

BURNED-AREA REPORT

THIRTYMILE FIRE OKANOGAN-WENATCHEE NATIONAL FORESTS

TABLE OF CONTENTS

Burned Area Emergency Report (FS-2500-8) (pp. 1-11)

Appendices to the Burned Area Emergency Report (pp. 12-20)

Appendix A—Thirtymile Fire Noxious Weed Management
Summary of Noxious Weed Management Costs
Weed Treatment Seed Specifications

Appendix B—Seeding Rationale
Use of grass seeding to suppress noxious weeds

Appendix C—Thirtymile Fire Non-structural Land Treatment Assessment Narrative including:
Fire History Map of Area
Fire Intensity Map of Area

Appendix D—Values at Risk

Appendix E—Erosion, Vegetation Cover and Fire Intensity Analysis Matrix

27 7 2001

BURNED-AREA REPORT
(Reference FSH 2509.13, Report FS-2500-8)

PART I - TYPE OF REQUEST

A. Type of Report

- ☒ 1. Funding Request for Estimated FFF-FW22 Funds
☐ 2. Accomplishment Report
☐ 3. No Treatment Recommendation

B. Type of Action

- ☒ 1. Initial Request (Best estimate of funds needed to complete eligible rehabilitation measures)
☐ 2. Interim Report
 ☐ Updating the initial funding request based on more accurate site data and design analysis
 ☐ Status of accomplishments to date
☐ 3. Final report - following completion of work

PART II - BURNED-AREA DESCRIPTION

- A. Fire Name: Thirtymile Fire B. Fire Number: 103
C. State: Washington D. County: Okanogan
E. Region: Region 6 F. Forest: Okanogan-Wenatchee NFs
G. District: Methow Valley Ranger District
H. Date Fire Started: 7-9-01 I. Date Fire Controlled: Unknown*
J. Suppression Cost: \$5,168,200 estimated (7-27-01 ICS 209 Report)**

* Containment @ 1800 on 7/23/01

**Projected Final Cost = \$5,500,000

K. Fire Suppression Damages Repaired with FFFS-PF12 Funds:

1. Fireline waterbarred (miles) 22
2. Fireline seeded (miles) None
3. Other (identify) 8 Mile fire camp rehab**

**to be determined

L. Watershed Number: 1702000808

M. NFS Acres Burned: 9,324 Total Acres Burned: 9,324 **

Ownership type: (All NFS lands including: 3155 ac. Wilderness; 3171 ac. Research Natural Area; 2998 ac. of other NFS lands). Total area is classified as roadless as well.

() State () BLM () PVT ()

** projected final size

N. Vegetation Types: : Douglas-fir Cool/Dry Grass PAG (Douglas-fir/Pinegrass, Douglas-fir/bearberry/pinegrass and Douglas-fir/boxwood/pinegrass) 35%; Rockland 35%; Subalpine fir Cool-cold and dry-moist PAGs (mostly subalpine fir/pinegrass, subalpine fir/big huckleberry and subalpine fir/grouse whortleberry) 20% ; Other 10% including: (Engelman Spruce PAGs (spruce/red osier; spruce/horsetail); Riparian hardwood and riparian shrublands;

O. Dominant Soils: Shallow "sandy"-skeletal soils; and rockland;.

P. Geologic Types: igneous granitics; landforms are glacially scoured

Q. Miles of Stream Channels by Class:

I- 3.5 II- 4.2 III-3.6 IV- 12.7

R. Transportation System:

Trails: 5.1 miles Roads: 5.6 miles

PART III - WATERSHED CONDITION

A. Fire Intensity (*1) (acres): 2105 (low-23%) 5754 (moderate-62%) 1466 (high-16%)

(*1) Fire intensity figures based on 7/27/00 survey information and Low intensity contains some small unburned areas

B. Water-Repellent Soil (acres): None observed and little expected

C. Soil Erosion Hazard Rating (acres):

930 (low) 1865 (moderate) 6529 (high)

D. Erosion Potential: 64.5 tons/acre

E. Sediment Potential: 41,280 cubic yards / square mile (*4)

(*4) Assumptions for items D and E:

The erosion and sediment figures listed above reflect the contribution from the debris slides and channel scour based the hydrologic design factors. These figures are quite high; however the fans and scour areas only represent approximate 600 acres or 6.2 percent of the fire. However, the fan deposition and channel scour are the major sources of sediment delivery to the Chewuch River. If these figures were spread over the entire fire area the Erosion Potential is estimated to be 4.2 Tons/Acre and Sediment Potential is 2,660 cubic feet/Square Mile.

The fire area occurs predominately in a glacial trough that also served as major melt water drainage during continental recessional periods. Consequently this drainage is very steep and rocky. Natural landform sediment delivery and routing efficiency (90%) is considered very high but episodic. Runoff is routed fairly rapidly into first order channels that can be flashy in nature. Sediment delivery is in the form of debris slides from tributary streams or first order debris chutes. These slides form fans that spread onto the Chewuch valley bottom and naturally constrain or realign the upper Chewuch River. Hence, sediment is delivered directly from the debris slides and indirectly from the Chewuch River alignment adjustments contributing to bank scour. With exception of catchment basins, tributary streams, debris chutes, hill slope erosion will be collected in very bouldery talus slopes that occur on lower slopes, which tend to block delivery into the Chewuch channel.

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period: 5 years

B. Design Chance of Success: 75 percent

C. Equivalent Design Recurrence Interval: 25 years

D. Design Storm Duration: 1 hour

E. Design Storm Magnitude: 0.8 inches

F. Design Flow: 39 cubic feet/second/square mile

G. Estimated Reduction in Infiltration: 0 percent

H. Adjusted Design Flow 39 * cubic feet/second/square mile

* Based on no reduction in infiltration.

