USDA-FOREST SERVICE

FS-2500-8 (6/06)

Date of Report: May 8, 2014

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[x] 1. Funding request for estimated emergency stabilization funds
[ ] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

[x] 1. Initial Request (Best estimate of funds needed to complete eligible stabilization 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: Etiwanda

B. Fire Number: CA-BDF-6646

C. State: CA

D. County: San Bernardino

E. Region: 5

F. Forest: 12

G. District: Front Country

H. Fire Incident Job Code: P5H3WV

I. Date Fire Started: April 30, 2014 0800

J. Date Fire Contained: May 7, 2014 98% containment

K. Suppression Cost: Estimated $4,000,000 to date. Costs were split with Cal Fire based on DPA

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 5.0 miles on Forest
2. Fireline seeded (miles): 0
3. Other (identify):

M. Watershed Number: 180702030804

N. Total Acres Burned (within fire perimeter): 2143
NFS Acres(396) Other Federal ( ) State ( ) Private (1745) – 2 acre discrepancy from GIS error

O. Vegetation Types: (for on Forest Resources) : Chamise chaparral associated with areas of Riversidian alluvial fan sage scrub, oak woodland, sycamore-alder riparian woodland, and big cone Douglas fir.

P. Dominant Soils (on Forest): Trigo family-Lithic Xerorthent. Warm complex 50-75% slopes (DnG), Soboba-Hanford families association 2-15% slopes (AbD), Riverwash (Rw)

Q. Geologic Types: Southwestern San Bernardino County is underlain by several fault-bound structural blocks uplifted during Pleistocene time. The Cucamonga Fault fronts the transition from the mountain areas to the flatter terrain on the southern end of the fire. The fire area on Forest Service lands and in the uplands are underlain by Pre-Cambrian rocks (pCc), while the flats are dominated by older Quaternary deposits (Qoa).

R. Miles of Stream Channels by Order or Class: Perennial = 0.65 miles; Intermittant = 1.29 miles, Artificial Path = 0.36 miles

S. Transportation System: Trails: 0 miles Roads: 0 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres) Forest Service: 238 (low) 0 (moderate) 0 (high) 158 (unburned)
Non-Forest Service: 1379 (low) 0 (moderate) 0 (high) 365 (unburned)

B. Water-Repellent Soil (acres): 0

C. Soil Erosion Hazard Rating (acres):
99 (low) 6 (moderate) 291 (high)

D. Erosion Potential: 40 tons/acre

E. Sediment Potential: 2000 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 5

B. Design Chance of Success, (percent): 75

C. Equivalent Design Recurrence Interval, (years): 10

D. Design Storm Duration, (hours): 1

E. Design Storm Magnitude, (inches): 1.83

F. Design Flow, (cubic feet / second/ square mile): 99

G. Estimated Reduction in Infiltration, (percent): 30

H. Adjusted Design Flow, (cfs per square mile): 149

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

The Etiwanda fire started 8:00 a.m. on April 30, 2014 in Day Canyon north of Rancho Cucamonga near the Etiwanda Preserve. Progress was hindered by Santa Ana winds ranging from 60 to 80 mph with one gust being measured at 101 mph on April 30. Aircraft were available but were unable to fly. The fire quickly grew to 1,000 acres. Approximately 1650 residents were under mandatory evacuation while students from five schools were taken to other area schools away from the vicinity of the fire.

High wind conditions continued on May 1, 2014 preventing aircraft from supporting the fire. Mandatory evacuations were removed, but voluntary evacuations remained. A Type 2 Incident Management Team was ordered for the fire and transitioned the fire back to the Forest when weather conditions changed and fire containment increased sufficiently.

As the fire was wind-driven, there was little time for vegetation burning to cause increased heating of the soil surface. No locations were found with soil burn severity above Low. The fire left large portions of the interior in an Unburned condition.

As of May 5, 2014, the Etiwanda Fire has been re-mapped at 2143 acres and containment has increased to 96%. Investigators have determined that the Etiwanda Fire was started by an escaped illegal campfire. Investigators believe the illegal campfire may have been smoldering for a few days until the strong winds blew embers into nearby brush. Wood and charcoal fires are only permitted in designated campgrounds and picnic areas and never in the general forest area.

Initial values at risk were identified as life and safety of the recreating public, Forest vegetative recovery from the presence of illegal recreation use and invasive weeds, off-Forest drinking water intake structures, off-Forest flood control structures.

