Tucannon Prescribed Fire Review

A Management Review of the Escaped Prescribed Fire on the

Umatilla National Forest

Conducted
June 30, 2003

USDA Forest Service
Pacific Northwest Region
Umatilla National Forest

Review Team:

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Executive Summary

The Pomeroy Ranger District has a long history of using prescribed fire to reduce fire hazard and meet land management objectives. The District's program is considered one of the more progressive in the Region and an important part of the Umatilla National Forest's fuels program.

Ignition on the Tucannon prescribed burn began on June 5 on the Pomeroy RD. On June 29 the fire escaped the project area and resulted in approximately 12 acres of spot fires within a 50 acre perimeter. On June 30, at the request of the Forest Supervisor, a review was conducted.

The objectives of the review were:

1. Identify factors that contributed to the escaped prescribed fire.
2. Recommend the management actions necessary to prevent future escapes.

The team limited the scope of the review to only the actions leading up to the escape. We did not review the Land and Resource Management Plan, the Fire Management Plan, the project NEPA planning process or the actions taken after the fire was declared a wildfire.

The team reviewed the project site on June 30. They interviewed District personnel involved in the project on that day, and findings were presented to the District Ranger prior to departure and the Forest Supervisor the next day. The review team found two factors that contributed to the fire escape.

Broad categories of findings are outlined below:

1. Burning conditions and corresponding fire danger severity had progressed from moderate to historical levels in the month of June, which culminated on the day the prescribed fire escaped the project area.
2. While a spring burn prescription may result in better meeting the resource objectives, it is inherently riskier as it assumes sufficient moisture between ignition date and the onset of fire season to secure the fire within the project area.
3. Burn Plan was implemented as written.

The team developed three recommendations for consideration by the Forest and District. The one recommendation, which most reflects the severity of burning conditions currently being observed across the Forest, is to ensure all prescribed fire project areas across the Umatilla Forest are being patrolled, and 100% secured.

I. Introduction

The Tucannon Prescribed Burn is a combination activity and natural fuels treatment project. It is located within the boundaries of the Tucannon Timber Sale Area (T. 9N, R 41E, sections 32-36 and T. 8N, R 41E, sections 1-5). The area is characterized by deeply incised stream and river drainages. Aspect varies from southwest to southeast. Elevation ranges from 3,400 feet in the canyon bottom to 5, 200 feet at the top of the project area. Slope is 30% or greater. The south boundary of the project area is forest road 4712 and runs along the Tucannon River. The upper boundary includes and follows the course of a portion of the 4022 Road. Fuels are ponderosa pine, Douglas fir and grand fir dry forest types.

Ignition operations began on the Tucannon Prescribed Fire Thursday June 5 and continued through Sunday June 8, 2003. Eight units were ignited for a total of approximately 310 acres. All units were helicopter logged. Ignitions were done by hand crews. The units were not lined.

After ignition, the units continued to burnout. Spots were observed outside the burn units but within the project area as early as June 6. Actions to limit burning outside of the units began on June 18. Patrol and line digging efforts continued until the fire escaped from the project area on Sunday, June 30.

From the time the ignitions began until the escape, conditions stayed at an elevated risk level. Temperature, energy release component and 100 hr fuel all approached or exceeded historic extremes (chart 1, 2, 3).

