



**Project Record
Black Ant Salvage**

Document #A002

Date: 09-30-2002

**Author: USDA FOREST SERVICE
LEWIS & CLARK NATL' FOREST**

**Subject: BLACK ANT SALVAGE FEIS
Cover, Table of Contents, Summary**

United States
Department of
Agriculture



Forest
Service

Northern Region
Lewis And Clark
National
Forest

August 2002

Black Ant Salvage

Final Environmental Impact Statement

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice or TDD). USDA is an equal opportunity provider and employer.

Black Ant Salvage



Lewis And Clark National Forest

Northern Region

Meagher Basin County, Montana

Final Environmental Impact Statement - August 2002

Type of Action:

Post-Fire Salvage

Lead Agency:

USDA Forest Service

Responsible Official:

George Weldon – Deputy Forest Supervisor
Lewis and Clark National Forest
1101 15th Street North
Great Falls, MT 59403

For Further Information Contact:

Scott Hill – Team Leader
Black Ant Salvage EIS
109 Central Avenue
PO Box 484
Stanford, MT 59479-0484

ABSTRACT

This analysis considers the effects of harvesting approximately three and one-half million board feet of burnt timber from the Lost Fork Fire of 2001. The project analysis area covers approximately 2,323 acres. The purpose and need for action originates from the Lost Fork Ridge Fire of 2001. It is to provide timber products to local communities economic structure while protecting the environment (Forest Plan page 2-2) and utilize merchantable trees before product potential lost as a result of the fire as anticipated under the Forest Plan (Forest Plan page 2-2) Salvage harvest is proposed on approximately 739 acres, using ground-based tractor logging methods.

The Final Environmental Impact Statement displays the actions proposed by the Lewis and Clark National Forest and provides a comparison of potential affects from proposed management actions under each alternative. It addresses public concerns, the social and economic environment, and environmental effects that could occur under each alternative.

Nine alternatives were developed in response to public concerns, and the major issue of soil quality. Six were dropped from detailed analysis. The analysis considers the effects by evaluating three alternatives: no action, an alternative that salvages using ground based yarding , and an alternative that would require winter logging as an added mitigation for soil protection.

Copies of this Final Environmental Impact Statement are available from the Lewis and Clark National Forest Supervisor's Office at 1101 15th Street North, Great Falls, MT 59403. This Final Environmental Impact Statement is open for public review and comment for 45 days following publication of the notice of availability in the *Great Falls Tribune*



Table of Contents

Summary	S-1
---------------	-----

CHAPTER 1 – PURPOSE AND NEED

Introduction.....	1-1
Background.....	1-1
Purpose and Need	1-3
Proposed Action	1-3
Project Scope	1-4
Project Area	1-5
Decision To Be Made	1-6
Relationship To The Forest Plan And Other Laws.....	1-6
Other Legal Requirements	1-8
Project Analysis	1-10
Public Participation.....	1-10
Issues.....	1-11
Other Topics Considered	1-11
Issues Not Addressed Further	1-14

CHAPTER 2 – ALTERNATIVES

Introduction.....	2-1
Project Analysis	2-1
Alternative Development.....	2-1
Alternatives Considered, But Not Fully Developed or Analyzed.....	2-2
Alternatives Considered in Detail.....	2-9
Description of Alternatives	2-10
Alternative 1 – No Action Alternative.....	2-10
Alternative 2 – Ground Based Summer Logging	2-10
Alternative 3 – Winter Logging	2-11
Mitigation Common To All Action Alternatives.....	2-11
Monitoring	2-13
Preferred Alternative	2-14

CHAPTER 3 – ENVIRONMENT AND EFFECTS

Introduction	3-1
Past, Present and Reasonably Foreseeable Activities	3-2
Incomplete or Unavailable Information.....	3-3
Affected Environment.....	3-3
Issue 1: Soil Quality.....	3-5
Effects To Other Resources	3-32
Water Quality.....	3-32
Wildlife	3-48
Vegetation Succession and Management Productivity.....	3-96
Economics.....	3-105
Heritage Resource.....	3-110
Air Quality	3-117
Fire and Fuels.....	3-120
Roads (Transportation System).....	3-128
Winter Recreation (Snowmobile Use).....	3-136

