

Date of Report: August 2, 2009

**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 DESCRIPTION**A. Fire Name: TennantB. Fire Number: CA-KNF-004692C. State: CaliforniaD. County: SiskiyouE. Region: 05F. Forest: KlamathG. District: GoosenestH. Date Fire Started: July 19, 2009I. Date Fire Contained: July 27, 2009J. Suppression Cost: \$4,500,000

K. Fire Suppression Damages Repaired with Suppression Funds

1. Fireline waterbarred (miles): 14  
2. Fireline seeded (miles): 0  
3. Other (identify):

L. Watershed Number: 1801020501M. Total Acres Burned:         

NFS Acres ( 2,510 )    Other Federal ( )    State ( )    Private ( 675 )

N. Vegetation Types: Ponderosa pine with brush understory and mixed conifer with brush understoryO. Dominant Soils: Sheld very stoney sandy loam, Kalo stoney sandy loam, Mojo stoney loam and Pinehurst stoney sandy loamP. Geologic Types: volcanic

Q. Miles of Stream Channels by Order or Class: Order 3: 5 miles

R. Transportation System

Trails: 0 miles      Roads: 8.5 miles

### **PART III - WATERSHED CONDITION**

A. Burn Severity (acres): 368 (unburnt/low) 659 (low) 2,039 (moderate) 116 (high)

B. Water-Repellent Soil (acres): 100

C. Soil Erosion Hazard Rating (acres):  
800 (low) 2,163 (moderate) 262 (high)

D. Erosion Potential: 0.6 tons/acre

E. Sediment Potential: 6.2 cubic yards / square mile

### **PART IV - HYDROLOGIC DESIGN FACTORS**

A. Estimated Vegetative Recovery Period, (years): NA

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

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

D. Design Storm Duration, (hours): NA

E. Design Storm Magnitude, (inches):

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

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

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

### **PART V - SUMMARY OF ANALYSIS**

A. Describe Watershed Emergency:

Due to the lack of streams and surface hydrologic connectivity only a few critical resource values were assessed which included: long-term soil productivity, noxious weeds, Highway 97, damaged riparian and meadows. Field investigations and subsequent analyses/models were used to determine their post-wildfire hazard and associated risk from potential debris flows, soil erosion and accelerated sedimentation.

**Debris flow risk** A sequential evaluation process assessed the post-fire watershed conditions starting at the hillslopes and moving downslope to determine potential hazards and associated risks to the various resource values just mentioned. First the hillslope burn severities were identified and mapped. A debris flow initiation and transport map was developed that is based on inherent soil-

hydrologic characteristics. Further field investigations of these resource values were conducted to determine if they were at risk from the post-fire induced hazards. It was determined that a summer thunderstorm has a high potential to cause shallow soil debris torrents on the steep scarp on the east side of the fire deliver sediment to the flat west of the Union Pacific tracks. The tracks are elevated and would not be impacted by potential debris flows.

**Tree falling** The potential for trees to fall on the tracks was evaluated and was determined to be a small risk of occurring due to the right-of-way on both sides of the tracks. We would rather err on the cautious side and do some falling to minimize claims against the Forest Service if a train accident should occur within the burned area that the track passes through.

**Public safety** within the fire area is a concern. There are three roads that the public can access the fire area from especially during hunting season.

