

Date of Report: 7/9/02

BURNED-AREA REPORT

(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

- ☒ 1. Funding request for estimated WFSU-SULT 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 or design analysis
 ☐ Status of accomplishments to date
☐ 3. Final Report (Following completion of work)

PART II - BURNED-AREA DESCRIPTIONA. Fire Name: BirchB. Fire Number: CA-INF-602C. State: CAD. County: MonoE. Region: 05F. Forest: InyoG. District: White Mnt.H. Date Fire Started: 7/01/02I. Date Fire Contained: 07/03/02J. Suppression Cost: 1.2 million

K. Fire Suppression Damages Repaired with Suppression Funds

1. Fireline waterbarred (miles): 2
2. Fireline seeded (miles):
3. Other (identify):

L. Watershed Number:

M. Total Acres Burned:

NFS Acres(2,493) Other Federal () State () Private ()

N. Vegetation Types: Pinyon, sage, bitterbrush, Jeffery PineO. Dominant Soils: Waterman family, Sur family, Atter familyP. Geologic Types: Glacial Moraine (till), granitic rock

Q. Miles of Stream Channels by Order or Class:
Perennial: 2.90 miles, Ephemeral: 8.53 mi

R. Transportation System

Trails: 1/2 miles Roads: 5.96 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 523 (low) 1,839 (moderate) 136 (high)

B. Water-Repellent Soil (acres): 500 acres

C. Soil Erosion Hazard Rating (acres):
1035 (low) 933 (moderate) 525 (high)

D. Erosion Potential: Soil Creep and dry ravel on dominant erosional processes on slopes greater than 40%
6 tons/acre of rill and sheet erosion

E. Sediment Potential: 110 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 3-5 years shrubs, 30-50 years. Pinyon

B. Design Chance of Success, (percent): 80

C. Equivalent Design Recurrence Interval, (years): 25

D. Design Storm Duration, (hours): 6

E. Design Storm Magnitude, (inches): 1.8

F. Design Flow, (cubic feet / second/ square mile): 2

G. Estimated Reduction in Infiltration, (percent): 20

H. Adjusted Design Flow, (cfs per square mile): 4

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency:

Based on the BAER teams' field survey and analysis the following emergencies exist on federal and private lands.

Threat to life and property:

- Lower Rock Creek Road (Old Hwy.120) – There is a high risk of rock fall on approximately ½ mile on this high use road. The slope above the road is very steep (50-70% slopes) consisting of glacial moraine materials with cobbles and large boulders. The fire burned with moderate intensity in this area, consuming ground fuels and vegetation keeping the cobbles and large boulders in place. Evidence of increased rock fall is already present. Visitors and residences going south on Hwy. 395

use this road to access residences (Swall meadows and Paradise) and recreation opportunities (fishing, hiking, bicycling) within the Lower Rock Creek recreational area. There is public parking located along this road.

This road is maintained by Mono County. There is also a risk of culverts plugging from increased debris along a 3 mile stretch of road in the burn area. Some culverts are already partially plugged.

- Lower Rock Creek Bicycle Trail – The bridge on this trail crossing Birch Creek burned creating a hazard for hikers, runners and bicyclists along this trail. This trail is very popular, especially during weekend in the summer.
There is also a hazard of rock fall on approximately ¼ mile of trail within the burned area. This area burned with moderate and low intensity on steep slopes.
- Upper Rock Creek Road - There is a risk of rock fall on this busy road from steep sloping, moderate burn severity slopes above this road. The BAER team believes that the risk of rock fall is less than on Lower Rock Creek Road but exists nonetheless.
- Paradise Resort and Cabins – There is a risk of flooding from increased peak flows to the cabins and bridges in Paradise resort. There is approximately 3 stream miles from the burn to the resort with intact riparian vegetation inbetween, so the risk of flooding is low. The team felt that the resort owners should at least be aware of the increased watershed efficiency caused by the fire and take appropriate steps at the resort.