CHAPTER 4 – LIST OF CONTRIBUTORS..... 4-1

APPENDIX A – BIBLIOGRAPHY A-1

APPENDIX B – BEST MANAGEMENT PRACTICES B-1

APPENDIX C - ROAD MANAGEMENT PLAN..... C-1

APPENDIX D – GLOSSARY D-1



Summary

- **Time And Conditions**

- Lost Fork Fire Began 2001 September at 4:00 in the afternoon.
- Weather Conditions
 - 89 °
 - RH 12 %
 - Wind SW @ 14 Miles Per Hour
- 1-Hour Fuel Moisture Extremely Low

- **Behavior**

- **Surface Fire –**

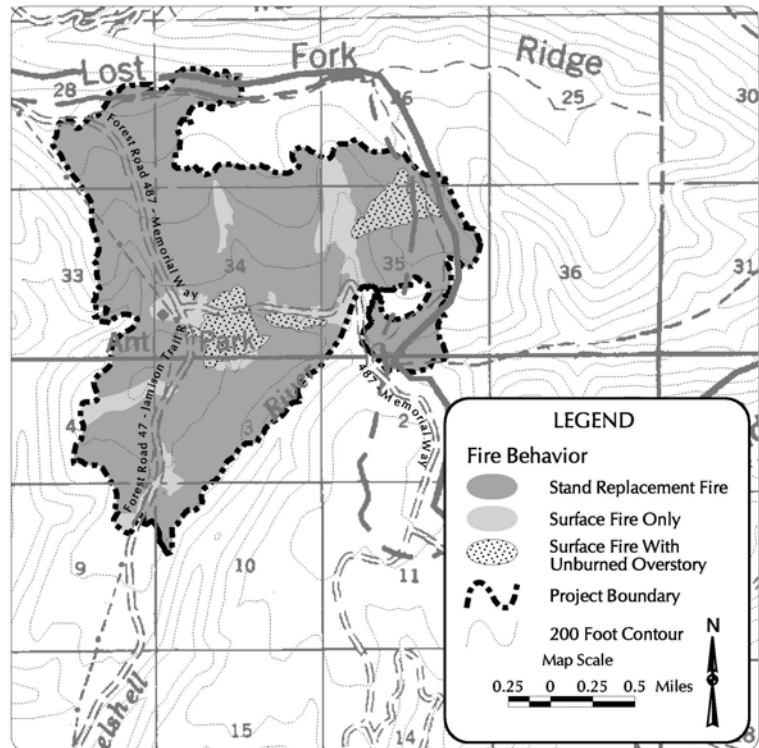
- Fast Moving - Least Severe
- 382 Total Acres (16%)
- 155 Acres Unburned Overstory (Patches of 77, 63, And 15 Acres)
- 227 Acres Meadows Or Openings.

- **Crown Fire –**

- Fast Moving - Moderate To High Severity
- Connected or Driven By Surface Fire
- Generally Stand Replacement
- 1941 Acres (84%), Stand- Replacement Fire
- Coarse Woody Debris, Litter & Duff Consumed
- Near 100% Tree Mortality

- **Ground Fire –**

- Slow Smoldering Combustion - Most Severe
- Soil Severely Burned
- Affected 8 To 18 % Of Total Area
- Patches From 100 To 200 Ft² Severely Burned Soil Intermingled With Larger Areas Of Slight To Moderate Burned Soil
- Associated With Stand Replacement Behavior (Crown & Surface) & Not Mapped Separately



Purpose And Need

- Provide timber products to local communities economic structure while protecting the environment (Forest Plan, 2-2) Utilize merchantable trees before product potential lost as a result of the fire as anticipated under the Forest Plan (Forest Plan, 2-2)
- Management Area B emphasizes timber management and providing moderate forage production (Forest Plan, 3-9) 80% of Area
- Management Area F emphasizes semi-primitive recreation opportunities (Forest Plan 3-32). Salvaging Unprogrammed Products Management Prescription ET2 (Forest Plan, 3-33; Prescription ET2) 20% of Proposed Area