**Meadow/riparian/aspen vegetation** Approximately 80 acres of meadow and stream side riparian vegetation was consumed by the Tennant fire. The burnt area is not a part of a grazing allotment and therefore is not grazed. In addition, suppression activities created approximately 3 acres of hand and dozer lines within the meadows and riparian areas. Those lines will be rehabilitated as part of the suppression repair work. Protection is necessary for at least two growing seasons for these areas to recover, establish vegetative cover and to protect aspen regeneration areas. The current riparian exclosure fence providing protection to the area was also impacted by fire in that many of the wood posts were burnt and wire was damaged by falling debris. The potential from livestock drift into these areas from both private and public lands exist if the fence is not repaired. Three options were considered for protecting these areas and allowing for recovery: 1) Repair 1.5 miles of existing fence; 2) Construction of 1.5 miles of temporary electric fence; and 3) remove cattle from Forest Service grazing allotments. The repair of the existing fence would be replacing the burnt wood posts, broken wires and corners with metal posts and rock jacks. Installing electric fence would require replacing existing burnt wood posts with metal and installing at least 3 wires of high tensile wire and insulators. Power is not available in the area so purchase of a solar powered fence charger and battery is also necessary. Removal of livestock and /or riding to keep livestock out is not a practical alternative due to the high cost (\$32,885) to the permittees to find alternative grazing on private lands. The property was purchased by several cooperators, USFS, Rocky Mountain Elk Foundation, Ducks Unlimited and California Department of Fish and Game to protect and enhance wetland and riparian habitat. Ownership was transferred to the USFS. The area borders four grazing allotments and private land that is grazed. Livestock would have to be removed from four grazing allotments and livestock could still drift from private land and impact recovery. Riding would have to be done continually as livestock would be naturally attracted to the more palatable vegetation of the riparian area and there would still be an issue with private landowners.

**Noxious weeds** were found to be a concern. As many as 15 dozers were used in the suppression actions, and the weed free status of equipment prior to deployment could not be determined. Weed species present within the boundary of the fire are: perennial pepperweed, along Hwy 97 at Mt. Hebron Summit, and Canada thistle along Butte Creek, south of Shafter Campground. There are also populations of noxious weeds adjacent to the fire area along Highway 97, Tennant and Bray roads. Species of concern are spotted knapweed, perennial pepperweed, Canada thistle, and dalmatian toadflax.

## B. Emergency Treatment Objectives:

The primary objectives of the Tennant Fire Burned Area Emergency Stabilization Plan were:

- To insure the BAER team's personal safety and provide for public safety during our assignment
- To assess the risk to human life and property and/or natural or cultural resources from impaired watershed conditions and to recommend appropriate stabilization actions to protect the following values:
  - Public safety
    - All major access roads into the fire were identified
  - Meadow/riparian vegetation protection from cattle
  - Increased infestations of noxious weeds

The BAER assessment evaluated the above objectives for possible mitigation using an array of treatment options and/or actions allowable by Department of Agriculture (USDA) policy. A list of issues specific to the Tennant Fire is listed below. Treatments will be designed specifically to mitigate the following list of issues:

- Dangers from falling trees and debris on Forest roads
- Dangers to the public from cattle drifting onto Highway 97
- Increased damage to meadow/riparian vegetation and values from cattle
- The loss of vegetation increases the potential for introducing weeds.

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

Land NA % Channel NA % Roads NA % Protection/Safety 100 %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	100%		
Channel	NA		
Roads	NA		
Safety	100%		

E. Cost of No-Action (Including Loss): \$200,000

The values at risk directly lost through No-Action includes: lost meadow value, lost critical wildlife habitat, potential law suits from train accidents involving trees falling onto tracks and Forest users on Forest Service roads and loss of ecological habitats/soil productivity due to invasion of noxious weeds

F. Cost of Selected Alternative (Including Loss): \$38,000

It was assumed the treatments would be successful in reducing resource values lost through No-Action by 90 percent. The remaining resource values lost (as a factor of success) were added to the cost of the primary land treatments

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Tom Laurent

Email: tlaurent@fs.fed.us

Phone: 530 841-4416

FAX: 530 841-4571

#### **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.)

### **Land Treatments:**

#### **Noxious Weed Detection and Treatment**

##### **General Description:**

Monitor known weed populations and all areas within the perimeter of the Tennant fire for weeds introduced or spread during fire suppression and/ or rehabilitation. Dozer line and burn areas adjacent to roads or areas used for fire suppression and/ or rehabilitation activities are high priority sites for monitoring. Treat and map any new or expanded weed populations.

##### **Location (Suitable) of Sites:**

All roads used within or adjacent to the Tennant fire for travel - 30 miles total. Areas used for fire suppression activities including dozerline (14 miles), drop points, IC camp and staging areas. Spotted Knapweed is located along the Tennant and Bray roads. Perennial pepperweed is located along Highway 97. Dalmation toadflax is generally known from the Tennant area.