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency:

The Thirtymile Fire area and potentially impacted areas downstream exhibit many important characteristics that were considered in determining the proposed course of action. The following summary describes the conditions that warrant emergency rehabilitation actions.

1. Loss of Site Productivity -

The natural inherent soil productivity is low for the fire area. Soils are derived from igneous bedrock units (granitic) that have weathered into very coarse “sandy soils”. Soil moisture (except in valley bottom) is often a limiting factor along with low soil fertility. Glacial erosional and glacial fluvial processes have also had a major role in soil occurrence in the landscape. Soil depths are relatively shallow to moderately deep associated with excessive bedrock outcrop exposures. Along with continental weather characteristics, the overall site productivity is low for the fire area. Hence, this fire will not have a significant effect on inherent soil productivity.

This fire area has a natural history of debris avalanches from steep slopes during relatively frequent storm events (25 year storm return intervals). Fires have also been a common historical occurrence with at least parts of the current fire area having been burned over several times in the last 100 years. In fact, it is very likely that the repetitive cycle of fires, high intensity storm events in this steep landscape (with its attendant flooding and debris slides) has helped to maintain the relatively low productivity of the uplands within the fire area.

The Chewuch drainage served as a melt water channel from the last continental glaciation and the whole region was overridden by ice. These are highly erodable soils with the primary controlling factors being slope steepness and surface rock. The shallow soil depth, steep slopes and low soil water holding capacity results in high potential for shallow failures in the form of debris slides. Vegetation loss will likely exacerbate this problem until deep-rooted vegetation is once again established. It is unlikely that seeding of shallow-rooted species will significantly reduce the risk of debris slides.

Even when vegetated, erosional processes are substantial. With or without vegetation cover these sandy soils on steep slopes will continue to have very high erosion potential. Sediment loading in tributaries as a result of previous storm events was observed. Steep landforms over much of the burned area are highly effective in delivering eroded material to stream channels. The loss of some of the vegetation in the moderate and high intensity burn areas will not help conditions for either debris slides or surface erosion. However, the primary controlling factors for these processes are the steep slopes, soil depth and texture and rock content (both surface and in the profile). These same conditions and the amount and distribution of high or moderate burn intensity make it unlikely that seeding and or fertilization would significantly reduce erosion. As a result, upland seeding was not selected as an alternative because of the low likelihood of reduction in soil erosion or natural vegetative recovery. Both slope steepness and fire intensity affected this decision (see Appendix E). The large amount of rock cliffs and surface rock also supported not choosing to seed the uplands.

One significant risk to site productivity loss is noxious weeds. The road and trailhead will serve as a beachhead for noxious weeds to rapidly increase in the area. Weed seed sources exist along roadways, staging areas, adjacent to the fire area, as well as at the fire camp. A regimen of weed management is critical to help preserve the productivity and character of this area (see Appendix A and B).

2. Loss of Water Quality –

Water quality in the Chewuch River drainage is critical for many uses including domestic, agricultural, aquatic habitat for the Threatened and Endangered species (spring Chinook salmon, steelhead, bull trout), and recreation use. The Chewuch River, including the burned area, was nearly cleared of large wood following the 1948 floods apparently to reduce downstream property damage in some future flood. Habitat for anadromous fish was reduced, and sediment storage reservoirs were removed.

Water quality parameters most affected by this fire are water temperature and sediment loads. The fire reduced the cover over the river and more solar energy will reach the water potentially raising water temperatures. Sources of cooler water from adjacent springs or ground water recharge in the river help keep the water temperature relatively low. Mid to late July is normally the period when stream water temperature is the highest for the year. Water temperature measurements over July 26 and 27, 2001, showed the temperature to be about 57° F. The riparian shrubs along the Chewuch River are expected to rapidly re-grow over the next few years and provide cover to help keep water temperatures relatively low. The fire killed most over story trees, leaving only snags. These snags provide a little shade, but prefire-conditions shade from conifers is 50 to 100 years away.

Stream sediment loads in the Chewuch River is expected to increase as the occurrences of debris torrents increase. Most of this debris is expected to larger sized gravels and cobbles, as well as stones and boulders. Fine sediment is expected to a minor. Some material will move downstream to “nick points” (debris and alluvial fans) where the channel gradients lower and material accumulates. It is at these nick points that large wood debris accumulates as well, and the wood accumulations would trap sediments behind them. It is anticipated that floatable woody debris will move downstream during high flows. Small woody debris may leave the fire area and become a maintenance issue for downstream irrigation diversions. Large woody debris is not anticipated to move outside the fire area. The wood accumulations are expected to provide for sediment storage in the burned area. The Chewuch River channel below the burned area is in good to excellent condition down to Lake Creek and would provide additional stream sediment storage when the sediment eventually moves downstream from the burned area.

Water temperatures are not likely to increase significantly to degrade current fish habitat or other downstream water uses. Stream sediment, mostly coarse in nature is not expected to sufficiently degrade fish habitat in the burned area. The sediments are likely to accumulate above the nick point controls throughout the burned area reaches. However, there are likely to be a limited amount of fine sediments that will move through the Chewuch River system.

3. Threats to Human Life and Property –

Values at risk include homes, bridges, campgrounds, hatchery ponds, (mostly downstream) roads and cultural sites. Appendix D lists Values at Risk from a major flood. Some of these developments are already in the existing flood plains and are already at risk to flood damage.