Issues

Issue 1: Soil Quality

- Soil Affect From The Wildfire Is Significant Based On Northern Region Soil Quality Standards – Salvage Could Increase Adverse Effects Through Compaction, Erosion, Displacement, And/Or Rutting
- Salvage Could Reduce Soil Nutrients And Overall Soil Productivity By Removing Coarse Woody Debris

Other Topics Considered

- Not considered significant but important and effects are considered
- Resource affect can be mitigated or resolved

Water Quality

Salvage may directly and cumulatively affect water yield, sediment levels, and hydrologic processes

Salvage may cause additional adverse affects cumulatively with wildfire suppression activities

Wildlife

Salvage and road construction may adversely affect Endangered, Threatened, Sensitive, or MIS species or habitat, disrupt biological corridors, and/or old growth habitat

Vegetation

Productivity goals for timber management and overall post-fire succession could be hampered by salvage activities

Economics

Commercial timber value, and public benefits, could be lost if not salvaged in a timely manner

Heritage Resources

Existing cultural resources, or those discovered during the project, should be avoided, mitigated, or impacts deterred.

Air Quality

Air quality could be adversely affected by additional burning associated with slash at landing decks

Fire and Fuels

Salvage may not lower fuels within the analysis area enough to reduce future fire risk.

Roads

Exhibiting Roads and trails closed as a result of the salvage project adversely affecting access, recreation

Noxious Weeds

Additional activities could increase the risk of noxious weed spread

Snowmobile Use

Winter logging operations could preclude any snowmobile use within the proposed project area

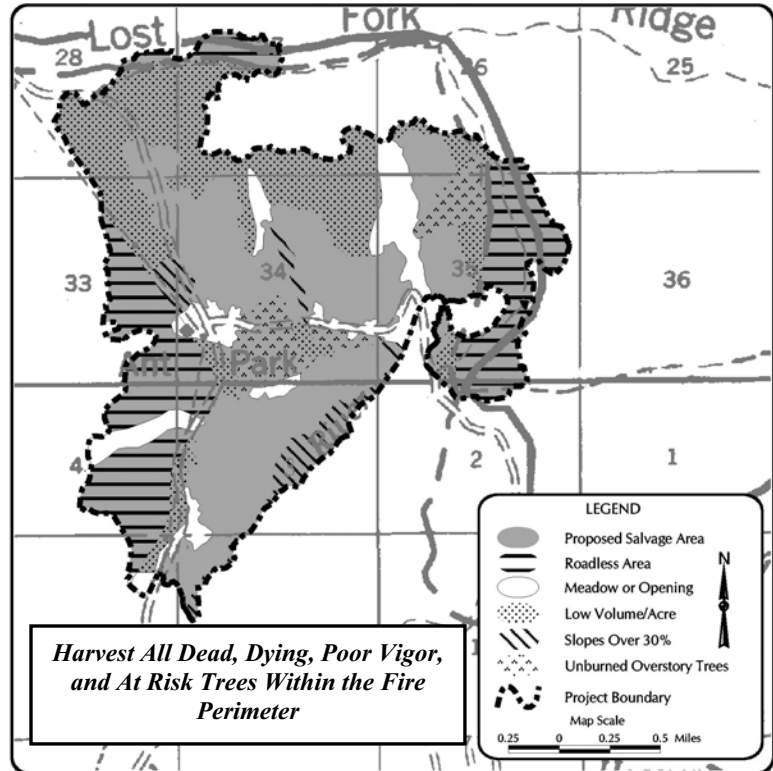
Alternative Development

Considered, But Not Fully Developed Or Analyzed

Salvage All Dead, Dying, Poor Vigor, And At Risk Trees Within The Fire Perimeter

Proposal –

- 6 MMBF
- 1941 Acres Salvaged
- Steep Slope & Ground Based Systems
- Areas Of High & Low Volume/Acre
- Within Roadless
 - 1½ Miles New Roads
 - 3 Miles Temps
- Outside Roadless
 - ¾ Mile New Roads
 - 7 Miles Temps
 - 1⅛ Miles Maintenance
- 70 To 75 Acres Of Landings
- Slash Burning On Landings