##### **Design/Construction Specifications:**

1. Monitoring will occur at multiple times during the growing season to catch both early and late maturing species.
2. Monitoring will be conducted by a botanist and/or a technician under direction of a botanist qualified to identify target species. Weeds of primary concern are Spotted Knapweed, Perennial Pepperweed and Dalmation Toadflax.
3. New population locations will be mapped using a gps and/ or 1:24,000 quad map and flagged on the ground. NRIS and Klamath survey and treatment forms will be filled out and entered into national database.
4. If new populations are small, plants will be hand dug and bagged for removal at time of discovery. Larger populations will be flagged for later treatment and a request for additional funding will be submitted.
5. Equipment washing for weed prevention is mandatory on all equipment and/or vehicles that may be harboring soil and debris prior to entering burned area for rehab or any other related activity.

##### **Purpose:**

- The fire has created suitable habitat for the spread of noxious weeds. While weed washing was required of vehicles used for fire suppression and rehabilitation, weed washing during the initial attack phase of the fire was not done. Fifteen dozers were part of the initial attack, some of them were CalFire dozers. Vehicles could have come from weed infested areas and weeds introduced through mud and debris.
- Water tenders used during the fire may have used drafting sites that contained weeds. Seeds may have been carried to the road system via water tenders.
- Monitoring will reduce the potential for establishment of new noxious weed sites.

#### **Fence Repair Around Kegg and Shafter Meadows**

##### **General Description and Locations**

Repair 1.5 miles of existing fence to protect meadow/riparian areas along Butte Creek. These two meadows are currently not within any grazing allotment. Meadow areas are the meadow west of Butte Creek from Shafter Campground and the upper portion of Kegg Meadow. Since Butte Creek is one of only two perennial streams on the District, its meadows are very unique and valuable habitat compared to the pine/juniper vegetation they flow through. There has been a loss of habitat for resident trout, elk

forage, deer fawning and winter range in the burned portion of the meadows. The fence repair work is needed to protect the recovering burned areas from uses that will interfere with recovery. The burned area is a riparian restoration area focusing on aspen regeneration. Various partners have contributed to this work. The Rocky Mountain Elk Foundation contributed \$7500 to build the fence and another \$10,000 to removal conifers from aspen stands to promote aspen regeneration. It has been 5 years since the aspen stands were treated and their response has been very positive. All this grant funding and aspen regeneration will have been for nothing if the fence is not repaired. The grass/forb vegetation and seeded dozer and hand lines need to be protected for at least 2 growing seasons and the aspen regeneration needs to be protected even longer. Without this protection the meadow vegetation and aspen regeneration has a high probability of deteriorating. The value of the meadow is approximately \$75,000.

The allotments adjacent to the fenced meadow comprises approximately 32,000 acres. It would be unreasonable and costly to the permittees to close 32,000 acres of grazing for two years to protect 80 acres of meadow. It would cost the permittees \$30,885 over two years to replace this public land grazing using private grazing lands. Not fixing the fence will also do harm to the relationships that the District has built with Rocky Mountain Elk Foundation and the California Deer Association. The District is contributing \$2,500 towards 50% of the labor costs to repair these fences.

Currently, the fence consists of both wooden and steel fence posts. Only the burned wooden posts would be replaced with steel fence posts (500 T-133 steel posts). Fire damaged wire (loss of flexibility) will also be replaced (16 rolls). The re-establishment of the integrity of the fence will protect the damaged meadow from adjacent cattle on both public and private lands.

The cost of building a fence around just the burned meadow (80 acres) would cost more than repairing the existing fence. Building a fence around 80 acres requires 1.4 miles of fencing. This would require 8 more rolls of wire, 250 more fence posts and higher labor costs than repairing the existing fence.

#### **Design/Construction Specifications:**

1. Only fire damaged wooden fence posts will be replaced.
2. Work will be performed by Forest Service personnel to reduce costs.
3. Fire damaged wire which loses its flexibility and strength will be replaced.

#### **Purpose:**

- The fire has damaged approximately 80 acres of meadow and riparian vegetation. Keeping cattle off of this burned meadow section is very important for proper and timely recovery of the vegetation, protecting aspen regeneration and to protect the burned channel banks.
- The seeded dozer and hand lines within the meadows also needs protection from grazing animals.