One development at risk is the Thirtymile campground and trailhead. A burned slope draining directly into this area has significant surface soil erosion and rilling. This threatens these facilities. Some log terracing will be used on the erosive slope to protect the down slope facilities (see Land Treatment section below).

Annual flooding along the Chewuch main stem is common but significant effects to downstream values are much less frequent. The annual peak flow is normally related to rapid spring snowmelt (the largest flood over the past 60 years was during the normal spring time snow melt, but was added to by rain-on-snow conditions). Wintertime rain-on-snow events are rare and are not likely to be the peak stream flow of the year.

Even though there are likely to be higher water levels inside the burned area, these higher levels are not expected to contribute to downstream flood levels. Higher water levels in the burned area that may come out of the existing channel would spread out over the relatively gentle flood plain. Some water will seep into the flood plain, and water velocities over the flood plain will be slower than water in the channel, further reducing the flood flows downstream. It is expected wood debris will remain near the burned area, and higher water levels caused by accumulated woody debris is not expected to increase the threats to human life and property downstream of the burned area beyond what currently exists.

The types of impacts in the burned area from higher water levels are related to roads and associated structures. Road segments may be wetter, longer in the spring. Longer stretches of roads may be inundated where roads are normally covered with spring runoff water. Road drainage and road surface stability will also be threatened by water delivery from the burned area. Treatment of the road drainage is critical to protect the road (see the “Road and Trail Treatment” section below and the roads discussion in the project Analysis File for more information).

As many as four cultural resource sites are known to have been impacted and may require treatment in order to protect heritage values. The Civilian Conservation Corp built two of the sites, the West Chewuch Road and the Thirty Mile Campground in the 1930s and the bridge accessing the campground dates to 1947 or 1948. The last potential site is an isolated artifact found on a system road inside the burn area. In compliance with 36 CFR 800, tribal consultation concerning BAER activities will occur and all four sites will be inventoried and evaluated for their National Register eligibility. If found to be eligible, treatment plans will be developed as needed. The Thirtymile BAER Analysis File has a listing of the Cultural Resource tasks and cost estimates.

B. Emergency Treatment Objectives:

A primary objective of emergency treatment is to establish conditions within the burn that support long-term, natural recovery while reducing short-term negative impacts. The application of the BAER treatments should assist natural recovery and minimize both on-site and downstream damage to values at risk. In this case, the non-structural land treatments proposed are designed to help maintain site productivity and ecosystem function by inhibiting weed establishment and spread. This is done by using a cultural practice (grass seeding) to provide competition for weeds and by manual weed control. Non-structural improvements from tree planting help maintain site productivity and ecosystem function of diversity and capability by slightly accelerating successional advancement.

Proposed structural treatments to roads, trails and campgrounds are intended to reduce accelerated erosion and sedimentation from Forest Service facilities that threaten fish habitat.

C. Probability of Completing Treatment Prior to First Major Damage-Producing Storm:

Land 85 % Channel NA % Roads 85 % Other NA %

D. Probability of Treatment Success

<----Years after treatment----->			
	1	3	5
Land			
	70%	70%	70%
Channel			
	100%	100 %	100%

Roads	90%	90%	90%
Other	%	%	%

E. Cost of No Action (Including Loss): **\$10,695,000**

F. Cost of Selected Alternative (Including Loss): **\$2,869,640**

G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input checked="" type="checkbox"/> Geology	<input type="checkbox"/> Range
<input type="checkbox"/> Timber	<input type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input checked="" type="checkbox"/> Engineering
<input type="checkbox"/> Contracting	<input checked="" type="checkbox"/> Ecology	<input type="checkbox"/> Research	<input checked="" type="checkbox"/> Archaeology
<input checked="" type="checkbox"/> Recreation/Wilderness			<input checked="" type="checkbox"/> Fish Biologist

Team Leader: \s\ Bruce McCammon

Phone: (503) 808-2986 Electronic Address: bmccammon@fs.fed.us

H. Treatment Narrative:

The following treatments have been proposed to mitigate the threats to life & property, and to reduce loss of site productivity and degradation of water quality as a result of the Thirtymile Fire.

Overall Goal of Proposed BAER Treatments: To complete a combination of comprehensive treatments to reduce sediment delivery, protect water quality of the Chewuch River and protect the road and other Forest Service facilities within the burned area. In addition, the treatment will reduce noxious weed effects to site productivity in the area and enhance natural vegetative recovery of the riparian area. The land, channel, road and trail treatments form an integrated package.

Rationale Critical to Upland Treatment Selection

Land Treatments

Purpose: (1) Reduce noxious weed reestablishment and infestation in the burned area by seeding along the road, and in the campground and by both manual and chemical treatment where possible to reduce existing weed infestations. (2) Mow weed infestations in areas below the fire to reduce transport of weed seeds in to fire area. (3) Plant appropriate conifers to accelerate recovery, advance succession and maintain coniferous tree diversity. (4) Install Log Terraces to reduce sediment delivery to and from Thirtymile campground and trailhead area. Treatments are intended to maintain ecosystem health by encouraging natural vegetation recovery and protect facilities.

Treatment #L1-Manage noxious weeds along the Chewuch River road, campgrounds and administrative sites and the Thirtymile trail inside the burned area. Manual control and seeding would be used along the main road, with possible herbicide treatments in the campground and administrative sites in the burned area.

Treatment #L2- Mow Roadsides between 8 Mile Ranch and the southern boundary of the burned area would reduce the risk of dragging noxious weed parts and seeds into the burned area. Mowing is

dependent on decisions made to allow vehicle traffic into the burned area. If the road is gated below the burned area, then mowing the roads sides for this BAER project would not be supportable.

