

United States
Department of
Agriculture

Forest
Service

Clearwater NF

Reply To: 2520

Date: September 9, 1988

Subject: Emergency Burned Area Watershed Rehab Plan - Opus 7

To: Regional Forester

Enclosed is our initial Burned Area Report requesting emergency watershed rehabilitation funds (FFF-092) to be used on the Opus 7 fire. The burned area involves 1045 acres of primarily commercial timber production ground, two anadromous fishery watersheds, US Highway 12, and the Lochsa River.

Emergency funds are requested for the purposes of reducing the potential for catastrophic soil movement that may result in debris avalanches and stream torrents, for rapidly and effectively reducing soil creep that is already evident and that would cause long-term loss of site productivity as well as cause a reduction in water quality, and for controlling the direct effects of the fire on the involved streams. Suppression damage rehabilitation needs, and funds, as well as other resource needs and funds, are identified where they support the emergency watershed issues. Emergency watershed rehabilitation activities have been coordinated with all other resources.

Non-emergency rehabilitation needs that have resulted from the fire or from the suppression efforts for all resources (including soil and water resources) are being inventoried and planned. A complete all-resources rehabilitation report is being developed. This report will be a supplement to the all-resources report.

The team leader for the rehabilitation Team is Rick Patten, Forest Hydrologist, and the Powell District Ranger is Lee Clark. They can be contacted for any immediate technical questions that you may have concerning this request.

/s/Robert E. Littlejohn
for
FRED L. TREVEY
Forest Supervisor

cc:
Powell District Ranger

Enclosure

BURNED AREA REPORT

DATE: 9-9-88

PART I - TYPE OF REQUEST

1. (List as appropriate) A. Funding Request
2. A. Initial

PART II - FIRE LOCATION

1. Fire name: Opus 7
2. Supervisors Fire Number: ID-CWF-840
3. State: 16 Idaho
4. County: Idaho
5. Region: 1
6. Forest: 05 Clearwater
7. Ranger District: 6 Powell
8. Date Started: 8-26-88
9. Date Controlled: 9-6-88
10. Estimated suppression costs: \$2,250,000
11. Fire suppression damage repaired with FFF 102 funds: \$3,300 plus (est)
 - a. 9.0 . miles of firelines waterbarred
 - b. 7.2 . acres of firelines seeded
 - c. 1.5 . other (identify) acres admin. site & campground till & seed
12. Fire intensity 60% low 35% medium 5% high

PART III - NATIONAL FOREST SYSTEM PROBLEM INVENTORY

1. Watershed Number: 17060303-13 Squaw Creek 17060303-14 Badger Creek
2. NFS acres burned: 1,045
3. Water repellant soil: <1 % NFS acres burned
4. Vegetation types: 40% western red cedar/clintonia
 30% grand fir/clintonia
 20% Douglas fir/ninebark
 5% western red cedar/lady fern
5. Geologic types: Steep dissected breaks & colluvial slopes w/mixed ash caps
6. Soil erosion hazard rating: 60% low 20% medium 20% high
7. Erosion potential: 16.3 cu.yd./sq.mi. (sediment)
8. Miles stream channel by regional order or class: 1-3.75 2-0.75 4-2.25
9. Miles FS trails: none
10. Miles FS roads by maintenance level:
 - a. 5.8 (level I) b. 0 (level II) c. 4.9 (level III, IV, V)

BURNED AREA REPORT

PART IV - CALCULATED RISK AND CLIMATIC EVALUATION

1. Est. veg. recovery period: 10 years
2. Chance of success desired by management: 80 %
3. Equivalent design recurrence: 20 years
4. Related design storm duration: 24 hours
5. Related design storm magnitude: 1.6 inches
5. Related design flow: 28 cfs
7. Estimated reduction in infiltration: 0 %
8. Adjusted related design flow: 28 cfs