### **Protection/Safety Treatments:**

#### **Road Burned Area Warning Signs**

##### **General Description:**

This treatment is for the installation of burned area warning signs. Burned area signs consist of a warning to the public identifying of the possible dangers associated with a burned area. It shall contain language specifying of items to be aware of when entering a burn area such as falling trees and limbs and rolling rocks.

##### **Location (Suitable) of Sites:**

Burned Area Signs - These signs shall be installed at the three entries points into the fire perimeter. The location of these signs shall be along roads. All signs will be placed facing the direction of travel entering the burn area. The locations of these signs are listed below:

- Intersection of Forest Service road 54N58X and Highway 97
- Intersection of Forest Service roads 45N54 and 45N15

- Intersection of Forest Service road 44N06X and the Union Pacific railroad crossing

**Design/Construction Specifications:**

- Burned Area warning signs along the roads shall measure, at a minimum, 4 feet by 4 feet and consist of 0.08" aluminum, sheeted in high intensity orange with black letters. The BURNED AREA lettering shall be a minimum of 5 inches in height and all remaining lettering, indicating the hazards, shall be a minimum of 3.5 inches in height.
- Ensure maximum visibility and readability of signs warning visitors of the hazards to human life and safety that exist in burned areas.

**Purpose:**

The purpose of the BURNED AREA signs is to warn the public of potential hazards resulting from the effects of the fire, such as falling trees, limbs and rolling rocks.

**Train Track Safety from Falling Trees****General Description:**

There are 1.6 miles of train track that lie within the fire perimeter. This treatment is for falling fire killed trees that: 1) are outside of the Union Pacific's right-of-way; and 2) are tall enough to reach the train tracks.

**Location (Suitable) of Sites:**

- Both sides of the train tracks which are located on the east side of the fire

**Purpose:**

The purpose of the removing fire killed trees that would reach the tracks is to prevent a derailment and injury to train personnel and passengers. AMTRAK passenger trains also use these tracks

Channel Treatments: None

Roads and Trail Treatments: None

Structures: None

**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.)

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

Line Items	Units	Unit Cost	# of Units	WFSU SULT \$	Other \$	# of units	Fed \$	# of Units	Non Fed \$	Total \$
<b>A. Land Treatments</b>										
Nox Weeds Detection	Acres	30	100	\$3,000			\$0		\$0	\$3,000
Meadow Fencing	miles	3933	1.5	\$5,900	\$2,500		\$0			\$8,400
				\$0			\$0		\$0	\$0
Subtotal Land Treatments				\$8,900			\$0		\$0	\$11,400
<b>B. Channel Treatments</b>										
				\$0			\$0		\$0	\$0
				\$0			\$0		\$0	\$0
				\$0			\$0		\$0	\$0
				\$0			\$0		\$0	\$0
Subtotal Channel Treat.				\$0			\$0		\$0	\$0
<b>C. Road and Trails</b>										
				\$0			\$0		\$0	\$0
				\$0			\$0		\$0	\$0
				\$0			\$0		\$0	\$0
				\$0			\$0		\$0	\$0
Subtotal Road & Trails				\$0			\$0		\$0	\$0
<b>D. Protection/Safety</b>										
Road Warning Signs	Each	325	3	\$975			\$0		\$0	\$975
Tree Falling/Tracks	miles	500	1.6	\$800			\$0		\$0	\$800
				\$0			\$0		\$0	\$0
				\$0			\$0		\$0	\$0
Subtotal Structures				\$1,775			\$0		\$0	\$1,775
<b>E. BAER Evaluation</b>										
Baer Team	Day	4	570		\$2,280		\$0		\$0	\$2,280
				\$0			\$0		\$0	\$0
<b>F. Monitoring</b>				\$0			\$0		\$0	\$0
<b>G. Totals</b>				\$10,675			\$0		\$0	\$15,455

**PART VII - APPROVALS**

1. /s/ Kelly Russell (for)  
Forest Supervisor (signature)

8/3/09  
Date

2. \_\_\_\_\_  
Regional Forester (signature)

\_\_\_\_\_  
Date