Potential Threats/Resource Impacts to Human Life/Property – There are no authorized trails on Forest Service lands allowing access through the fire area. In addition, the area that burned on the Forest did so under Low soil burn severity. The threat of soil sloughing and dry ravel is minimal. Fine roots are intact at less than 1 inch below the soil surface. New growth was observed in the riparian areas. Much of the Forest area within the fire perimeter remains unburned. No emergency exists relative to life and property on Forest. Interagency Coordination: Kim Boss, BAER Team Liaison, made contact with representatives of NRCS [Kim Lary, (909) 799-7407 x109 kim.lary@ca.usda.gov], San Bernardino County Flood Control [Ken Keke, (909) 387-8120 keke@dpw.sbcounty.gov], and the Etiwanda Preserve [Tim Millington, (909) 289-2349]. Cucamonga Valley Water District was contacted [John Bosler, (909) 987-2591] about the drinking water intake as well.

Each of these agencies has also assessed the Etiwanda Fire. The Forest will be providing the Soil Burn Severity map and the 2500-8 report to the NRCS to support off-Forest activities.

Potential Threats/Resource Impacts to Watershed Resources – There will be a short-term threat to water quality in the main stem of the downstream reaches of the Day Canyon Wash and Deer Creek. Ash and sediment is expected to be mobilized off the steeper slopes during the first significant precipitation event, such as the east facing slopes along and above Day Canyon Wash. This area will have an increased potential for storm water runoff and erosion, especially downslope/downstream. The main short-term threat to water quality will be from ash and fine, suspended sediment. There is a potential for an increase in the pH of the post-fire runoff water due to the increase of ash deposition.

Table 1: Estimated flow increase for the Day Canyon sub-watershed using the 1-hour, 10-year storm event.

Day Canyon sub-watershed (2,927 acres) outlet at the former USGS streamgage site				
Design Storm: 1 hour duration, 10 year interval, 1.83 inches				
Discharge (cubic feet per second : cubic feet per second per mile)				
Prefire	452 : 99		Postfire	683 : 149

Impacts to soils from erosional loss could potentially impact water quality through aggradation and deposition of sedimentation and ash. The greatest threat is from rill and gully erosion resulting from lost of infiltration and ground cover.

Watershed Condition Classification: Effects of the Etiwanda Fire are too small to change the watershed condition of the HUC in question.

A primary watershed effect of the Etiwanda Fire is "Loss of water control" or "Increased Flood Potential." Day Canyon Wash is a wide and deep braided channel containing large gravel and cobble. At present, baseflow is collected in a small holding pond within the channel and diverted to a settling tank on an upper terrace along the left bank. Both structures are below the USGS streamgage and not on NFS lands. Within the Wash and a short distance below the national forest boundary is a large sediment detention basin where flood flows are directed through a notch weir near the top of the hardened berm and into a large concrete lined ditch delivery flood flows south toward the city of Rancho Cucamonga. Also, a short distance below the sediment detention basin is a large quarry operation. No evidence of flood flows getting outside the channel and/or downstream concrete ditch was observed.

Potential Threats/Resource Impacts to Forest vegetation recovery from invasive weeds – Ceanothus Mixed Chaparral and Lower Montane Mixed Chaparral are the dominant vegetation communities within the burn area on Forest Service land. These vegetation communities are dominated by chamise (*Adenostoma fasciculatum*), bigberry manzanita (*Arctostaphylos glauca),* hoaryleaf ceanothus (*Ceanothus crassifolius*), birchleaf mountain-mahogany (*Cercocarpus betuloides*), scrub oak (*Quercus berberidifolia*), yerba santa (*Eriodictyon trichocalyx*), and laurel sumac (*Malosma laurina*).

Most of the chaparral vegetation burned at low intensity. These shrubs are adapted to *normal* fire regimes and will rapidly regenerate in the burn by either re-sprouting from underground burls or establishing from seed unless repeated disturbance occurs. Fire typically kills seeds stored on the soil surface; however buried seed tends to remain insulated from extreme heat. Some chaparral species including those of Ceanothus, manzanita, and fire-following herbs are obligate seeders and are expected to germinate post-fire. Types of disturbance that have potential to threaten vegetation recovery within the burn on Forest Service land include short fire return intervals and invasive weeds.

