

Date of Report: August 30, 2012

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: Antelope Fire 2012 B. Fire Number: CA-MDF-0521
C. State: California D. County: Modoc
E. Region: 5 F. Forest: Modoc
G. District: Devil's Garden RD
H. Date Fire Started: 21 August 2012 I. Date Fire Contained: 25 August 2012
J. Suppression Cost: \$1,600,000
K. Fire Suppression Damages Repaired with Suppression Funds
 1. Fireline waterbarred (miles): 3.0 miles handline
 2. Fireline seeded (miles): 0
 3. Other (identify): fence repair 0.64 mile
L. Watershed Numbers (HUC 6): 180200020801 (46 ac) and 180200020802 (576 ac)
M. Total Acres Burned: 622
 NFS Acres: 547 Other Federal (0) State (0) Private (75)
N. Vegetation Types: Juniper with bunch grasses and occurrences of medusahead.

O. Dominant Soils, Soil Associations, and Erosion Factors

Table 1.

SOIL MAP UNIT	102	135	243	268
ACRES IN FIRE	111	58	358	95
SLOPE	0-2%	1-15%	1-15%	1-20%
EROSION HAZARD	MODERATE	MODERATE	MODERATE	LOW-MODERATE
SLOPE STABILITY HAZARD	LOW	LOW	LOW	LOW
SURFACE TEXTURE	SILTY CLAY, CLAY	LOAM, CLAY LOAM	LOAM, CLAY LOAM	LOAM, CLAY LOAM
SUBSURFACE TEXTURE	SILTY CLAY, CLAY, CLAY LOAM	LOAM, CLAY LOAM, CLAY, SILICA DURIPAN	CLAY LOAM, CLAY, SILICA DURIPAN	CLAY LOAM
ROOTING DEPTH	40+ inches	5-20 inches	10-20 inches	10-40 inches
SUSCEPTIBILITY TO BURNING DAMAGE	LOW	LOW	LOW	LOW-MODERATE
SURFACE ROCK CONTENT	0-15%	0-60% COBBLY OR STONY	0-60% COBBLY	0-60% COBBLY
SUBSURFACE ROCK CONTENT	0-15%	0-15%	0-35% COBBLY	0-60+% COBBLY, GRAVELLY,
ALLOWABLE SOIL LOSS	5 TONS/ ACRE/YEAR	1 TON/ ACRE/YEAR	1 TON/ ACRE/YEAR	1-3 TONS/ ACRE/YEAR
GEOLOGY/ GEOMORPH- OLOGY	ALLUVIAL BASINS AND FLOOD PLAINS (SUBJECT TO SPRING FLOODING)	UNDULATING BASALT PLATEAU	UNDULATING BASALT PLATEAU	UNDULATING BASALT PLATEAUS AND MOUNTAIN UPLANDS

P. Geologic Types: See Table 1.

Q. Miles of Stream Channels by Order or Class:

<i>Class</i>	<i>Stream Miles</i>
Ephemeral	0
Intermittent	0
Perennial	0

I. Transportation System

Trails: 0 miles FS System Roads: 0.38 miles

PART III - WATERSHED CONDITION

A. Burn Severity by total and FS (acres):

<i>Soil Burn Severity (Acres)</i>	<i>Acres</i>	<i>Percent</i>
Low	616	99% based on field reconnaissance
Moderate (inclusions within low)	0	0
High	Occurred as inclusions under single juniper and less than .1 acre patches – roughly 6 acres	Estimated at 1% of the area
Total	622	100%

B. Hydrophobic Soils: roughly 6 acres

C. Soil Erosion Hazard Rating (acres):

<i>Erosion Hazard</i>	<i>Acres</i>
Slight	0
Moderate	622
Severe	0
Total	622

PART IV - HYDROLOGIC DESIGN FACTORS

- A. Estimated Vegetative Recovery Period, (years): 5 years
- B. Design Chance of Success, (percent): 100%

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency:

Summary

It is unknown if suppression equipment was weed-free; therefore noxious weeds may have been introduced into the burned area. The transportation system that suppression vehicles utilized to access the fire is adjacent to two vernal pools; these pools have potential habitat for a federally listed plant species, so noxious weed detection survey is warranted. However, there is not an emergency with regard to watershed response (erosion and increased runoff) due to: the overall low soil burn severity, the unburned vegetative buffer throughout the fire perimeter, the amount of rock, and the generally gentle slopes. No other unacceptable risks were identified (Figure 1).