PART V SUMMARY OF SURVEY AND ANALYSIS

1. Skills represented on burned area survey team (list as appropriate):
Hydrologist Soil Scientist Fish Biologist Silviculturist
2. Describe emergency: Wildfire involved 1,045 acres in two watersheds. Land is classified "E1" in Forest Plan. Timber production & water quality, & fish are primary concerns. Anadromous fisheries (steelhead/chinook).
3. Emergency rehabilitation objective: Minimize risk of catastrophic failure burned over subwatersheds, protect water quality & fish habitat & improvements and protect soil productivity for timber production.
4. Probability of completing treatment prior to first major damage producing storm:

Land	70%	Channel	90%	Roads	95%	Other	%
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5. Net Environmental-quality benefit index: 1.0 SIGNIFICANT
6. Net Social-well-being benefit: NOT SIGNIFICANT
7. Benefit/cost ratio: 1.4 SIGNIFICANT
8. Net benefits: \$50,963
9. Cost effectiveness index (choose one): b. II

BURNED AREA REPORT

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PART IV

ELIGIBLE EMERGENCY REHABILITATION MEASURES OR TREATMENTS AND SOURCE OF FUNDS

(Emergency rehabilitation is work done promptly following a wildfire and is not to solve watershed problems that existed prior to the wildfire.)

		<u>NFS LANDS</u>			<u>OTHER LAND</u>					
	Units	Unit	units	FFF	092	other	units	federal	non-fed	total
		cost	#	\$	\$	\$	#	\$	\$	\$
A. LAND	.	.	.	.	.	.	.	.	.	.
SEEDING	Acres	52	245	12600	1800	.	.	.	.	14400
remove logs	acres	450	20	9000	.	.	.	.	.	9000
B. CHANNELS	.	.	.	.	.	.	.	.	.	.
opening	.	.	.	.	.	.	.	.	.	.
water	.	.	.	.	.	.	.	.	.	.
courses	Miles	.2267	1.5	.	3200	.	.	.	.	3200
stabilizing	.	.	.	.	.	.	.	.	.	.
streambanks	Miles	.	.	.	.	.	.	.	.	.
	struct	700	13	9000	.	.	.	.	.	9000
C. ROADS & TRAILS	Miles	.	.	.	.	.	.	.	.	.
MAJOR STRUCTURES	Each	.	.	.	.	.	.	.	.	.
E TOTAL	.	.	.	30600	5200	.	.	.	.	35800

PART VII - APPROVALS

Forest Supervisor approval and date: /s/ Robert E. Littlejohn 9/9/88 for FLT
 Regional Forester approval and date: /s/ John W. Mumma Regional Forester

Summary of recommended Emergency Watershed rehabilitation Efforts

Unit 7 (point of origin)

Description of emergency:

This was a cutting unit under contract had been two-thirds yarded when the fire started. The fire burned hot and fast through the unit and above the road above it consuming all the surface materials except logs. Small portions appeared to exhibit hydrophobic soil conditions. About 30 percent of the unit is and will slough and be subject to dry creep. Some of the unyarded logs are not anchored on the 60-70 percent slopes, and are likely to roll into the drainage system.

This basin heads about 2/3 up the unit and eventually drains across Highway 12 and directly into the Lochsa River. There is appreciable risk, given a moderate event which is not unusual in the form of fall rains or spring melt, that rolling debris will cause severe channel erosion; and that the unprotected slopes will erode and deliver large amounts of soil to the live stream draining the unit. Soil losses, particularly the rich volcanic ash, could significantly reduce the site's potential to grow timber.

Recommended responses:

- 1) In order to provide some rapid and timely stabilization through some fall and early spring germination and root growth, aerial seed the entire unit and associated burned area (approximately 65 ac.) with the "El-mix" of annual rye and white Dutch clover (est. cost = \$4100 FFF-092). Add Ponderosa Pine seed to the mix, if available, for an initial reforestation treatment to be followed up by planting (est. cost is unknown and would be paid with Other \$).
- 2) In order to stabilize the loose logs, yard, anchor to stumps, or orient perpendicular to the contours all remaining unanchored logs below the road. It would be beneficial to leave logs anchored to stumps in place. Est. cost = \$9000 FFF-092 for move-in, move-out, and yarding with a line machine. Some or all of these cost may be avoided through the completion of the open logging contract, or through a salvage contract.