Threats to Ecosystem Stability and Soil Productivity

- Noxious/Invasive weeds – There is a high risk of invasion of noxious/invasive weeds in the fire area. Know species to occur throughout the fire area include Cheatgrass (*Bromus tectorum*), Russian thistle (*Salsola tragus*), mullein (*Verbascum thapsus*), tansy mustard (*Descurainia sophia*), tumble mustard (*Sisymbrium altissimum*)
Uncleaned heavy equipment was used to construct fire suppression lines along with numerous trips by heavy equipment and engines into the fire area. Cheatgrass and Russian Thistle are thought to be especially problematic throughout the fire area.
In pinyon and juniper tree woodlands, cheat grass has increased dramatically over the past 130 years, replacing sagebrush shrub steppe, riparian, and aspen plant communities. Mountain big sage habitat has been the habitat most severely effected by this invasion. Prior to human settlement, the typical fire regime was 12-25 years, but with human settlement and the invasion of pinyon and juniper forests, the fire regime has increased to about every 100 years. Due to the change in plant structure and fuel loads, fires often burn much hotter. These more intense fires can promote the invasion of exotics, most commonly cheat grass. At elevations below 6500 feet, cheat grass can begin to out-compete native shrubs and perennial grasses. If there is a reoccurring fire before native vegetation has had an opportunity to re-establish itself, the plant community may become entirely dominated by cheat grass so that a type conversion takes place. A more frequent fire cycle will then become established that will be a consistent threat to life and property.

Fire suppression lines may act as invasive highways carrying noxious weeds and invasive plants into uninfested wildland areas. Uncleaned heavy equipment was used to construct fire suppression lines, and along with numerous trips by heavy equipment and engines into the fire area can lead to new infestations. Following fire, soil nutrient conditions are more favorable towards noxious weeds and invasive species, thus promoting their introduction over native plant species. In the case of pinyon pine, sagebrush, and bitterbrush habitats, fire increases these areas' susceptibility to invasion by cheat grass.

- Mule Deer Transition Range: There is a risk of loss of forage within the intensively used spring transition range. The total loss from the transition range from this fire is ten (10) percent, however, the deer use the fire area intensely for two to four weeks. The lack of suitable forage will likely lead to nutritional stress during spring migration. Approximately ninety four (94) percent of the burned area receives "high" use, with the remainder receiving "average" use. Recently, the Pole and Tom fires have

impacted important winter range for this herd. Loss of habitat in the winter range makes the transition range more important as the deer are replenishing their nutritional reserves. This herd is currently 2,500 animals from a low of 1,000 in the late 1990's and a high of 6,000 animals in the 1980's.

- **Soil Productivity:** Invasive/noxious weed invasion and an increase in vehicles going off established roads in the fire are the biggest hazards to soil productivity in the fire area. The fire burned areas that are flat and very easily driveable, disturbance could slow native plant recovery, increase invasive/noxious weeds, and decrease soil fertility. Approximately 136 (5%) acres of the Birch Fire burned with high severity including a section of steep slopes, and discontinuous water repellent soils. Soils in this area are mostly derived from glacial moraine material and are very sandy, have rapid permeability, and are somewhat excessively drained. The majority of the soils have an "A" or "B" Hydrologic Soil Group meaning they have high rates of infiltration with low runoff potential (pre-fire). Increased overland flow, and erosion will occur but will be localized. Dry ravel and soil creep on the sandy non-cohesive soils appear to be dominant erosional processes on slopes greater than 40% (similar to the 2001 McLaughlin Fire).

B. Emergency Treatment Objectives:

1. Prevent loss of life and risk to human safety.
2. Reduce the risk of noxious/invasive weed infestations.
3. Reduce the risk of degradation to ecosystem functions and soil productivity.