Figure 1. Jack's Swamp and fire perimeter intersection.

Findings

The Antelope Fire is located northeast of Canby on the southern edge of the Devil's Garden Ranger District (See Map 1). The majority of acres burned are within the Modoc National Forest boundary.

The Antelope Fire was estimated to start from lightning activity that occurred between August 17th and 18th 2012. The fire burned and remained undetected until the afternoon of August 21st, when winds, low relative humidity, and a lifting inversion created conditions favorable for both fire growth and detection. Several early reconnaissance missions were unsuccessful locating the fire due to heavy inversion conditions and significant smoke intrusion from the adjacent Barry Point, Chips, Reading, and Lake fires that created extremely poor visibility.

The Antelope fire spread rapidly on the afternoon of August 21st and made its major, wind driven run, on the afternoon and early evening of August 21st, aided by strong W/SW winds blowing from 7-10 mph at eye level, with gusts of 15-20 mph.

The fire made an aggressive run up the W/SW slope of Jacks Butte, facilitated by the 10-30% slope of the butte and the dominant winds. The fire burned in non-continuous grass, sagebrush, and juniper that was segregated by rocky features and had significant pockets of sparse or very light fuels that limited continuous fire spread.

The surface fire behavior was 2-3 foot flame lengths, with moderate rates of spread, burning through grass, sagebrush, and at the base of juniper trees. The surface fire behavior led to the torching of juniper trees which consequently lofted firebrands onto other receptive fuel beds, and contributed to longer range spotting and increased fire perimeter growth.

The Antelope fire grew to 650 acres before it was contained on August 25th at 1800 hours. The resulting fire perimeter contained approximately 30% unburned vegetation and appears to be a characteristic of the past disturbance history, stand density reductions through fire and the rocky features that segregated the fuels into pockets of non-continuous fuels.

Historically, the Jacks Butte area had experienced two recent fires. The Jacks #3 fire in 1996 burned 30 acres in the center of section 10 at around 5100 feet and the Jacks BSU fire in 1991 (MDF #0016) burned 25 acres in the lower portion of section 10 at an elevation of around 4900 feet. Both of the historical fires burned within the Antelope fire perimeter, and it is my professional opinion, that these fires beneficially contributed to the reduced fire intensity and severity that was experienced during the Antelope fire.

Common grass species include: Sandberg's bluegrass (*Poa secunda*), bottlebrush squirreltail (*Elymus elymoides*), and Idaho fescue (*Festuca idahoensis*). Medusahead (*Elymus caput-medusae*), an invasive nonnative annual grass, occurs in numerous patches throughout the fire. Common shrubs include *Prunus* sp and low sagebrush (*Artemisia arbuscula*). Western juniper (*Juniperus occidentalis*) is increasing and encroaching into areas normally occupied by grasses, forbs, and shrubs. Prior to the fire, the vegetation was generally considered at risk for vegetation type conversion and reduced fire return intervals, due to the invasion of Medusahead.

There are no permanent bodies of water within the fire perimeter. However, two vernal pools are within and adjacent to the Antelope Fire: Jack's Swamp and Antelope Reservoir. There is potential for a federally listed plant species, Slender Orcutt grass (*Orcuttia tenuis*), to inhabit vernal pool habitats. Due to the 1) benches to trap sediments, 2) large percentage of rock, 3) vegetated stream courses and meadows to trap sediments, and 4) low severity of the fire, there are no values at risk from a watershed and soils perspective.