Treatment #L3- Plant appropriate conifers in the riparian area along the Chewuch River. This treatment would use primarily Engelmann Spruce and Douglas-fir to accelerate recovery, advance succession and maintain coniferous tree diversity.

Treatment #L4- Install Log Terraces on a small number of high intensity burned acres on moderate slopes above the Thirtymile Campground and trailhead.

Channel Treatments

Purpose: To reestablish the natural stream channel and related floodflow side channels at the 30 Mile Campground/Trailhead site.

Treatment #C1 – Remove Bridge Abutment: Remove the west-side bridge abutment (concrete PIP) and the fill material in the bridge approach. This will remove a stream channel constriction—reducing flow velocity alteration at the site, improving flow and material (LWD) passage and restoring river access to floodplain area that is now blocked by the abutment approach. Remove burned bridge stringers from inside the current abutment location.

Treatment #C2 – Open Floodplain Channels: Remove fill material blocking flood flow channels in the 30-Mile Campground/Trailhead loop road. Remove the existing 48” CMP and associated fill as well as some of the fill material near the eastside bridge abutment. Removal of fill material will reopen high flow dissipating side channels in the Chewuch River floodplain at this critical location.

Road and Trail Treatments

Purpose: Implement actions to: (1) minimize the potential for concentration of accelerated surface runoff from Forest Service roads and trails within the 30 Mile Fire area in the Chewuch River watershed. (2) minimize the potential for road/trail related surface/mass erosion and accelerated sediment delivery to high value fish habitat (listed species) and downstream private water supplies. and (3) reduce road-related hazards related to the burned area. Further, the treatments will meet the intent of the applicable direction requiring road drainage to be designed to minimize accelerated sedimentation and handle storm flood events while maintaining aquatic connectivity. All proposed treatments are on the West Chewuch River Road unless otherwise noted. Also refer to treatments L1 and L2 for road-related revegetation treatments.

Roads

Treatment #R1 - Improve Ditch Relief: Construct rolling outsloped dips with surfacing to improve ditch relief and ability of road to better handle anticipated increases in surface runoff. Armor dip inlets and outlets, especially on exposed fills. Several sites will require removal of existing undersized or damaged culvert. Log or Eco-log structures will be installed within run-out area of dips to help further disperse runoff.

Treatment #R2 - Reestablish Drainage Ways: Install armored fords on selected intermittent channels and debris flow tracks to reestablish more natural flow pattern. Fords will be designed to keep storm flow within the channel area.

Treatment #R3 – Replace 18” Culvert – Remove and replace a damaged 18” round, ditch relief CMP. Log or Eco-log structures will be installed within run-out area to help further disperse runoff.

Treatment #R4 – Harden Existing Culvert Installations: Clear blockages from existing culvert installations. Install rock headwall, collar and apron to improve efficiency of structure and to minimize scour and slough. Log or Eco-log structures will be installed within run-out area to help further disperse runoff.

Treatment #R5 - Stabilize Fill Slope: Spot placement of large rock to reduce the potential for fill slope erosion and accelerated sediment delivery to stream channel at selected sites.

Treatment #R6 - Restore Road Prism: Decompect and re-establish natural surface characteristics (roughness - armoring) on three floodplain level system roads (~ 0.4 miles total) within the Chewuch River RHCA in order to reduce accelerated surface water concentration, erosion and delivery (2 dispersed site and 30 Mile CG loop roads). Work will require tracked excavator and walking (Spyder) excavator.

Treatment #R7 –Remove Road Fill at MP 4.5: Decompect and re-establish natural surface characteristics (roughness - armoring) at one site (~ 0.1 mile) of the West Chewuch River Road at Milepost 4.5. This road segment is located immediately adjacent to the Chewuch River. A large existing debris jam is directing flow and causing fill slope erosion near bankfull stage. The site is located in the most laterally active reach of the Chewuch River and will be subject to increased channel shift post-fire resulting in increased sediment input and potential loss to critical fish habitat. The site is anticipated to be a major collection point for LWD. Reestablish 0.1 mile of road in scree-talus slope well above flood stage.

Treatment #R8 - Stabilize Roadbed: Spot rock with native pit-run and/or crushed aggregate to help reshape and stabilize road prism to improve surface drainage.

Treatment #R9 - Manage Road Surface Water: Blade road surface, pull specific ditchline sections, remove outside berms and outslope where appropriate to improve road surface drainage. Remove rock and woody debris blocking ditchline.

Treatment #R10 - Control Traffic: Install Powder River style gate just above Andrews Creek Trailhead to control all traffic into burned area. (Other Funding source)

Treatment #R11 – Sign for Hazard/Closure: Purchase and install closure and burned area hazard notification signs to inform public of post-fire conditions and management actions taken to protect public safety. ~~(Other Funding source)~~

Trails

Treatment #T1 – Improve Trail Drainage: Install drain dips on 5.1 miles of trail to reduce the potential for runoff concentration and accelerated surface erosion from anticipated fire effects. Dips will vary from rolling outslope dips to waterbars constructed from peeled and anchored native wood material.

Other Actions

Treatment # OA1 – Protect cultural resources : Inventory, Evaluate and Treat Cultural Resources: Tribal consultation; pedestrian survey of up to 5.6 miles of system road, up to 5.1 miles of trail; inventory, documentation and evaluation of four cultural resource sites; and development and implementation of protective treatments as needed.