Effects –

Compared To Action Alternatives

- Provides Nearly Twice The Product To Communities (+2½MMBF)
- 1202 Acres Added Soil Disturbance By Skid Trails, Temp Roads And Landings
- Harvesting On Slopes Greater Than 30 Percent Increases Soil Erosion Hazard
- 2¼ Miles Additional New Roads
- 2½ Miles More Temp Roads Could
- 45 To 50 More Acres Of Landings
- Twice The Pile Burning At Landings
- Increased Soil Disturbance From Additional Roads & Landings
- Could Exceed Thresholds Defined For Detrimental Soil Disturbance In FSM 2500 Region 1 Supplement For Soils
- 4½ Miles of Roads Within Roadless Areas
- Salvaging Dying, Poor Vigor, & At Risk Trees Would Reduce Forage Trees For Woodpeckers & Other Wildlife
- Future Cavity Nest Trees Would Also Be Reduced Nearly Three Fold

Conclusion –

- Based on the need for additional system roads (some within roadless areas) to complete this alternative, harvesting on steep slopes, added adverse effects wildlife, the risk that additional acres of salvage harvest would exacerbate soil erosion this alternative was not analyzed in further detail.

Harvest All Dead, Dying, Poor Vigor, And At Risk Trees Outside Of Roadless Areas

Proposal -

- 5½ MMBF
- 1552 Acres Salvaged
- Steep Slope & Ground Based Systems
- Areas Of High & Low Volume/Acre
- No Salvage in Roadless
- Roads
 - ¾ Mile New Roads
 - 7 Miles Temps
 - 1½ Miles Blading/Maintenance
- 35 To 40 Acres Of Landings
- Slash Burning On Landings

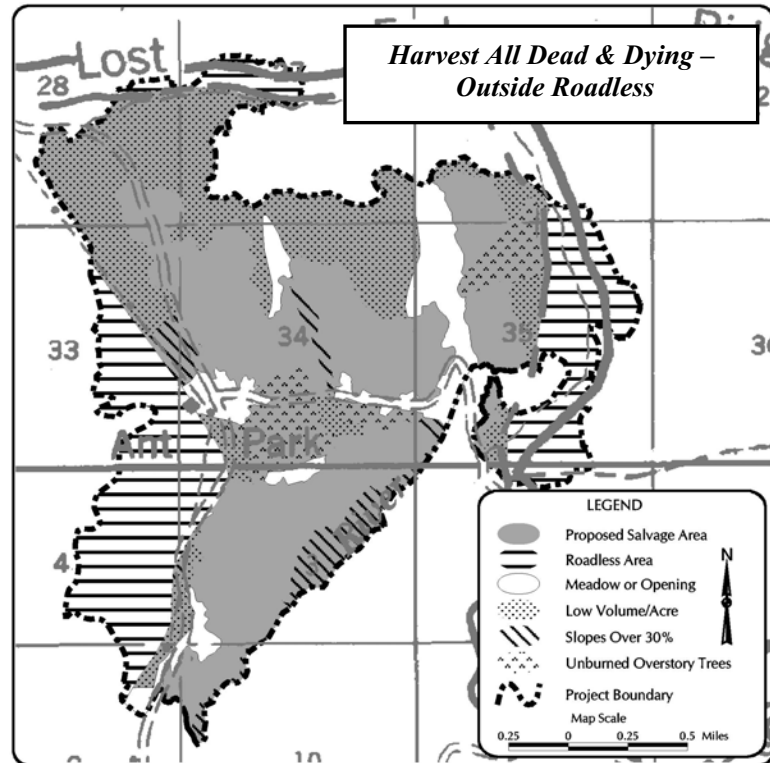
Effects –

Compared To Action Alternatives

- Provides Nearly 1½ times The Product To Communities (+2 MMBF)
- 813 Acres Added Soil Disturbance By Skid Trails, Temp Roads And Landings
- Harvesting On Slopes Greater Than 30 Percent Increases Soil Erosion Hazard
- ¾Miles Additional New Roads
- 2½ Miles More Temp Roads
- 10 To 15 More Acres Of Landings
- 1½ Times The Pile Burning
- Increased Soil Disturbance From Additional Roads & Landings
- Could Exceed Thresholds Defined For Detrimental Soil Disturbance In FSM 2500 Region 1 Supplement For Soils
- No Roads Within Roadless Areas – Same As Action Alts
- Salvaging Dying, Poor Vigor, & At Risk Trees Would Reduce Forage Trees For Woodpeckers & Other Wildlife
- Future Cavity Nest Trees Would Also Be Reduced Nearly 2½ Fold

