USDA-FOREST SERVICE FS-2500-8 (7/00)

Date of Report: 7/20/02

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[x] 1. Funding request for estimated WFSU-SULT funds
[ ] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

[x] 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 DESCRIPTION

A. Fire Name: Inyo Complex

B. Fire Number: INF-726

C. State: CA

D. County: Inyo

E. Region: 5

F. Forest: Inyo

G. District: White Mountain

H. Date Fire Started: 7/11/02

I. Date Fire Contained: 7/16/02

J. Suppression Cost: 1.5 M

K. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles):
2. Fireline seeded (miles):
3. Other (identify): Brush and topsoil pulled back 3 miles

L. Watershed Number: 1809010206 Middle Owens Sierra Escarpment (HUC 5)

M. Total Acres Burned: 6450
NFS Acres (6340) Other Federal (30) State ( ) Private (80)

N. Vegetation Types: sagebrush, bitterbrush, willow/cottonwoods(riparian)

O. Dominant Soils: Soils derived from granodiorite bedrock, glacial moraine deposits and alluvial fans. Soil families are Wrango, Berent, and Xeric Torriorthents

P. Geologic Types: Granodiorite of McMurray Meadows, moraine deposits(Sherwin, Tahoe, Tioga) alluvial fans and tallus deposits

Q. Miles of Stream Channels by Order or Class:
Perennial: 10, Intermittent: 0, Ephemeral: 8

R. Transportation System

Trails: 3 miles Roads: 5 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 5293 (low) 1131 (moderate) 26 (high)

B. Water-Repellent Soil (acres): 600

C. Soil Erosion Hazard Rating (acres):
5232 (low) 1157 (moderate) 0 (high)

D. Erosion Potential: 6 tons/acre

E. Sediment Potential: 3840 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years):	15
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):	1.4
F. Design Flow, (cubic feet / second/ square mile):	1.6
G. Estimated Reduction in Infiltration, (percent):	10
H. Adjusted Design Flow, (cfs per square mile):	3

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

- Big Pine Creek (Glacier Lodge Rd 9S21) – There is a risk of rockfall on approximately 1 mile on this high use road. The slope above the road is steep consisting of glacial moraine materials with large cobbles and boulders. The fire burned with low intensity in this area, mostly consuming and weakening ground fuels and vegetation keeping the cobbles and boulders in place. The fire will enhance the existing rockfall hazard. This road is used to access residences (private and recreation residences) and recreation opportunities (fishing, hiking, camping) within the Big Pine Canyon area.

Threat to Property

- McMurray Meadows Road (9S03) – There is a risk of culverts plugging from increased peak flows and debris where Little Pine Creek cross the McMurray Meadows road, this is on Los Angeles Department of Water and Power Lands, however road maintenance is Forest Service responsibility. There is also an increased risk of the culvert plugging where Birch Creek crosses the McMurray Meadows Rd. Approximately 74% of the Little Pine Creek watershed burned with mostly low and moderate intensity. Approximately 26% of the Birch Creek Watershed burned with mostly low and moderate intensity.

- Los Angeles Department of Water and Power Stream Gauge (LA DWP) (2051) in Little Pine Creek - There is a small risk of damage to this structure if water and debris plug the culvert and overtop the McMurray Meadows road.

- Los Angeles Department of Water and Power (LA DWP) - There is a threat of a culvert plugging and overtopping an unnamed 4 - wheel drive road on LA DWP lands where it crosses Little Pine Creek.

- Birch Creek Trail (33E02) – The Birch Creek trail travels through the fire area through the fire area up to Birch Lake. The fire burned with mostly low intensity with pockets of moderate and high intensity where the trail is close to the riparian areas. There is a risk of rockfall, dryravel and concentrated flows on the trail degrading the trail tread and causing off-trail watershed damage.

- Los Angeles Department of Water and Power (LA DWP) – Flood control structure on Big Pine Creek – There is a risk to the integrity of the flood control structure maintained by LA DWP on Big Pine Creek below where Little Pine Creek enters Big Pine Creek. Large woody debris and sediment could build up behind the structure causing impairment to operations.

Threat to Water Quality

- Little Pine Creek and Birch Creek – There is a high likelihood of ash and sediment entering both Little Pine Creek and Birch Creeks causing temporary degradation of water quality. Approximately 74% of Little Pine Creek watershed and 26% of Birch Creek watershed burned in this fire. Little Pine Creek flows into Big Pine Creek below the fire area. Birch Creek flows into Tinemaha reservoir, which is maintained by LA DWP.