Treatment # OA2 - Evaluate LWD Loading: Determine need for additional LWD in Chewuch Flood Plain inside the burned area. BAER survey team recognized a concern to address this issue.

BAER Evaluation

BAER Survey and Implementation Plan. Support completion of BAER survey and development of the Thirtymile BAER Implementation Plan

BAER Treatment Monitoring: This section addresses the monitoring of BAER treatments only (i.e. funded by BAER). The primary treatment effectiveness issues with the Thirtymile Fire are the establishment of grass cover to reduce the spread of noxious weeds and the effectiveness of road and trail treatments. Currently noxious weeds are along the roads. With fire disturbance to existing vegetation cover and BAER road treatments, there is a real concern with the spread of noxious weeds. The team proposes monitoring roads and known noxious weed infestations for three years for evidence of noxious weed spread. Monitoring of the tree planting BAER treatment is also required. See individual specialist reports listed in the table of contents for more specific monitoring information.

Long Term Monitoring: A variety of other monitoring projects are proposed *that cannot be funded by BAER.* These monitoring items include such things as: (1) Long term vegetation; (2) Stream Temperature; (3) Water quality-fine sediment deposition and (4) Large Woody Debris (LWD) recruitment and distribution. In support of these efforts and for long term recovery planning the following photography will be obtained: 1:6000 stereo color air photos of the river channel; 1:12000 color stereo air photos of the burned area; Forward Looking Infrared photography of the valley bottom and geo-referenced color video of the valley bottom. These Long Term monitoring items are more fully described in the specialist reports in the analysis file.

Part VI - Emergency Rehabilitation Treatments and Source of Funds						
		by Land Ownership			1/	
		Burned Area Emergency Rehabilitation				
No.	LINE ITEMS	UNITS	NUMBER OF UNITS	UNIT COST	WFSU-FW22 AMOUNT	OTHER 2/ FUNDING
	A. LAND TREATMENTS					
L1	Hand Seed, Pull, Spot Spray, noxious weed sites and road work areas (3 Yrs for control work)	Ac	26	252	19,656	
L2	Mow Roadside Weeds outside fire area (3 yrs for control work)	miles	20	65	3,900	
L3	Plant Conifers in riparian area	Ac	200	200	24,800	15,200
L4	Install Log Terraces above 30 mile campground	Ac	10	400	4,000	
	B. CHANNEL TREATMENTS					
C1	Remove Bridge Abutment	Ea	1	4,300	4,300	
C2	Open FloodPlain Channels	Ea	1	4,850	4,850	
	C. ROADS/TRAILS					
R1	Improve Ditch Relief	Ea	10	1,420	14,200	
R2	Re-establish Drainageways	Ea	4	2,000	8,000	
R3	Replace 18" Culvert	Ea	1	2,000	2,000	
R4	Harden Existing Culvert Installations	Ea	10	400	4,000	
R5	Stabilize Fill Slope	Ea	3	2,000	6,000	
R6	Restore Road Prism	Ea	3	2,358	7,074	
R7	Remove Road Fill @ MP 4.5	Ea	1	19,530	19,530	
R8	Stabilize Roadbed	Ea	1	3,500	3,500	
R9	Manage Road Surface Water	Mi	5.6	800	4,480	
R10	Control Traffic	Ea	1	1,200		1,200
R11	Sign for Hazard /Closure	Ea	15	100	1,500	
T1	Improve Trail Drainage	Mi	5.1	2,000	10,200	
	D. OTHER					
OA1	Protect Cultural Resources	Ea	1	4,000	4,000	
OA2	Evaluate LWD Loading in Chewuch Flood Plain	Ea	1	30,000	30,000	
	E. BAER EVAL./ADMIN.					
	BAER Survey & Impl. Plan				34,300	
	BAER Land Treatment Monitoring (Weed, roads, seeding, planting)	Year	3	3,333	10,000	
	BAER Cultural Surveys				6,000	
	Long Term Veg. Monitoring					10,000
	Stream Temperature Monitoring					1,300
	Water Quality – Fine sediment monitoring					5,000

	Air Photos of Burned area and channel for effects monitoring					7,500
	FLIR/Color Video Flight (burned reach of total flight - 8/10/01)					2,500
	LWD Monitoring – Recruitment & Distribution					\$9,000
	F. TOTAL				226,290	51,700
	1/ All NF System lands - No other ownerships involved					
	2/ Other FS funding sources					

PART VII - APPROVALS

THIRTYMILE FIRE

1. /s/ Sonny O'Neal
Forest Supervisor

Date: August 2, 2001

2.
Regional Forester

Date:

Appendix A
Thirtymile Fire
Noxious Weed Management
(Includes seeding, manual and chemical control and mowing)

Summary of Noxious Weed Management Costs

Item/Species	Cost per Unit	Units Treated	Cost Per Season	Total Cost for 3 years
Roadside mowing both sides of the road	\$65/mile	20 miles	\$1,300	\$3,900
Hand pulling, 1 treatment per season*	\$250/ac yr. 1 \$150/ac yr. 2 \$100/ac yr. 3	26 acres	\$6,500 \$3,900 \$2,600	\$13,000
Administration noxious weed treatments	\$1,000/year	All projects	\$1,000	\$3,000
Application of seeding for noxious weed control	\$30/ac	26 acres	\$780	\$780
Seed for Noxious Weed Control seeding	\$41/acre	26 acres	\$1,066	\$1,066
Total Treatment				\$21,746
Seed Treatment Monitoring		26 acres	\$2700	\$8000