Conclusion –

- The need for additional system roads (although only outside of roadless areas) to complete this alternative, harvesting on steep slopes, added adverse effects wildlife, the risk that additional acres of salvage harvest would exacerbate soil erosion this alternative was not analyzed in further detail.



Cut To Length Yarding System

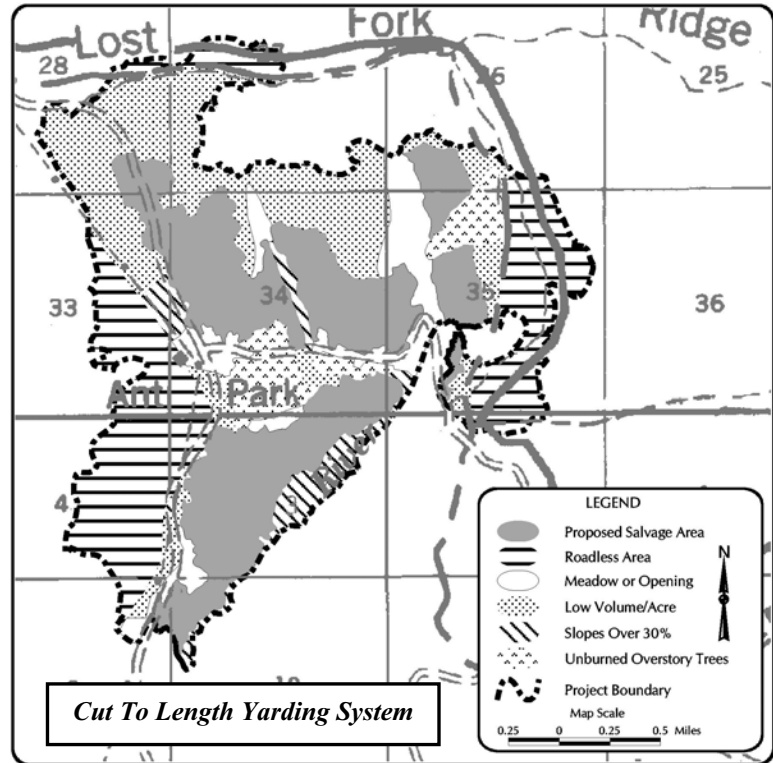
Proposal-

- 3½ MMBF
- 739 Acres Salvaged
- Slope < 30 % - Ground Based System
- Only High Volume/Acre Areas
- Roads
 - No New Roads
 - 2¼ Miles Temps
 - 1⅞ Miles Blading/Maintenance
- 25 Acres Of Landings
- No Slash Burning On Landings
- Salvage Entirely Dead Trees, For Safety Reasons, Individual Live Trees May Be Removed
- All Tops Left In Woods

Effects –

Compared To Action Alternatives

- Provides Same Product To Communities As Action Alts
- Acres Harvested Same As Action Alts
- Harvesting On Slopes < 30% Same As Action Alts
- Volume/Acre Same As Action Alts
- No New Roads - Same As Action Alts
- 2 Miles Less Temp Roads
- Acres Of Landings Same As Action Alts
- Could Increase Soil Disturbance By CTL Trails And Temp Roads
 - Fewer Temp Roads – **However -**
CTL Machines Would Visit Every Acre (Conventional Skidding Limited to <15% Of Area)
Moving Over Charred Tops & Coarse Woody Debris Could Increase Scour & Erosion Hazard
- No Roads Within Roadless Areas – Same As Action Alts
- Same Snag Retention As Action Alts -Salvaging Dying, Poor Vigor, & At Risk Trees Would Reduce Same
- Tops & Residual Slash From CTL System Increases Post-Salvage Fuels 3 to 4 times over Action Alts