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

Land 90 % Channel % Roads 90 % Other %

D. Probability of Treatment Success

Years after Treatment			
	1	3	5
Land	80	90	100
Channel			
Roads	90	95	100
Other			

E. Cost of No-Action (Including Loss):_ \$301,300 + greater risk to human life and noxious weed invasion (difficult to quantify)

F. Cost of Selected Alternative (Including Loss):_ \$225,000 + decreased risk to human life and noxious weed invasion.

G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input type="checkbox"/> Geology	<input type="checkbox"/> Range	<input type="checkbox"/>
<input type="checkbox"/> Forestry	<input checked="" type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input type="checkbox"/> Engineering	<input type="checkbox"/>
<input type="checkbox"/> Contracting	<input type="checkbox"/> Ecology	<input checked="" type="checkbox"/> Botany	<input checked="" type="checkbox"/> Archaeology	<input type="checkbox"/>
<input checked="" type="checkbox"/> Fisheries	<input type="checkbox"/> Research	<input type="checkbox"/> Landscape Arch	<input checked="" type="checkbox"/> GIS	

Team Leader: Todd J.Ellsworth

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Team Members

Jim Frazier: Hydrology

Erin Lutrick: Hydrology/GIS (trainee)

Andrew Breibart: Hydrology (trainee)

Casey Shannon: Watershed (trainee)

Richard Perloff: Wildlife

Sue Weis: Botany (extended team)

Lisa Sims: Fisheries (extended team)

Nicholaus Faust: Heritage Resources (extended team)

H. **Treatment Narrative:**

(Describe the emergency treatments, where and how they will be applied, and what they are intended to do. This information helps to determine qualifying treatments for the appropriate funding authorities. For seeding treatments, include species, application rates and species selection rationale.)

The following are proposed emergency treatments for the Birch Fire. These treatments were developed based on BAER objectives, team recommendations of proven, effective treatments, line officer/agency administrator input, as well as interagency BAER team effort and discussion. Due to high values at risk, multiple treatments may occur in the same area to address the same emergency situation, thereby improving the overall effectiveness of mitigating the emergency. Preventative treatments are targeted areas with risks to human health and safety and ecosystem stability and function. Control treatments are targeted at areas downstream from high and moderate severity areas, as well as at specific high value at risk sites. Treatments with low probability of success were eliminated by use of a preliminary least cost plus risk analysis to refine treatments.

Land Treatments:

1. *Natural Vegetative Recovery.*

Objective

This no cost treatment consists of allowing the on-site vegetative material to sprout or germinate to reduce emergency conditions throughout the fire area.

Methods

Observe natural vegetative recovery during the first growing season.

2. *Area Closure*

Objective

The Birch fire has made it easier to drive off road, disturbing soils, vegetative recovery and providing a vector for noxious weeds. Closing the fire area for 1-2 years would greatly facilitate post-fire recovery.

Methods

Place three(3) gates at access points into the fire area. Place signs at the gates explaining the closure. Write press releases to explain the closure.

3. *Straw Mulch*

Objective

Retard the spread of noxious/invasive weeds from known infestation "hot spots". This treatment, along with native seed spreading will greatly reduce the risk of noxious/invasive weeds spreading from known infestation areas.

Method

Place certified weed free straw mulch approximately 2-3 in. thick over approximately 22 acres. This treatment will be completed in conjunction with hand seeding of native grasses.

6. *Seed collection and propagation*

Objective

To collect and propagate bitterbrush seeds. Native grass seeds would also be collected. Bitterbrush is necessary to provide food for deer in their "transiton range" which burned. Native grass collection from around the fire area would be used to hand seed known noxious/invasive plant infestations.

Methods

Bitterbush seed collected around the fire area would be propagated both locally and at the Placerville Tree Nursery. Planting of shrubs would occur in fall of 2003. The seedlings would be planted at a density of 50 plants/acre. A total of 25,000 seedlings would be planted. The Forest is requesting funding for collection (to supplement existing stocks) and sowing. The Forest would seek other funding (National Fire Plan, Hill/Bill, appropriated, grants) to complete the planting in Fall 2003. The additional funding would amount to approximately \$68,500. The Forest is committed to completing this project and will make necessary time and finacial commitments to ensure success.