*It may be possible to use herbicide treatments at campground and trailhead

WEED TREATMENT SEED SPECIFICATIONS

Species For Noxious Weed Treatment	Seeds/lb	Seeding Rate lbs/acre	Seeds/Ft2/acre	Cost/lb	Cost/Acre
Noxious Weed Treatment					
Sheep Fescue Festuca ovina	680,000	2	31	\$1.50	\$3.00
Streambank Wheatgrass <i>Elymus lanceolatus</i> var. <i>psammophilus</i>	170,000	10	39	\$3.00	\$30.00
Slender Wheatgrass <i>Elymus trachycaulus</i> var. <i>trachycaulus</i>	125,000-160,000	8	30	\$1.00	\$8.00
Seed Totals		20	100		\$41.00/ac

All seeding rates are for certified seed. If certified seed is not available and you MUST use non-certified seed only if it is at least 90% pure and has 90% germination. ACCEPT NO SEED WITH ANY NOXIOUS WEED CONTENT

Appendix B

Seeding Rationale Thirtymile Fire

On the Thirtymile Fire, the seeding treatment will be used as a cultural method to reduce noxious weed invasion and spread. This seeding treatment will use competitive domestic grasses on the roads, in areas disturbed by road work and in the Thirtymile camp area.

Use of grass seeding to suppress Noxious weeds:

Noxious weeds are a concern in the fire area. The introduction and spread of noxious weeds can reduce the diversity and abundance of native vegetation, forage, diversity and quality of wildlife habitat, increase erosion and decrease water quality (ICEBMP 1997). Wildfire and road treatments may increase the potential for weed introduction and spread by removing vegetation the litter layer and “A” soil horizon, thereby creating an ideal seedbed for noxious weeds. Noxious weeds inhibit natural stand development and reduce natural biological diversity. Weeds may also inhibit re-establishment of native plants including trees. A number of weeds are established in the area and without treatment, may increase as a result of the open stand conditions. Seeding adjacent to known weed populations should help to reduce their susceptibility to invasion. It is well documented that vegetated sites are more resistant to weed invasion than sites devoid of vegetal cover. Shelley at Montana State is a strong supporter of revegetation as a means to inhibit weed invasion. Larson and McInnes (1989) found that some grasses were particularly effective at inhibiting encroachment of diffuse knapweed. Perennial domestic grass species are proposed and should occupy disturbed sites that are at risk from nearby noxious weeds.

Terry R. Lillybridge
Plant Ecologist

Rod Clausnitzer
Plant Ecologist

Appendix C
THIRTYMILE FIRE
NON-STRUCTURAL LAND TREATMENT
ASSESSMENT NARRATIVE

GENERAL

Fire is a natural component of the landscape in this area and a number of fires have previously burned parts of what is now the Thirtymile fire (see map below). The Thirtymile Fire is approximately 9,300 acres and falls entirely within the Chewuch River watershed where the fire area covers about 3% of the watershed. Approximately 3155 acres lie within the Pasayten Wilderness and 3171 acres falls in the Chewuch Research Natural Area. See attached map. Elevations range from 3,300 feet at the lowest point to nearly 6000 feet on Thirtymile Mountain. The fire is about 3 miles from east to west and 6 miles from north to south.

Slopes are very steep and soils erosive (predominantly). Glaciation and other erosional processes has removed most of the volcanic ash and other fines from the slopes leaving bedrock and other large rock exposed on the side and upper ridges. The area is densely forested with Douglas-fir, ponderosa pine and lodgepole pine, spruce and subalpine fir. Most of the fire area falls within the Douglas-fir zone. Drier sites fall within the Douglas-fir zones and support understory species such as pinegrass, pachistima and kinnikinnik. As moisture and elevation increases, subalpine fir becomes the climax dominant but species such as grouse whortleberry and low huckleberry become common. See Appendix E for a Land Treatment analysis matrix.

Fire intensity was mapped using the criteria listed in the 1995 Fire Rehabilitation Handbook. Mapping was completed from ground surveys with follow up helicopter surveys. Approximately 16% of the fire area experienced high intensity burn. About 23% was low intensity and 62% moderate. There were a few unburned patches found within the low intensity burn areas. As is characteristic in high intensity fire burned areas, essentially all of the litter was consumed leaving white ash. Essentially no needles or leaves remained in the high intensity fire burned areas. There was no evidence of water repellant soils. Although most of the above ground parts of the understory plants were consumed, most roots examined appeared to survive the burn and many will re-sprout. Some sprouting is already occurring from shrubs along the Chewuch River.

Fire Intensity (acres): 2105 (low-23%) 5754 (moderate-62%) 1466 (high-16%) –See Attached Map