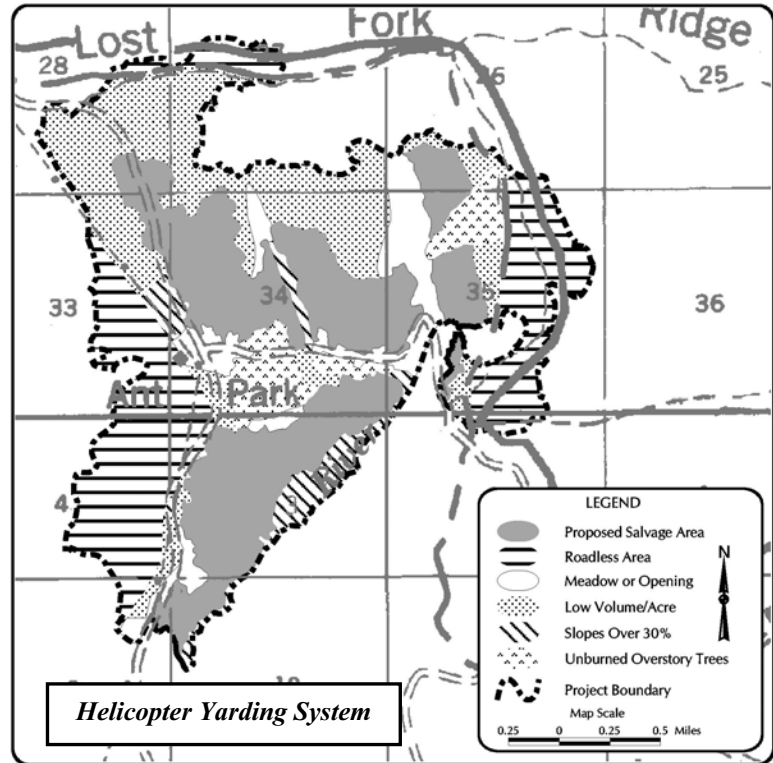
Conclusion

- The apparent benefits of Cut-To-Length system over traditional ground based systems have not been shown under post-fire salvage conditions. The indications that this system could actually accelerate erosion within the project area, no additional marketable products are gained, and the 3 to 4 fold increase in on the ground (See page ###) fuels loading following harvesting, were deemed to be a greater detriment than the added benefit of reducing temporary roads by 1½ miles. As a result this alternative was not considered any further.

Helicopter Yarding System

Proposal -

- 3½ MMBF
- 739 Acres Salvaged
- Helicopter Yarding System; Feller Buncher Harvesting To Group Logs For Safer Choker Setting
- Slope < 30 % Limit Feller Buncher
- Only High Volume/Acre Areas
- Roads
 - No New Roads
 - 2¾ Miles Temps
 - 1½ Miles Blading/Maintenance
- 70 to 75 Acres Of Landings For Helicopter Multiple Landings & Support Needs
- No Slash Burning On Landings
- Salvage Entirely Dead Trees, For Safety Reasons, Individual Live Trees May Be Removed
- All Tops Left In Woods



Effects –

Compared To Action Alternatives

- Provides Same Product To Communities As Action Alts
- Acres Harvested Same As Action Alts
- Harvesting On Slopes < 30% Same As Action Alts
- Volume/Acre Same As Action Alts
- No New Roads - Same As Action Alts
- 2 Miles Less Temp Roads
- 45 To 50 More Acres Of Landings
- Could Increase Soil Disturbance By Feller Buncher Trails, Temp Roads And Landings
 - Fewer Temp Roads – **However -**
Feller Buncher Would Visit Every Acre (Conventional Skidding Limited to <15% Of Area)
Moving Over Charred Tops & Coarse Woody Debris Could Increase Scour & Erosion Hazard
- No Roads Within Roadless Areas – Same As Action Alts
- Same Snag Retention As Action Alts -Salvaging Dying, Poor Vigor, & At Risk Trees Would Reduce Same
- Tops & Residual Slash From System Left In The Woods. This Increases Post-Salvage Fuels 3 to 4 times (See page ###) over Action Alternatives

Conclusion

- The apparent benefits to soils from Helicopter Yarding over traditional ground based systems have not been shown under post-fire salvage conditions. The indications that this system could actually accelerate erosion within the project area, no additional marketable products are gained, and the 3 to 4 fold increase in on the ground fuels loading following harvesting, were deemed to be a greater detriment than the added benefit of reducing temporary roads by 1½ miles. As a result this alternative was not considered any further.