4. *Hand seeding*

Objective

To retard the spread of noxious/invasive weeds from known infestation "hot spots". This treatment along with straw mulch will greatly reduce the risk of noxious/invasive weeds spreading from known infestation areas.

Method

Collected native grass seeds would be hand spread before the straw mulch is applied. Species include Rice Grass (*Achnatherum hymenoides*), Squirreltail (*Elymus elymoides*), and Needle and Thread Grass (*Hesperostipa comata* ssp. *comata*). Application rates would be variable but generally range from 20 to 30 Pure live seed/ Sq. foot. The local California Native Plant Society along with volunteers from Swall Meadows housing development will be used to spread collected seed.

5. *Pulling Weeds*

Objective

Pull Russian thistle from known unburned infestation areas within the burned area before they set seed and spread into the burned area.

Methods

Physically pull the weeds from the ground. Dispose of them in plastic bags. This treatment should be completed immediately with a follow-up in August or September. A crew of 5 people can complete this in 4 hours.

Channel Treatments:

1. Culvert Cleaning

Objective

A large amount of dead willow and water birch branches are covering a culvert where Rock Creek crosses old Hwy. 395. Clearing the dead branches would facilitate passage of large debris during storm events.

Method

Trim dead branches approximately 50ft. upstream of the culvert.

Roads and Trail Treatments:

1. ChainLink Fence/suitable protective structure

Objective

There is a high risk of rock fall on old Hwy. 395. The fence would be placed in the high hazard area (1/2 mile) to catch cobbles and boulders that would otherwise roll or fall onto the Highway creating hazards for travellers.

Methods

Place a 3 or 4 foot high chainlink fence (or suitable alternative) for ½ mile above old Hwy. 395. The road is a Mono County maintained road. The Forest is currently working with the county on suitable placement, agreements on maintenance, cost sharing, etc. The BAER team believes that the risk of rock fall is high enough to warrant active preventive measures. Signing the road alone would not be adequate.

2. Hazard advisory signs

Objective

The objective is to advise road and trail users of the presence of a burned watershed and associated safety issues.

Methods

This treatment will be used on Old. Hwy. 395 and Upper Rock Creek road and the Lower Rock Creek trail (hikers, bikers, runners). Suggested wording:

“WARNING BURNED WATERSHED NEXT ___MILES – risk from flash floods, rockfall and debris

3. Bridge replacement

Objective

A bridge crossing Birch Creek (perennial channel) on Lower Rock Creek trail burned. A safety hazard exists to bicyclists, hikers and runners when crossing Birch Creek. This treatment will mitigate the safety hazard.

Methods

A new bridge will be placed where the old bridge burned. The bridge will be approximately 16 feet long and 3 feet wide flush with the existing trail to facilitate bicycle traffic. This trail is highly popular and not feasible to close. The Forest has the materials and expertise to construct a suitable bridge very quickly and at low cost.

4. *Storm Patrol*

Objective

This treatment will decrease the threat that post-burn rockfall and runoff will damage the trail tread and threaten human safety. This will occur on approximately ½ mile of trail within the burn area. Public safety and trail structural integrity are at risk from increased upslope erosion and rockfall hazard.

Method

A team of two people will be available and respond as needed with the shovels, etc. Patrols will be initiated based on local observations of significant precipitation/ runoff events.

5. *Advisory Letters*

Objective

The objective is to advise downstream users of the presence of a burned watershed and associated safety and flooding issues.

Methods

Letters will be written to Mono County Public Works Department and the owners of Paradise Resort (on Rock Creek downstream of the fire area) to disclose hazards associated with the fire. This is an effective, low cost treatment.