Threat to Soil Productivity

- Invasive/noxious weed invasion and an increase in vehicles traveling off established roads in the fire are the biggest hazards to soil productivity in the fire area. The fire burned in areas that are flat and

easily drivable. Disturbance could slow native plant recovery, increase invasive/noxious weeds and decrease soil fertility. The majority of soils in the area have a hydrologic soil group "A" or "B" meaning they have high rates of infiltration with low runoff potential (pre-fire). The fire caused a 6-10% decrease in infiltration throughout the entire fire area. Soils in this area are mostly derived from glacial moraine material, are very sandy, have rapid permeability and are somewhat excessively drained. Increased overland flow and erosion will occur but will be localized. Dry ravel on the sandy non-cohesive soils will occur on slopes over 40%.

Threat to Ecosystem Stability

- Noxious/Invasive species – There is a risk of invasion of noxious/invasive weeds into the fire area. In an unburned meadow adjacent to the fire area the following species are known to occur: Cheatgrass (*Bromus tectorum*), Mullein (*Verbascum thapsus*), bull thistle (*Cirsium vulgare*), tansy mustard (*Descurainia Sophia*) and salsify (*Tragopogon Sp*.). Along McMurray Meadow the following species occur: Russian thistle (*Salsola tragus*) and halogenton (*Halogenton glomeratus*). Fire crews already removed the Russian thistle and Halogenton from known infestation sites.

  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; this 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 sagebrush, and bitterbrush habitats, fire increases these areas susceptibility to invasion by cheatgrass and other weeds.

  Due to the change in plant structure and fuel loads, fires often burn much hotter than pre-settlement fires. These more intense fires can promote the invasion of exotics, most commonly cheatgrass. 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 cheatgrass 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.

B. Emergency Treatment Objectives:

- Minimize impacts to downstream properties.
- Reduce the risk of noxious/invasive weed infestations.
- Reduce the risk of degradation to ecosystem function 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): **$68,147 + some loss of ecosystem stability (nx/invasive weeds)**

F. Cost of Selected Alternative (Including Loss): **$32,468**

G. Skills Represented on Burned-Area Survey Team:

[x] Hydrology [**x**] Soils [ ] Geology [x] Range [ ]
[ ] Forestry [x] Wildlife [ ] Fire Mgmt. [ ] Engineering [ ]
[ ] Contracting [ ] Ecology [**x**] Botany [ ] Archaeology [ ]
[ ] Fisheries [ ] Research [ ] Landscape Arch [x] GIS

Team Leader: Jim Frazier/ Todd Ellsworth

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Team Members:
Alex Janicki: Soils
Casey Shannon: Watershed (trainee)
Gary Milano: Wildlife (extended team)
Sharon Grant: Watershed/GIS
Sue Weis: Botanist (extended team)
Erin Lutrick: Hydrologist/GIS (extended team)
Nicholaus Faust: Heritage Resources (extended team)
Del Hubbs: Rangeland Specialist

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 Inyo Complex Fire. These treatments were developed based on BAER objectives, team recommendations of proven, effective treatments, line officer/agency administrator input, as well as BAER team effort and discussion. Preventative treatments are targeted areas with risks to property 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. Livestock grazing will be excluded from the fire area for at least the first growing season and possibly 3-5 years to facilitate native vegetative recovery.

2. *Advisory Letters*

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

   Methods
   Letters will be written to Inyo County Public Works Department and Los Angeles Department of Water and Power to disclose hazards and associated values at risk such as rockfall on Glacier Lodge Rd., culverts plugging, and the stream gauge on Little Pine Creek. This is an effective, low cost treatment.

3. Advisory Signs

   Objective
   This treatment is preventative. Signs will be placed in critical access points encouraging visitors to stay on main roads to facilitate native plant recovery, decrease noxious/invasive weed vectors and protect soil productivity.

   Methods
   Place three (3) advisory signs at entry points into the fire. Signs should be durable in nature, explaining the importance of staying on existing roads.

4. *Pulling weeds*

   Objective
   Remove weeds from the area around the Birch Creek Trailhead before they set seed and spread into the burned area (2 acres). Existing weeds include Bull thistle, salsify and mullein.

   Method
   The Forest will use an inmate or California Conservation Crew (CCC) to pull existing weeds before they set seed. Weeds will be placed in plastic bags and disposed of properly. The Forest is requesting funding for **supplies and equipment only**. The Forest will fund the crews to do the work. The Noxious/Invasive Plant white paper dated March 12,2001 encourages this kind of partnership to achieve objectives.

Channel Treatments:
N/A

Roads and Trail Treatments:

1. *Birch Creek Trail*

   Objective
   Upgrade and supplement existing erosion control structures on the Birch Creek Trail to facilitate proper water drainage off the trail.