Invasive weed infestations have potential to increase following a fire due to an increase in available areas for germination to occur and nutrient availability. Although no heavy equipment was used during fire suppression activities on Forest Land, invasive weed seeds may be either wind-dispersed or personnel and vehicles may serve as vectors carrying seeds into the fire area from adjacent unburned weed populations off Forest. Invasive weed Infestations were observed (on non-Forest land) along access roads to and within the fire perimeter. In order to reduce the introduction and expansion of invasive weeds in the burn area, an invasive weed inventory and treatment of these areas are recommended for year one post-fire during the appropriate bloom period for these species. Due to differences in flowering times for numerous potential species, two visits may be necessary during the growing season for effective identification and treatment. Invasive weed inventory/treatments will be focused primarily in modeled/suitable habitat for federally listed and Forest Service sensitive plant species. The second priority will be handlines, staging areas and drop points followed by general habitats in the burned area. All locations of weed species will be mapped, using the San Bernardino NF "weed species to map" list. Detection and treatment will be completed using the Natural Resources Information System Database (NRIS) protocol available at the national website: http://fsweb.ftcol.wo.fs.fed.us/frs/rangelands/index.shtml.

Potential Threats/Resource Impacts to Federally Listed Species

There are no federally-listed plant species on Forest Service lands that could potentially be affected by post-fire impacts.

Designated critical habitat for the federally-endangered mountain yellow-legged frog occurs in Day Canyon. No other federally-listed wildlife species or their habitats exist within the fire area. A total of 54 acres of mountain yellow-legged frog critical habitat on Forest Service lands burned at low soil burn severity. It is important to

note that the mapped critical habitat also include substantial buffering of stream habitat, in some cases up to 600' from flowing water. The slopes above the critical habitat burned in a mosaic pattern. This mosaic of low soil burn severity and unburned areas of vegetation will greatly decrease distribution of ash and sediment into critical habitat. Much of the riparian vegetation is still relatively intact and remaining vegetation and leaf fall should provide buffering for increased erosion and ash accumulation in the critical habitat section of watershed. Thus, the impacts to water quality in mountain yellow-legged frog critical habitat resulting from the Etiwanda Fire are expected to be insignificant. In addition, treatments taken to minimize the spread and establishment of invasive planes within the Etiwanda Fire area will also reduce potential adverse modification of critical habitat for this species.

Potential Threats/Resource Impacts to Wildlife and Botanical Resources:
An emergency exists with respect to the recovery and ecological sustainability of the native vegetation within the entire burned area as a result of invasive weed introduction. Areas of ground disturbance (i.e. handlines) and regular equipment or crew presence (i.e. drop points, safety zones and staging areas) during suppression operations created a risk of invasive weed introduction, establishment and proliferation. Loss of vegetative cover which has acted as a natural barrier substantially increases this threat.

Suitable habitat existed within the Etiwanda Fire area for numerous plant and wildlife species, including Management Indicator Species and several Forest Service Sensitive plant and wildlife species. Any treatments taken to minimize the spread and establishment of invasive plants within the Etiwanda Fire area will also reduce long-term adverse modification of plant and wildlife species habitat within the fire area.

Potential Threats/Resource Impacts to Forest vegetation recovery from unauthorized vehicular access:
Increased unauthorized vehicular access to the Etiwanda Fire burned area was an initial concern at the beginning of the assessment. Unauthorized access is a substantive threat to burned watersheds. Erosion, spread of invasive species, damage to cultural sites, destruction of rare plant and native plant communities, disturbance to wildlife, destruction of wildlife habitat, and risks to public safety can result from unauthorized vehicular access.

In the Etiwanda Fire area, the National Forest boundary to the south abuts San Bernardino County-owned lands. The lands include San Bernardino Department of Public Works – Flood Control and Special District – North Etiwanda Preserve. In addition, the Cucamonga Valley Water District also maintains water diversion infrastructure on county lands in the mouth of Day Canyon.

The BAER team communicated extensively with the entities who manage lands to the south of the Forest Service boundary. Contacts included Kim Lary, NRCS, Ken Keke, SB County Flood Control, Tim Millington, North Etiwanda Preserve, and John Bolser, Cucamonga Valley Water District. As a result of this coordination, it was determined that the Etiwanda Fire has not exacerbated unauthorized vehicular access into the burned area. Both of the county land management entities strive to restrict unauthorized vehicular access due to liability concerns and/or habitat preservation and will continue to do so in the future. As a result, there are no threats to vegetative recovery on Forest Service lands within the burned areas as a result of increased unauthorized OHV use.