Structures:

N/A

I. Monitoring Narrative:

(Describe the monitoring needs, what treatments will be monitored, how they will be monitored, and when monitoring will occur. A detailed monitoring plan must be submitted as a separate document to the Regional BAER coordinator.)

1. Monitor the effectiveness of bitter brush plantings - \$1,500

Monitoring is designed to answer the following question: What is the survival of planted bitterbrush in the burned area?

Methodology: Approximately 50 plots would be set up to check survival of planted bitterbrush. Monitoring would not occur until Spring of 2004. A detailed plan would be developed at that point.

2. Invasive and Noxious weed monitoring (dozer lines and known infestation areas) - \$1,000

Invasive species/Noxious weeds - Monitoring is designed to answer the following questions. Are noxious weeds invading the fire area? Are invasive species (cheat grass) invading the fire area and adversely impacting native species recovery?

Methodology: Survey and monitor the burned area for noxious weeds and invasive plant species. Monitoring of noxious weeds consists of an initial survey of areas disturbed by the fire. The initial survey would also address preventive measures. Monitoring of invasive species is accomplished by establishing transects at known and unknown infestation areas and tracking invasion, Recommended

eradication or control measures would occur after monitoring in FY 2003. Year One costs will be \$1,000. Additional funds will be requested, if needed, for the remaining years. A detailed monitoring plan display specific monitoring plan design, monitoring report due dates, and plans for results dissemination is forthcoming.

Part VI – Emergency Rehabilitation Treatments and Source of Funds by Land Ownership

Area Closure	ac	1500	3	\$4,500			\$0		\$0	\$4,500
Straw mulch	ac	300	22	\$6,600			\$0			\$6,600
Seed collection		2500	1	\$2,500			\$0		\$0	\$2,500
Bitterbrush Prop.	ac	30	500	\$15,000						\$15,000
Weed eradication	ac	1	2000	\$2,000			\$0		\$0	\$2,000
<i>Subtotal Land Treatments</i>				<i>\$30,600</i>			<i>\$0</i>		<i>\$0</i>	<i>\$30,600</i>
B. Channel Treatments										
Channel Clearing	ft.	4	50	\$200			\$0		\$0	\$200
				\$0			\$0		\$0	\$0
				\$0			\$0		\$0	\$0
				\$0			\$0		\$0	\$0
<i>Subtotal Channel Treat.</i>				<i>\$200</i>			<i>\$0</i>		<i>\$0</i>	<i>\$200</i>
C. Road and Trails										
Chain Link Fence		35,000	1	\$35,000			\$0		\$0	\$35,000
Hazard signs(rd)	ea	500	4	\$2,000			\$0		\$0	\$2,000
Hazard signs(TR)	ea	250	4	\$1,000			\$0		\$0	\$1,000
Hazard Letter	ea	250	2	\$500						\$500
Trail Patrol	ea	7,000	1	\$7,000			\$0		\$0	\$7,000
<i>Subtotal Road & Trails</i>				<i>\$45,500</i>			<i>\$0</i>		<i>\$0</i>	<i>\$45,500</i>
D. Structures										
				\$0			\$0		\$0	\$0
				\$0			\$0		\$0	\$0
				\$0			\$0		\$0	\$0
				\$0			\$0		\$0	\$0
<i>Subtotal Structures</i>				<i>\$0</i>			<i>\$0</i>		<i>\$0</i>	<i>\$0</i>
E. BAER Evaluation										
Wages				\$9,000			\$0		\$0	\$9,000
Travel,vehicles				\$500			\$0		\$0	\$500
F. Monitoring										
Noxious weeds				\$1,000						
Bitterbrush				\$1,500						\$1,500
G. Totals				\$85,800			\$0		\$0	\$85,800

PART VII - APPROVALS

1. JoEllen J. Keil for July 15, 2002
Forest Supervisor (signature) Date

2. Bernie Weingardt (for) 7/18/02
Regional Forester (signature) Date