Overall, soil burn severity was "low" with the exception areas directly under juniper trees. The fire burned the herbaceous material and duff, but in most cases did not totally consume either (Figure 2). The perennial bunch grass root masses seemed to be intact and it is anticipated that they will recover.



Figure 2. Low severity burn on Antelope Fire

Areas along a transect on the Forest System lands were checked for severity and the presence of hydrophobic soils. Grass root masses were intact; however, there were localized areas under juniper trees exhibiting slight hydrophobicity. In general, impacts to the soil appeared superficial throughout the fire, except in those areas of heavy duff concentrations under juniper trees (Figure 3).



Figure 3. Soil with slight hydrophobicity under burned juniper tree.

The soils within the fire perimeter were mostly classified as mollisols except the vernal pools, which contained vertisols; there was also an inclusion of a duricrust within the 135 Map Unit. The soil surface texture throughout most of the fire complex was loam to clay loam except for the vernal pools; they were clays and silty clays. The erosion hazard rating for the majority of the acres was moderate according to the soil survey. Most of the fire had gentle slopes. There were inclusions of unburned vegetation throughout the fire perimeter; fire management staff estimated about 30 percent of the area within the fire perimeter was unburned. Due to the: 1) large percentage of rock, 2) unburned vegetated strips to trap sediments, 3) the gentle slopes throughout most of the fire perimeter, and 4) low severity of the fire, there are no values at risk from a soils perspective.

The roads within the Antelope Fire are classified as Level 2 - suitable for high clearance vehicle traffic - and were essentially native surface tracks. There were no changes in the roads due to suppression equipment except for the improvement that comes with increased traffic. Only hand line and aerial drops were used in suppression efforts. Due to the attributes of the fire (low severity on gentle slopes with unburned vegetation adjacent to the roads), no road values were deemed at risk.

There are no federally listed wildlife species within the Antelope Fire. Therefore, there are no federally listed species wildlife values at risk.

There are no known sensitive plant occurrences within the Antelope Fire area, although there are also no documented previous botany surveys there on FS or private lands. Jack's Swamp, a vernal pool, is potential habitat for the federally threatened plant species *Orcuttia tenuis*; some of the edge of one vernal pool was impacted by the fire (see Figure 1). There is a risk of further displacement of native plant species, including *Orcuttia tenuis*, and further degradation of the existing plant community by the introduction and spread of noxious weeds.

Noxious Weeds

Medusahead is a CFDA Class C noxious weed; it is an invasive grass suited to open areas with shallow or clay soils; it is therefore very invasive and widespread throughout the rocky low sagebrush and juniper steppe habitat common throughout the Devil's Garden/Clear Lake Plateau. Many other invasive weeds, however, are adept at colonizing and rapidly expanding within burned areas and other soil-denuding ground disturbances such as dozer lines, especially if disturbance (indicated by the presence of other non-native primary colonizing species such as Medusahead) has already been occurring in a given area, thereby weakening the integrity of the native plant community. Non-native invasive weeds have the potential to displace native vegetation, degrade habitat function, and lower ecosystem stability. Ecological stability relates to the value of native plant communities for wildlife habitat and watershed function.

It is not known whether suppression equipment was weed-free before being used in the burn area. Weed detection survey is therefore needed to determine, if weeds were introduced. The potential values at risk, in relation to invasive noxious weeds, are the ecological stability of native plant communities, especially *Orcuttia tenuis*. Once weeds become established, they provide a seed source for further spread to unimpacted and uninfested areas via livestock, wildlife, and human activities. Prevention, combined with early detection-rapid response, is the most effective means of controlling noxious weeds and protecting native plant communities.

Probability of Damage or Loss: Likely. If any weed seeds were transported to the site on fire suppression equipment, they could take advantage of the disturbance associated with the fire. Likewise, fire suppression equipment may have transported noxious weeds from one part of the fire to others. Medusahead particularly is of concern because it poses a threat to *Orcuttia tenuis*, a Threatened grass species which grows in specialized vernal pool habitats such as Jack's Swamp.