"Blowup" in sec. 29 of Squaw Cr. & "Badger Spot" in sec. 28 of Badger Cr.

Description of emergency:

Intense burning, and in some cases reburning, on these two separate areas has caused some soil damage with the potential of surface erosion, sloughing, or dry surface creep until a vegetative cover is established. The areas of soil damage are usually not continuous and the sites are not proximal to streams. Delivery efficiencies on the "Blowup" unit are very high.

Recommended responses:

In order to provide some rapid and timely stabilization through some fall and early spring germination and root growth, aerial seed the portions of both units that have had most of the surface vegetation consumed down to mineral soil (approximately 38 ac.) with the "El-mix" of annual rye and white Dutch clover (est. cost = \$2000 FFF-092). Add Ponderosa Pine seed to the mix, if available, for an initial reforestation treatment to be followed up by planting (est. cost is unknown and would be paid with Other \$).

Section 32 in Squaw Cr.

Description of Emergency:

Most of this area is classified as unsuitable in the Forest Plan. Soils are mostly coarse textured and thin, and they are highly susceptible to dry creep as long as they are bare of vegetation. Landforms in the area are frequently bluffs and steep breaklands with high delivery efficiencies to Squaw Creek.

Recommended responses:

In order to provide some rapid and timely stabilization through some fall and early spring germination and root growth, aerial seed the entire area identified on the map (approximately 100 ac.) with annual rye and white Dutch clover (est. cost = \$5200 FFF-092). Add additional seed to the mix for the benefit of wildlife (hard fescue, Canada bluegrass, smooth brome, and orchard grass) to constitute the "Wildlife mix" (est. cost = \$1800 Other \$).

Crooked-Mink unit 29

Description of Emergency:

Intense burning consumed most of the surface vegetation from a previously logged helicopter ITM unit. A steep live stream which heads high above the unit drains it to Squaw Creek. All surface vegetation on the beds and banks of the small stream were also consumed leaving little for stabilization since the instream and adjacent live trees had been previously removed. Slough and dry surface creep is occurring and is expected to continue until cover is established. This condition along with the unstable nature of the stream channel creates a potential risk of violent stream torrents occurring which would damage the Squaw Creek Road at its mouth (a main arterial), and Squaw Creek itself.

Recommended responses:

1) In order to provide some rapid and timely stabilization through some fall and early spring germination and root growth, aerial seed the cutting unit and adjacent burned area (approximately 20 ac.) with annual rye and white Dutch clover (est. cost = \$1000 FFF-092).

2) In order to provide some stability of the stream bed to withstand potential rapid runoff, install 13 log nick-point structures buried at the level of the existing stream bed and spaced approximately 50 feet apart in 660 feet of channel (est. cost = \$9000 FFF-092).

*log grade
stabilizers*

Squaw Creek Riparian Area

Description of Emergency:

The fire burned with high intensity and relatively long duration in several locations immediately adjacent to Squaw Creek for 0.5 miles and on the road cut of the road that parallels the creek for 1.5 miles within the fire where heavy fuels were available. Surface erosion potential has been increased, and along with the high delivery efficiencies because of proximity to the creek large amounts of sediment are likely to be delivered to Squaw Creek. This would endanger the water quality of the stream, the habitat for its anadromous fish (including Chinook salmon), and a major investment in instream structures for fish habitat.

At several sites along the 1.5 miles of Squaw Creek involved in the fire, buildups of cedar logs developed. Much of it is oriented such that it is beneficial to stream stability and for habitat. Some of it will cause severe erosion of the encroaching roadbed and banks, or will trap sediments to the degree that fish habitat will be damaged.