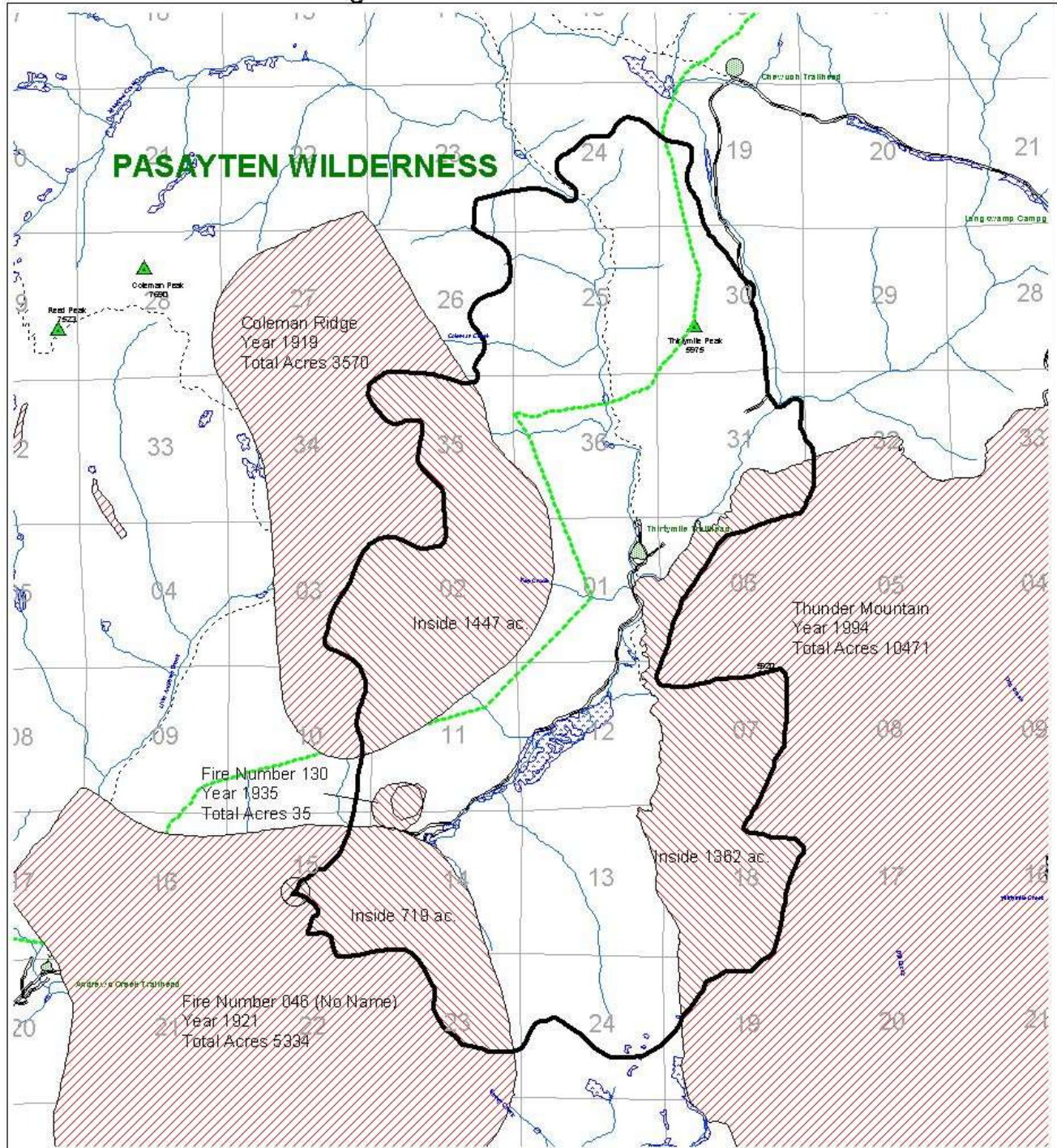
Treatment Narrative

The non-structural treatments include erosion control seeding of newly disturbed areas along the road system, seeding along the roads to inhibit weeds and mowing for weed management. There will also be manual and herbicidal control of existing weeds along the roads and in Thirtymile Campground and trailhead. Additionally, planting of conifers will be done in the riparian areas in order to accelerate recovery, maintain conifer diversity and accelerate succession.

Roads contribute a significant amount of sediment and often serve as the point of initiation for overland water flow. Those areas along road corridors that have been freshly disturbed from such things as culvert replacement and drainage feature construction will be seeded to develop a perennial plant community to reduce the sediment contribution from the road, protect the road and to reduce risk of weed establishment.

Conifers, lacking the ability to root-sprout, are commonly killed outright by even fairly low intensity fire. In the Thirtymile fire, nearly all the conifers were killed both in the riparian bottom and on the slopes. Planting of the bottom will be done to accelerate recovery, maintain conifer diversity and accelerate succession. Primarily Engelmann spruce and Douglas-fir will be used. The moist nature of these sites should provide for excellent planting success.

Thirty Mile Fire Okanogan - Wenatchee National Forests



Fire History

- Outside of Perimeter
- Inside Perimeter

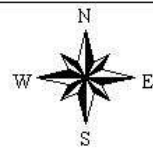
Total Within Fire Perimeter 3563 ac.