Chart 1. Temperature

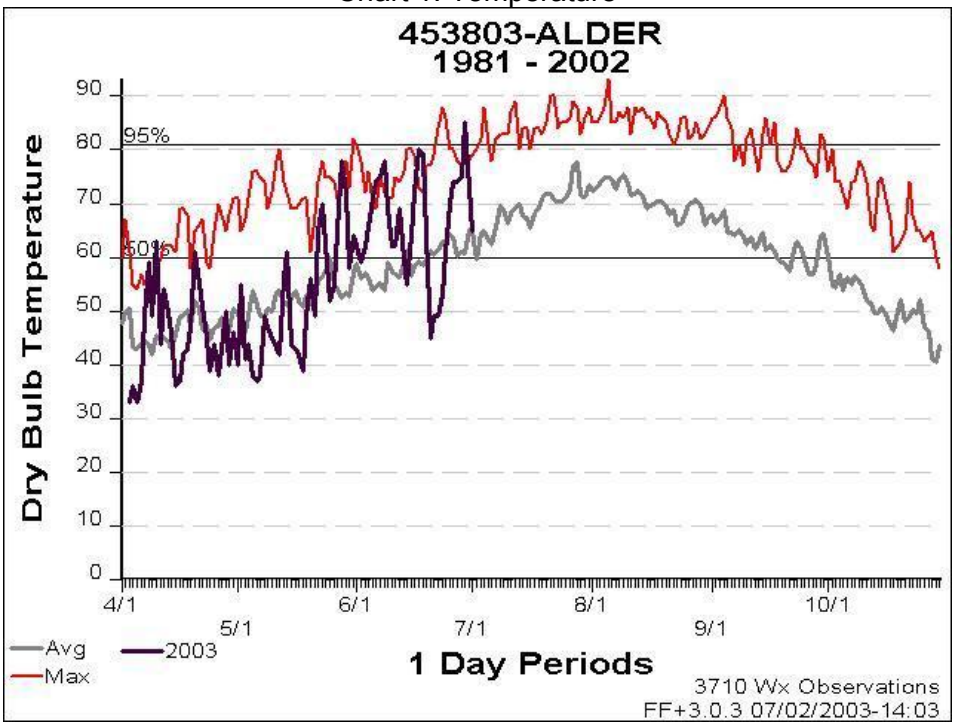


Chart 2. Energy Release Component

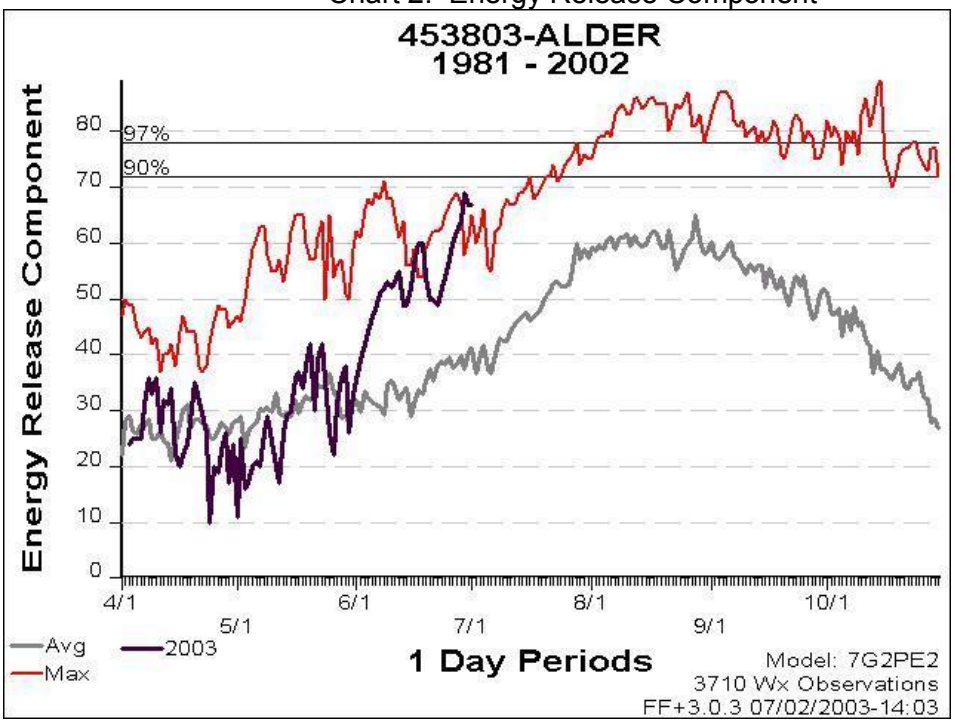
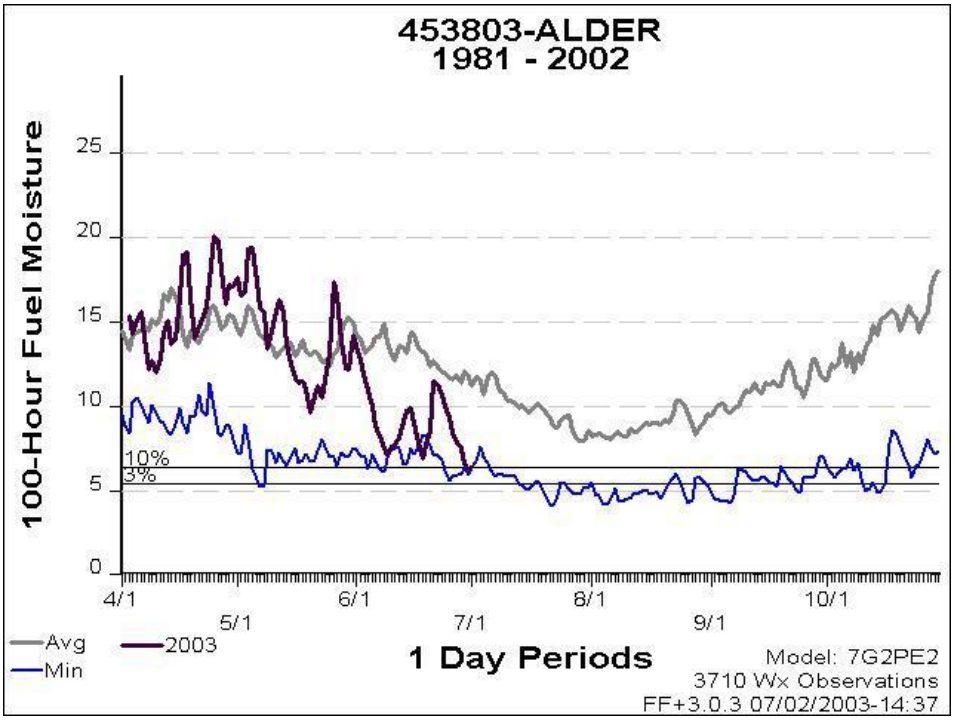