Enhancement Only Alternative

Proposal –

This proposal was suggested to address restoration activities post-fire, and related to soil movement on existing roads in the project area.

Effects -

- September 2001 the Burned Area Emergency Rehabilitation mitigations were implemented (See page 3-38)
- 5.1 miles of dozer and hand line were rehabilitated
- 1½ miles of fire suppression roads were rehabilitated and closed
- Landtypes within the proposed project at low risk for erosion associated with road cuts or cutbanks
- Landtypes In the Area have moderate compaction risk
- Landtypes have no hazard for landslides
- Post-Fire Soil monitoring shows no detrimental soil disturbance from existing or previous uses – No Need For restoration indicated
- No evidence of road mass failure
- Area roads do not affect riparian or wetland areas

Conclusion -

- Based on the rehabilitation of the wildfire and associated suppression activities, post-fire monitoring shows no evidence of detrimental soil disturbance from existing uses, and the utilization of merchantable products for which this project was developed cannot be achieved without the salvage component this alternative was not analyzed in further detail.

Fuels Reduction

Existing Conditions-

Burned Area The Dry, Cold Extremes Of Subalpine Fir Environments	Fire Group 8 - Long Return Intervals Typically Stand Replacing Events At 50 To 130 Years	Local Snag Longevity Study Show >40 Tons/Acre Of Downed Surface Fuels Expected Between Year 30 And 50
--	--	---

Proposal -

- In Addition To Salvage Actives
- Trees > 9” Mechanically Felled & Removed
- Mechanical Felling
- Slope < 30 % Limit Mech Felling
- Only High Loading (Volume)/Acre Areas
- Same Roads & Temp Roads Used For Action Alts
- Additional 70 to 75 Acres Of Landings For Piling Trees
- Burning Of Unmerchantable Material On Landings

Effects

- Could Increase Soil Disturbance By Mechanical Felling Trails And Temp Roads
 - Excavator Of Felling Machines Would Visit Every Acre Moving Over Charred Tops & Coarse Woody Debris Could Increase Scour & Erosion Hazard Excavator, or similar machine, would visit nearly every acre to complete the piling of fuels.
- Could cause long-term accelerated erosion, sedimentation, and additional cumulative effects
- Excavator piling could removal enough biomass to impair future nutrient cycling on this particular subalpine fir environments

Conclusion

Based on the area habitat type and fire group there is no evidence that the fire return interval has been modified in this area. The effects of the wildfire, although substantial, are typical of these types of forests. Additional fuels treatment would benefit future fire suppression efforts, however the risk of increasing soil erosion from machine travel offsets this benefit. This alternative would not further the purpose and need of recovering additional marketable products over the action alternatives. As a result this alternative was not considered any further.

Action Alternatives

Alternative 2 - Ground Based Summer Logging

- 3½ MMBF (6282 CCF)
- 739 Acres Salvaged
- Ground Based Systems
- Areas Of High Volume/Acre
- Salvage Outside Roadless Only
- No New Roads
- **4½ Miles Temp Roads**
- 25 Acres Of Landings
- Slash Burning On Landings
- **Estimated Stumpage**
 - \$22.41/MBF (\$12.49/CCF)
 - \$78,000 Total
- Estimated Economic Impacts
 - 57 jobs
 - \$1,380,000 In Employee Compensation

Alternative 3 - Winter Logging Only Preferred Action

- 3½ MMBF (6282 CCF)
- 739 Acres Salvaged
- Ground Based Systems
- Areas Of High Volume/Acre
- Salvage Outside Roadless Only
- No New Roads
- **4½ Miles Major Skid Trails**
- 25 Acres of Landings
- Slash Burning On Landings
- **Estimated Stumpage**
 - \$6.61/MBF (\$3.68/CCF)
 - \$23,100 Total
- Estimated Economic Impacts
 - 57 jobs
 - \$1,380,000 In Employee Compensation

