the Bureau of Land Management, USDA – Forest Service, Utah Division of Forestry, Fire and State Lands and local volunteer fire departments.

Blacklining along half of the three-mile fence line separating the park and surrounding private lands had been completed earlier in the spring of 2004. This area of the burn unit was considered to be the most important to be secured since it bordered private lands and numerous cabins. The majority of the boundary of the burn unit was in areas where natural features such as slickrock or canyon cliffs were utilized to provide a safe and effective barrier to the fire leaving the unit.

The first day of the burn consisted of blacklining the remainder of the three-mile fence line and re-securing the section that was completed in the spring by reducing some of the fuels that had resprouted or fallen to the ground. This provided us with a 200+ foot buffer zone along this boundary of the burn unit. This operation went on into the early evening, with crews using the lower temperatures and higher humidities to their advantage.

The next morning, as soon as weather conditions were within prescription, crews began aerial ignition of the remainder of the unit. This consisted of the use of a small helicopter using a Plastic Sphere Dispenser device. Approximately 21,000 plastic spheres were dropped in the burn unit during the ignition phase. Holding crews and engines were placed at critical points along the burn unit's boundary and around structures to ensure that the fire stayed within its planned area and did not threaten private property. Initially it was planned to burn the remainder of the unit in four days, but a continuation of good weather conditions during the afternoon and adequate holding resources allowed fire managers to complete most of the aerial ignition in one day. This burning produced a large volume of smoke, creating a column that could be seen over 75 miles away.

As is typical with the topography of Zion, the winds tend to flow up canyon during the day and then reverse itself in the mornings. This pattern caused the smoke from the preceding day's aerial ignition to flow down the Virgin River drainage, temporarily obscuring visibility as far away as 60 miles in the St. George area for part of the day, until the smoke dissipated.

The fortunate part of the burn occurred when a weather system moved into the Southern Utah area the next day bringing a significant amount of precipitation to the unit. This caused a major reduction in fire activity, leaving mainly only the heavy fuels, such as logs and stumps burning. The amount of smoke from the unit was reduced dramatically. The timing of this weather event could not have been better.



Plastic Sphere Dispenser for aerial ignition



Private cabin along park boundary

One of the things the park did to address the smoke issue was to install a DataRam monitoring device in the local town of Springdale, during the burn, to measure the particulate concentration. This device uses scattered light to measure the average and maximum concentration levels of particulates, particle size, humidity, and temperature, with time information for all. It was found that the particulate levels in Springdale during the burn were low and at no time during the devices recording period did the levels exceed what is determined as unhealthy by the Environmental Protection Agency or the State of Utah Department of Environmental Quality. The park had planned to initiate the burn earlier in the week, but the forecasted Clearing Index for smoke dispersal was marginal.

The Clear Trap Rx was a long time coming for both Zion National Park and the landowners and residents of the East Zion area. The burn will not only benefit them through a lowered risk from wildland fire, but will also benefit the plants and animals of the fire-adapted ponderosa pine ecosystem. The policy of using fire as a management tool will help decrease risks to life, property, and resources and will help perpetuate the values for which the park was established.



Clear Trap Rx in ponderosa pine forest



Smoke from near Virgin, UT



Information station at South Entrance



Aerial view of Clear Trap Rx