   Method
   Place tread retaining structures and waterbars in critical points along the trail. Approximately 3 miles of the trail is in the burned area. Based on the initial field visit approximately 35 waterbars and 25-35 rock tread retaining structures are needed on the trail.

2. *Storm Patrol – McMurray Rd. and unnamed 4 wheel drive road*

   Objective
   This treatment will decrease the threat that post-burn enhanced peak flows will plug culverts by keeping the culverts clean during and immediately after runoff events.

   Methods
   A team of 2-3 people is formed and available to respond as needed. The team should have shovels, etc. to remove debris from the culverts. There are four (4) culverts at risk of plugging.

3. *Storm Patrol – Birch Creek Trail*

   Objective
   This treatment will decrease the threat that post-burn rockfall, and runoff will damage the trail tread and minimize off-trail erosion.

   Methods
   A team of two (2) people will be available and respond as needed with shovels, etc. The teams will ensure the erosion control structures are properly functioning. Patrols will be initiated based on local observations of large precipitation/runoff events.

4. *Hazard Advisory Signs – McMurray Meadows Rd.*

   Objective
   The objective is to advise road users of safety hazards associated with the road.

   Method
   Place hazard signs approximately 100 feet from the two (2) culverts at risk of plugging and washing out on the McMurray Meadows Rd.

5. *Temporary Closure*

   Objective
   Temporarily close an unnamed 4-wheel drive road leading through a known infestation of cheatgrass and tansy mustard. The temporary closure would remain in effect until after the cheatgrass and tansy mustard is removed next spring. This treatment would also facilitate native species recovery.

   Methods
   Place a gate at the trailhead sign, where the road enters meadow. Place a sign at that location explaining the temporary closure. Approximately 1 mile of road would be temporarily closed.

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. Invasive and Noxious weed monitoring (dozer lines and known infestation areas,Birch Creek Trail) - $1,500

Invasive species/Noxious weeds - Monitoring is designed to answer the following questions. Are noxious weeds invading the fire area? Are invasive species (cheatgrass) 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 $1,500. Additional funds will be requested, if needed, for the remaining years. A detailed monitoring plan displaying specific monitoring plan design, monitoring report due dates, and plans for results dissemination is forthcoming.

2. Monitor Vehicle Use – $2,000

Monitoring is designed to answer the following questions: Are signs an effective treatment to prevent off-road incursions into the fire area?

Methodology: Visit the fire area at least three (3) times before the rainy season to see if visitors are staying on the main roads. Record and photograph where vehicles have driven off-road. The observer would note how far the vehicles travelled off road, how many times (frequency), and the terrain. Recommendations and a report would follow in spring of FY 2003. Year One costs will be $2,000. Additional funds will be requested, if needed, based on the initial monitoring. A detailed monitoring plan displaying specific monitoring plan design, monitoring report due dates and plans for result dissemination is forthcoming.

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

A. Land Treatments										
Pull weeds	ac	400	2	$800			$0		$0	$800
Advisory signs	ea	500	3	$1,500			$0			$1,500
				$0			$0		$0	$0
				$0			$0		$0	$0
Subtotal Land Treatments				$2,300			$0		$0	$2,300
B. Channel Treatments										
				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
Subtotal Channel Treat.				$0			$0		$0	$0
C. Road and Trails										
Advisory letter-DWP	ea	250	1	$250			$0		$0	$250
Advisory Letters-Inyo	ea	250	1	$250			$0		$0	$250
Trail enhancement	mi	1600	3	$4,800			$0		$0	$4,800
Temp. closure	ea	1500	1	$1,500						$1,500
Advisory signs	ea	500	2	$1,000						$1,000
Road Patrol	ea	3,000	1	$3,000						$3,000
Trail Patrol	mi	666	3	$1,998			$0		$0	$1,998
Subtotal Road & Trails				$12,798			$0		$0	$12,798
D. Structures										
				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
Subtotal Structures				$0			$0		$0	$0
E. BAER Evaluation										
Wages				$15,000			$0		$0	$15,000
Travel, vehicle				$2,000			$0		$0	$2,000
F. Monitoring				$0			$0		$0	$0
sign effectiveness				$2,000						$2,000
NX/Invasive weeds				$1,500						$1,500
G. Totals				**$35,598**			**$0**		**$0**	**$35,598**

PART VII - APPROVALS

1. /s/ Garry Oye — 7-25-02
   for Forest Supervisor (signature) — Date

2. _____ _____
   Regional Forester (signature) — Date