

Appendix 6.

Copies of inventories or prior designations.

CINNABAR PARK FIRE  
BURNED AREA SURVEY  
ENVIRONMENTAL ANALYSIS REPORT

**I. SUMMARY OF RECOMMENDATIONS:**

The Cinnabar Park Fire burned 42 acres of mature lodgepole pine timber on September 4 and 5, 1975.

Proposed post fire action is to use this burned area as an opportunity for studies on fuels decomposition, revegetation and soil movement as it occurs naturally on a burned area. The University of Wyoming has requested this type of management for intensive studies, including comparing the burned area to similar size clearcuts nearby. I believe these studies could benefit the Forest Service as well as the University.

I recommend the burned trees be allowed to remain standing, the Forest Service does not plant or seed the burned area, and only a minimum number of waterbars be installed.

If this management is approved no funding will be necessary.

Attached is a letter from Dr. Dennis Knight, of the University of Wyoming, requesting the area be used for study.

**II. DESCRIPTION OF THE FIRE AND POTENTIAL IMPACTS CAUSED BY THE FIRE:**

**A. Information of the Fire:**

1. September 4 and 5, 1975.
2. Medicine Bow National Forest  
Wyoming  
Albany County  
T15N, R79W, corner of sections 25, 26, 35, and 36  
Fire was all on National Forest.
3. The fire burned very intensely, burning all standing trees to their top and reducing ground cover by 65%.

**B. Physical Condition:**

The burn area is on east and west aspects, with slopes ranging from 2-10%. The area is at 9,600 feet and subjected to snow storms, having prevailing winds from the southwest during the winter. During the summer it is subjected to convectional thunderstorms.

The geology is sedimentary. It is principally a sandstone with interbedded conglomerates. Since the slopes on this area are less than 10%, this formation is considered stable.

Soils within the burn area are medium textured consisting of gravelly loams, gravelly sandy loams and gravelly clay loams. These soils are well drained with depths to bedrock greater than 40 inches. The soils are moderately erodible and stable.

The ground cover on the burn area has been reduced by 65%. Presently, the ground cover is 20%. Ground cover on fire lines is zero.

Integrating ground cover and soil characteristics; erosion rates before and after the burn are reflected in Table I, along with the tolerance levels for soil erosion.

Table I - Soil Erosion (Tons/Yr.)

<u>On Site Erosion (Tons/yr)</u>			<u>Fire Line Erosion (Tons/Yr.)</u>			<u>Total Erosion (Tons/yr.)</u>		
<u>Before</u>	<u>Present</u>	<u>Tolerance</u>	<u>Before</u>	<u>Present</u>	<u>Tolerance</u>	<u>Before</u>	<u>Present</u>	<u>Tolerance</u>
5.9	114.8	118.8	0.4	17.3	7.2	6.3	132.1	126.0

Table II - Sediment Delivery (Tons/Yr.)

<u>On Site</u>			<u>Fire Line</u>			<u>Total</u>		
<u>Before</u>	<u>Present</u>	<u>With 1/ Treatment</u>	<u>Before</u>	<u>Present</u>	<u>With Treatment</u>	<u>Before</u>	<u>Present</u>	<u>With Treatment</u>
5.9	114.8	15	0.4	17.3	0.4	6.3	232.1	15.4

1/ Goal is to attain at least 75% ground cover.

With the application of the recommended treatments, the sediment delivery rates can be decreased to two times the rate that existed prior to the occurrence of the fire.

C. Flood Factors:

The stream channel within the fire area is first order and usually flows only during the snow melt season. The fire has resulted in decreasing the buffer strip and thereby decreasing the sediment catchment capacity. Sediment delivery will be increased due to the

impact on the buffer strip and the more soil material being eroded. (See Tables I and II) The channel is well grassed, and barring any unusual precipitation event of 25 years or greater, it has the capacity to handle water yielded by the burn area during the recovery period without a significant increase of sediment downstream from the burn area. The debris hazard is low.

Water yielded by the burn area drains into the Rob Roy Reservoir. The water in this reservoir is used for drinking water by the City of Cheyenne, Wyoming. The average annual precipitation occurring at the burned area is 30 inches.

The rainfall intensities and recurrence interval occurring at the burned area are: 2/

1 year, 30 minute = 0.4 inches	10 year, 30 minute = 1.0 inches
1 year, 1 hour = 0.5 inches	10 year, 1 hour = 1.3 inches
10 year, 6 hour = 2.0 inches	10 year, 24 hour = 2.5 inches

For a ten year 24 hour storm, the water yield increase is 0.9 acre feet more than what was yielded by the area before the burn. With the gentle slopes and grassed drainage way, the flood hazard is considered low to moderate.

D. Development Subject to Hazard of Flood and Sediment Deposition Damage, Their Value and Significance:

Rob Roy Reservoir, the source of drinking water for the City of Cheyenne, is subject to a low potential for the flood hazard and a low potential for sediment created by the burn.

Most of the sediment (ash) entering Rob Roy Reservoir having its source from the burn area will be suspended. Therefore, the turbidity of the water in Rob Roy Reservoir will increase and its color will be affected. However, most of the delivery of this sediment will occur during snow melt when dilution factors are greatest. Therefore, the increase in turbidity of water in Rob Roy Reservoir, due to suspended sediment having its source from the burn area, is considered insignificant. On site soil productivity, with the exception of fire lines, will remain within tolerance levels, without any treatment. (See Table I)

E. Potential Damage to National Forest Resources and Site Productivity:

The impact upon fish habitat from the burned area is minimal, since the stream flow characteristics for the channel within

2/ U. S. Department of Commerce, Rainfall Frequency of the United States, Technical Paper 49, May 1961

the burned area is unsuited for fish and flows for a relatively short duration. Since stream flow in the channel within the burn area is for a relatively short duration and usually occurs during a period of greatest dilution, the downstream impact to fisheries is considered to be minimal. The potential for timber production will remain unimpaired, except on the fire lines (See Table I - Tolerance Levels).

Except on the fire lines, the potential for forage production is unimpaired.

Wildlife habitat - 42 acres of lost cover and forbs.

Aesthetics - for at least 30 years it will look like there was a fire here. To some that's bad, to some it's not so bad.

### III. ENVIRONMENTAL IMPACTS:

Without an active program of planting, seeding, and waterbarring, we can expect revegetation to be slower and some soil movement within the burned area.

### IV. FAVORABLE EFFECTS:

Our knowledge of natural plant succession after fire will be increased.

There will be educational value in comparing fire to logging and the after-effects.

We will learn something about fuels management.

I&E message in fire prevention.

### V. UNAVOIDABLE ADVERSE EFFECTS:

Increased soil movement until the area revegetates naturally.

The sight of the standing burned trees. This may have fire prevention value.

### VI. RELATIONSHIP BETWEEN SHORT TERM USE & LONG TERM PRODUCTIVITY:

Revegetation and soil stabilization will take longer.

### VII. IRREVERSIBLE COMMITMENT OF RESOURCES:

None