Potential Threats/Resource Impacts to Archaeological Resources

No known concerns on Forest Service lands. (per Archaeologist, Hila Nelson).

B. Emergency Treatment Objectives:

The primary objective of the proposed emergency rehabilitation is to take prompt actions deemed reasonable and necessary to effectively protect, reduce or minimize significant threats to property and prevent unacceptable resource degredation.

Summary of Values at Risk and Emergency Determination

BAER Risk Assessment

Probability of Damage or Loss	Magnitude of Consequences		
	Major	Moderate	Minor
	RISK		
Very Likely	Very High	Very High	Low
Likely	Very High	High	Low
Possible	High	Intermediate	Low
Unlikely	Intermediate	Low	Very Low

Probability of Damage or Loss: The following descriptions provide a framework to estimate the relative probability that damage or loss would occur within one to three years (depending on the resource):

Very likely- nearly certain occurrence (>90%)
Likely- likely occurrence (>50% to < 90%)
Possible- possible occurrence (>10% to <50%)
Unlikely- unlikely occurrence (<10%)

Magnitude of Consequences:

Major- Loss of life or injury to humans; substantial property damage; irreversible damage to critical natural or cultural resources.

Moderate- Injury or illness to humans; moderate property damage; damage to critical natural or cultural resources resulting in considerable or long term effects.

Minor- Property damage is limited in economic value and/or to few investments; damage to natural or cultural resources resulting in minimal, recoverable or localized effects.

Table 2. Summary of Emergency Determiniation by Values at Risk

Critical Value	Value At Risk	Probability of Damage or Loss	Magnitude of Consequences	Risk	Treatment	Notes
Property	Drinking Water Diversion dam off-Forest along Day Canyon Creek	Unlikely	Minor – system has filtering capability in place	Very Low		Off-Forest; we cannot recommend a treatment, will provide findings to NRCS
Property	Historic USGS gage station	Unlikely	Minor – system has concrete structure and is out of channel	Very Low		Off-Forest; we cannot recommend a treatment, will provide findings to NRCS
Natural Resource	Water Quality at Day Creek boundary to Etiwanda Preserve	Unlikely	Minor	Very Low	No Treatment	water quality degradation will be short in duration
Natural	Vegetation	Likely	Moderate	High	Invasive Weed	On Hand Lines

Resource	Recovery				Detection Survey/Treatment	
Human Life & Safety (Recreation)	Hazard Tree/Rock slide Danger	Unlikely	Moderate	Low	No treatment	no NFS trails, only Low burn severity
Natural Resource	Mountain yellow legged frog critical habitat	Unlikely	Moderate	Low	No treatment	unburned buffers
Natural Resource	Soil Productivity	Unlikely	Minor	Very Low	No treatment	only Low burn severity, large area of unburned

C. Probability of Completing Treatment Prior to Damaging Storm or Event:

Land 90 % Channel N/A % Roads N/A % Other N/A %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	80	90	90
Channel	N/A	N/A	N/A
Roads/Trails	N/A	N/A	N/A
Protection/Safety	N/A	N/A	N/A

E. Cost of No-Action (Including Loss): $13,000

F. Cost of Selected Alternative (Including Loss): $1280

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Robert G. Taylor Email: rgtaylor@fs.fed.us Phone: 909-382-2660

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: Only noxious weed detection survey is proposed.

Noxious Weed Detection Surveys

Surveys will begin in 2014 during the re-sprouting and flowering periods of weed species. Completion of surveys on handlines, known invasive and sensitive plant populations, habitat for the mountain yellow-legged frog, along riparian areas, and drop points.