Recommended responses:

- 1) Apply the dozer line mix and fertilizer on severely burned road cuts and slopes within 30 feet of the road and/or stream on about 1.7 acres (est. cost = \$300 FFF-092).
- 2) Remove all tops and limbs from 1.5 miles of stream where heavy buildups occur (est. cost = \$300 FFF-092).
- 3) Remove new logs from the stream as identified by water resource and fisheries on the District. Identification guidelines are for accumulations of new logs more than one deep or less than 30 feet apart. Logs should be suspended at one end to the road and disposed of (est. cost = \$2900 Other \$ if salvaged or FFF-092).

All Dozer Lines

Description of Emergency:

Dozer control lines and the opening of old jammer roads throughout the fire have created the potential for significant surface erosion from overland flow, and for gullying and delivery of silt-laden water to live stream from channeling and scour of the bare surfaces.

Recommended responses:

- 1) Install waterbars immediately while resources are available with the criteria that crossdrains be established approximately 50 feet apart on an angle of 30 degrees and with a depth from 24 to 36 inches. Waterbars must drain freely off the dozer line. Dozer lines on level grades and when deeply bermed on both sides should have frequent drains cut through the berms. Estimated cost on 4.0 miles (7.2 acres) of dozer line = \$800 FFF-102. This operation was underway as soon as lines were established and resources were available.
- 2) Hand seed with "Dozer" mix and apply fertilizer with a minimum of 100 pounds of nitrogen and approximately 60 pounds of potassium and phosphorus per acre on all dozer line (FFF-102). Materials and spreaders were ordered prior to the declaration of control.

Handlines

Description of Emergency:

Handlines have created the potential for surface erosion from overland flow, and for gullying and delivery of silt-laden water to live stream from channeling and scour of the bare surfaces.

Recommended responses:

Install waterbars immediately while resources are available with the criteria that crossdrains be established approximately 50 feet apart and drain freely offsite. Where necessary (such as the lower 100 yards of the line in division D, spread litter and brush over the surface in lieu of waterbars. 5.0 acres) of dozer line = \$2500 FFF-102. This operation was underway as soon as lines were established and resources were available.

Applications for erosion control/stabilization of all dozer lines on OPUS 7.

Objective is to achieve 30 to 50% ground cover after two growing seasons.

SEED MIX for all dozer line, based on 144 PLS/SF

<u>%</u>	<u>Species</u>	<u># PLS / acre</u>	<u>% by weight</u>
30	annual rye	8.6	42
20	hard fescue "Durar"	2.4	12
20	Canada bluegrass "Ruebens"	0.6	3
15	smooth brome "Manchar"	7.4	37
<u>15</u>	white Dutch clover	<u>1.2</u>	<u>6</u>
100		20.2	100

7.2 acres x 20.2 #/ac = 150 pounds

FERTILIZER APPLICATION

100 # N / acre (minimum)
 60 # P / acre (approximate)
 60 # K / acre (approximate)

Formulate for these approximate ratios and 100 # nitrogen minimum per acre.

approx. 4 miles of dozer line @ 15 feet = 7.2 acres

"Wildlife" SEED MIX, based on 100 PLS/SF

<u>%</u>	<u>Species</u>	<u># PLS / acre</u>	<u>% by weight</u>
20	annual rye	6.5	35
15	hard fescue "Durar"	1.8	10
20	Canada bluegrass "Ruebens"	0.6	3
15	smooth brome "Manchar"	7.4	40
15	orchard grass	1.2	6
<u>15</u>	white Dutch clover	<u>1.2</u>	<u>6</u>
100		18.7	100

100 acres x 18.7 #/ac = 1870 pounds

"E1" SEED MIX, based on 100 PLS/SF

<u>%</u>	<u>Species</u>	<u># PLS / acre</u>	<u>% by weight</u>
50	annual rye	10.0	74
50	white Dutch clover	3.5	26
100		13.5	100

130 acres x 13.5 #/ac = 1755 pounds