Chart 3. 100 Hour Fuel Moisture



On Sunday June 29 at 1030 while viewing the project area from Drop Point 2 (see map, appendix 1) the patrol assigned to the burn noticed a column coming up from the vicinity of Drop Point 3 (drop

points were identified and designated after the escape). Between 1030 and 1130 the fire grew rapidly toward Drop Point 2 burning out the draw between the drop points. Extensive spotting occurred across the 4022 Road outside of the project area.

Figure 1. Project area from DP 2

Figure 2. The view from DP 2 to DP 3

Figure 3. Head of draw where fire escaped

Figure 4. View to the south over the spots

Figure 5. Canyon at south end of project

Figure 6 Spots and adjacent fuels including slash

Figures 7 and 8. Fuels ahead of the fire to the northeast.

310 acres of activity fuels were ignited. 244 acres of natural fuels burned inside the project area. Spots occurred outside the project in a 70-acre area. Estimate of burned area within the 70 acres of spots is 10-12 acres (see Figures 4 and 6).

II. Commendations

1. The Pomeroy RD has a long history of using prescribed fire. The District program is considered one of the more progressive in the Region in their prescriptive use of fire on landscapes and utilization of contracts to expand the program beyond current organizational levels.

2. The District provided excellent support, including documents, maps and an orientation to the project sequence of events.

3. The District has a strong desire to continue improving an already strong program.

III. Statement of Findings

FINDING 1- Burning conditions and corresponding fire danger severity had progressed from moderate to historical levels in the month of June, which culminated on the day the prescribed fire escaped the project area.

Discussion

Energy Release Component (ERC) is a National Fire Danger Rating (NFDRS) index that is used to track seasonal severity trends. It is a "build-up" index uses prior days conditions in the calculated values. An ERC chart (see appendix B) for the north half of the Umatilla NF reveals that at time of ignition of the Tucannon burn, the ERC was slightly above the historical average based on 21 data years. As the month progressed the trend line departed from the historical average and began trending along the historical high line for several days. The trend line departed from the historical high on June 25th and continued to trend above that point of departure during the next several days.

This index is sensitive to temperature, relative humidity, precipitation, and 1000 hour fuel moisture. This index can also be correlated to fire behavior potential or burning conditions. While the index was not showing severe or extreme conditions, it was revealing a rapid departure from average (expected) conditions and little if any rainfall measured at the reporting weather stations.

The fire danger level and corresponding fuel moistures on June 29 contributed significantly to the fire behavior that resulted in the fire escaping the project area.

Recommendations

1. Forest Prescribed Fire Managers and Prescribed Burn Bosses should track NFDRS indices such as 100-hour fuel moisture and energy release component as a indicator of fire behavior and risk of escape potentials. These two indices are observed and tracked during the wildland fire season for the reasons mentioned above.
2. All Forest prescribed fire contingency plans should address ERC index thresholds or specifically trigger points in which stepped-up patrol, holding and mop-up actions are initiated.

FINDING 2 - While a spring burn prescription may result in better meeting the resource objectives, it is inherently riskier, as it assumes sufficient moisture between ignition date and the onset of fire season to secure the fire within the project area.

Discussion

Spring burns are usually prescribed as they meet several resource objectives including:

-Greater retention of duff and large woody debris
-Lower residual mortality due to lower fire intensities
- Reduction in particulate emissions
- Lower risk of escape during the ignition phase therefore lower initial cost.

Conversely, spring prescriptions can come with a higher level of risk due to:

- Large areas of unburned fuels
- Reliance upon post-burn moderating weather
- Significant post-burn cost

Implementing landscape burns in which long lines of burned/unburned edge is created may be desirable but we must be cognizant of the fact that we are potentially building worst-case scenarios into our management prescriptions.