Magnitude of Consequence: Moderate. If Medusahead or Scotch thistle become established near Jack's Swamp, they may pose a threat to listed plant species habitat. Otherwise, weeds may take advantage of the disturbance throughout the fire area, quickly spread and deposit seeds in the seedbank, and degrade the habitat for wildlife and cattle.

Risk Level: High.

B. Emergency Treatment Objectives: Evaluate and eliminate the potential for noxious weed establishment and spread in all areas affected by the Antelope Fire suppression activities.

C. Skills Represented on Burned-Area Survey Team:

<input type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input type="checkbox"/> Geology	<input checked="" type="checkbox"/> Range
<input type="checkbox"/> Forestry	<input checked="" type="checkbox"/> Wildlife	<input checked="" 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 checked="" type="checkbox"/> GIS

Core Team Members:

- Sue Goheen - Soils
- Celia Yamagiwa - GIS
- Mary Flores - Wildlife/Soils
- Forest Gauna - Botany
- Mark DePerro - Fire Management

Team Leader: Mary Flores

Email: mflores@fs.fed.us Phone: 530-279-6116 FAX: 530-279-8309

D. Treatment Narrative:

Treatment Category

The treatment consists of noxious weed detection surveys along the section of the non-system road, where suppression forces accessed the southern portion of the USFS lands within the fire perimeter. This area will be surveyed for evidence of introduction and spread of noxious weeds. If any new or outlying populations are found in these surveys, a supplementary request for noxious weed treatment will be submitted.

Treatment Description

Inspect all areas for newly established weed occurrences. Monitoring will include documentation and hand-pulling of small new weed occurrences at the time of inspection. New weed occurrences will be pulled to root depth, placed in sealed plastic bags, and properly disposed.

- GPS record of survey tracks
- GPS polygon of any noxious weed occurrences discovered
- Incorporate data into GIS spatial database

- Establish monitoring photo points
- Estimate number of plants per square meter
- Treatment method
- Dates of treatment

Inspections should be accomplished during June to July 2013, depending on annual climatic variation and plant phenology.

Treatment Cost

GS – 11 Botanist	\$300/day x 1 days =	\$300
		\$1,100
2 GS – 4 Bio Techs	\$185 day x 2 ppl x 3 days =	
Vehicle, Supplies:		\$200
Total Cost Estimate for FY 2013 =		\$1,600

Discussion/Summary/Recommendations

Any noxious weed occurrences discovered and treated in 2013 should receive follow-up monitoring and treatment as needed to ensure eradication.

Land Treatments: Noxious Weed Detection Survey. No other land treatments proposed.

Land Treatments: None proposed.

Channel Treatments: None proposed.

Roads and Trail Treatments: None warranted, per Forest Transportation Engineer

Structures: N/A

E. Monitoring Narrative:

No BAER treatment effectiveness monitoring is proposed.

PART VI – EMERGENCY REHABILITATION TREATMENTS AND SOURCE OF FUNDS

Line item	Units	Unit cost	# of units	BAER funds
A. Lands Treatments				
Noxious Weed Detection Surveys	Each	\$1,600	1	\$1,600
<i>Subtotal Land Treatments</i>				\$1,600
B. Channel Treatments				
<i>Subtotal Channel Treatments</i>				\$0
C. Roads and Trails				
	Each			\$0
<i>Subtotal Roads and Trails</i>				\$0
D. Protection and Safety				
	Days			\$0
	Each			\$0
<i>Subtotal Protection and Safety</i>				\$0
E. BAER Assessment				
Assessment Team	Each	\$3,200	1	\$3,200
<i>Subtotal Assessment</i>				\$3,200
F. Monitoring				
Treatment Effectiveness	Each			\$0
<i>Subtotal Monitoring</i>				\$0
G. Totals				
Previously Approved				N/A
Totals for this Request				\$4,800

Line Officer Signatures

Forest Supervisor (signature) /s/ David McMaster (for) Date August 31, 2012
Kimberly H. Anderson

for Regional Forester (signature) Bonnie T. Groat Date 8/12/5/2012
Randy Moore