Print Date: July 31, 2001



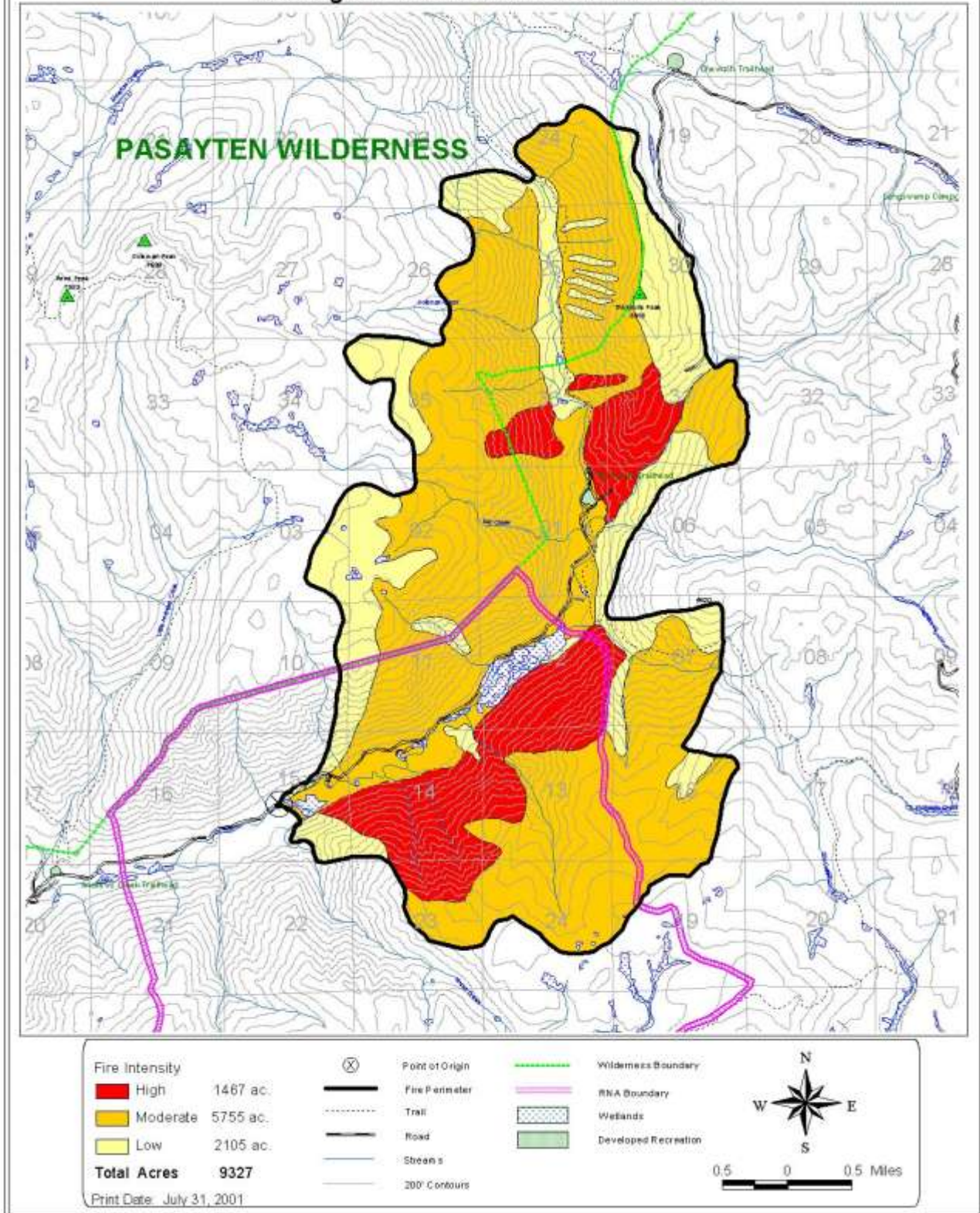
- Point of Origin
- Fire Perimeter
- Trail
- Road
- Streams

- Wilderness Boundary
- RNA Boundary
- Wetlands
- Developed Recreation



0.5 0 0.5 Miles

Thirty Mile Fire Okanogan - Wenatchee National Forests



Note: Fire Intensity is measured by rating site factors that include: the depth and color of ash, the size and amount of live fuel consumed, the litter consumption, the survival of plant root crowns and the amount of soil crusting. Although this fire exhibited severe fire behavior, the short residence time of the fire resulted in much of the fire area being rated as low or moderate fire intensity.

Appendix D

Values at Risk

The values at risk from the burned area include the area from the burned area down the Chewuch River to Winthrop.

<u>Values at Risk</u>	<u>Number</u>	<u>Value each</u>	<u>Total Value</u>	<u>Risk from Fire**</u>	<u>Location</u>
Homes in floodplain	15	\$150,000	\$2,250,000	Low	Downstream
Fish Screens	3	350,000	1,050,000	Low	Downstream
Irrigation diversions	3	175,000	525,000	Low	Downstream
Irrigation ditches	3	100,000	300,000	Low	Downstream
Fish Acclimation Pond	1	1,000,000	1,000,000	Low	Downstream
Campgrounds on NF lands	3	100,000	200,000	Low	Downstream
Ecosystem structure & Function (habitat loss from weeds and control costs)		500,000	500,000	High	Onsite
Lumery Meadows	1	1,000,000	1,000,000	Low	Downstream
Road in burned area	5.6 mi	100,000	560,000	High	Onsite
*Miles of anadromous fish habitat for T&E species	35		<u>50,000,000</u>	High	Onsite & Down
TOTAL ALL			<u>57,385,000</u>		

*10 miles of the stream are in good to excellent condition

**Risk from fire is: the likelihood that changes in soil and water conditions as a result of the fire would affect the values at risk either in the fire area or downstream.

There is an inherent risk to the downstream structures and resources every year from flooding or low flow. A low rating indicates the BAER team does not believe there will be an increase in that risk to those values as a result of the Thirtymile fire.

APPENDIX E

Erosion, Vegetation Cover and Fire Intensity ANALYSIS MATRIX

<u>Slope Class</u>	<u>Fire Intensity Levels</u>			
--------------------	------------------------------	--	--	--

%	Low	Moderate	High	Total
0 – 15	327	700	9	1,036
16 – 40	658	1,729	104	2,491
41 – 60	479	1,283	357	2,119
61 +	634	2,037	997	3,668
Total	2,098	5,749	1,467	9,314

<u>Category</u>	<u>Acreage</u>	<u>Comment</u>
No potential for seeding	2,098	Fire effects on vegetation minimal and seeding would have little impact on recovery rate
Potential for seeding	2,542	Fire effects on vegetation will slow recovery and may get a positive impact on vegetation cover from successful seeding with favorable slope and soil factors
No potential for seeding	4,674	Fire effects will slow recovery but nature of slope and soil factors make success of treatment unlikely