Recommendation

1. Management objectives of large, complex, landscape prescribed burns, should be designed around a Fall burning prescription. This should not preclude burning in the Spring of the year, but the increased risk and cost potential should be strongly considered and displayed to the within the burn plan Risk Analysis, Complexity Analysis and Contingency Plans.

FINDING 3 – The burn plan was implemented as written.

Discussion

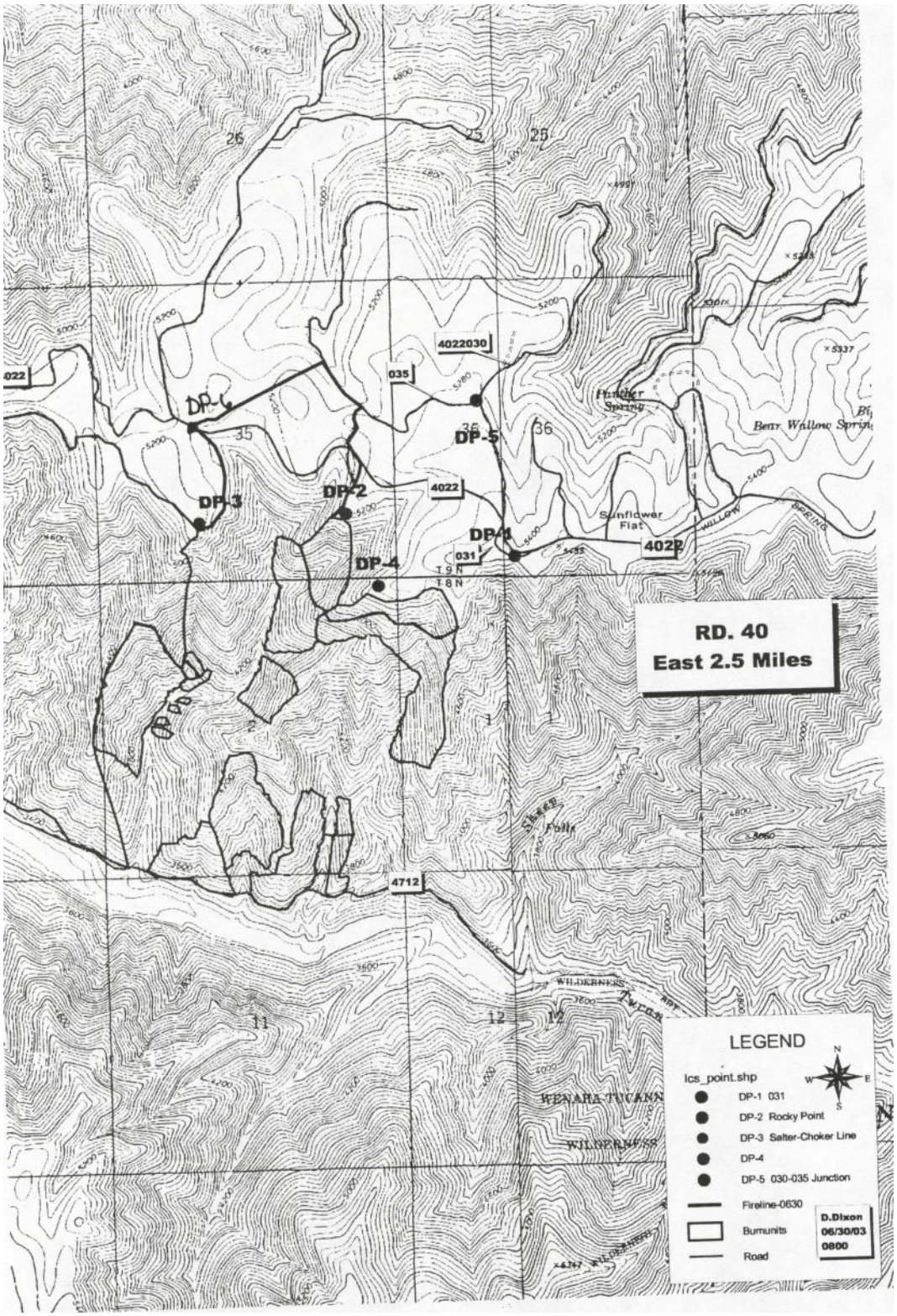
The patrol, holding, and mop-up sections of the burn plan were followed. Reasonable and prudent actions were taken prior to the fire escaping the project area. The Contingency Plan was general in describing specific actions to be implemented at different contingency levels

Recommendations

1. Contingency plans should address increasing levels of risk and mitigations measures at each level and contain a process to assess indicators of potential control problems

2. The burn plan should include line officer concurrence with contingency plans.

Appendix A. Project area map.



Appendix B. ERC Chart