Item	Unit	Unit Cost	# of Units	Cost
GS-11 Botanist	Days	$400	3	$1200
Vehicle Mileage	Miles	$0.40	200	$80
			Total Cost	**$1280**

Channel Treatments: None Proposed

Roads and Trail Treatments: None Proposed

Protection/Safety Treatments: None proposed

Part VI – Emergency Stabilization Treatments and Source of Funds Interim

			NFS Lands				Other Lands			All
		Unit	# of		Other	# of	Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	BAER $	$	units	$	Units	$	$
A. Land Treatments										
Weed Detection Survey/Tre	1	1280	1	$1,280	$0		$0		$0	$1,280
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$1,280	$0		$0		$0	$1,280
B. Channel Treatments										
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treat.				$0	$0		$0		$0	$0
C. Road and Trails										
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$0	$0		$0		$0	$0
D. Protection/Safety										
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$0	$0		$0		$0	$0
E. BAER Evaluation										
Personnel-lump sum			1	$8,550						
Travel-vehicle-lump sum			1	$200						
				---			$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				---	$0		$0		$0	$0
F. Monitoring										
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$0	$0		$0		$0	$0
G. Totals				$1,280	$0		**$0**		**$0**	**$1,280**
Previously approved										
Total for this request				**$1,280**						

PART VII - APPROVALS

1. Jody Noiron — Forest Supervisor (signature) — 5/8/2014 Date

2. Barnie T. Grant — Regional Forester (signature) — 5/9/2014 Date

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.)

Appendix A

NOXIOUS WEED DETECTION SURVEY PLAN

Noxious weeds detection survey: Noxious weed infestations are very likely to increase dramatically following a fire due to an increase in available areas for germination, and the likely introduction of noxious weeds from heavy equipment and personnel, who may arrive from areas outside of the Forest, and from nearby roads. Areas of highest concern are along dozer lines, along hand lines, and along utility service roads, since these are the most likely areas where noxious weed seeds may be introduced and then distributed. Sensitive plant occurrences are also known and potential in and around the burn area. The weed detection survey plan is attached.

NOXIOUS WEED DETECTION SURVEY PLAN

a) Background:

Reducing the introduction and spread of non-native invasive weeds has been identified as a Forest Service strategic goal, and the SFNF LMP includes detailed management direction to prevent the spread and introduction of noxious weeds. Several weed species were observed adjacent to Forest land within the burn area Invasive weed populations known adjacent to Forest land include shortpod mustard (*Hirschfeldia incana*), various species of brome (*Bromus* spp.), tocalote (*Centaurea melitensis*), filaree (*Erodium cicutarium*), smilo grass (*Piptatherum mileaceum*), sticky snakeroot (*Ageratina adenophora*), Italian thistle (*Carduus pyncnocephalus*). These species have potential to increase in the burn area due to naturally accelerated growth rates, high reproduction capabilities, and release from competition with native species. These weed populations could affect the structure and function of native plant communities within the burn area, weaken watershed integrity and soil stability and threaten rare plant and wildlife habitat.

The SBNF LMP provides direction to avoid, minimize or mitigate negative long-term effects on threatened, endangered, proposed, candidate or Sensitive species and habitat. Modeled habitat for one federally listed endangered plant species exists on Forest land: Nevin's barberry (*Berberis nevinii*) and known occurrences of FSS plant species *Lilium parryi* exist within Day Canyon Wash of the Etiwanda fire area. There is potential for additional sensitive plant species to occur in this area however, no focused sensitive plant surveys have been conducted within the burn area in recent years.

b) Management concerns: Are noxious weed invasions interfering with habitat recovery and ecosystem health within the burned area and associated dozer and hand lines? In particular are noxious weeds interfering with the recovery of habitat especially in the riparian areas?

c) Objectives: To determine if the fire and associated ground disturbing activities associated with dozer and hand line construction has promoted the establishment and spread of noxious weeds to the extent that eradication efforts are necessary.

d) Parameters: Noxious weed presence, density and persistence.

e) Locations: Areas of ground disturbance (i.e. hand lines) and crew presence (i.e. drop points) during suppression.

f) Weed Detection Survey Design and Methodology: Surveys would begin in the spring of 2015 during the flowering periods for weeds known to occur within or near the burned areas that may be difficult to detect otherwise. Because of differences in flowering times for all the potential species, two visits are required. Completion of surveys on handlines, known invasive and sensitive plant populations, habitat for the mountain yellow-legged frog, along riparian areas, drop points, and prohibited plant plantations. Any locations of weeds would be mapped. Surveys would be completed using the NRIS protocol available at the national web site:
http://fsweb.ftcol.wo.fs.fed.us/frs/rangelands/index.shtml.
Results would be entered into the NRIS database.

g) Reporting: A Weed Detection Survey Report would be submitted to Regional BAER coordinator and to the Front Country District Ranger. If weed introduction and spread has increased due to effects of the Hill Fire Incident, an Interim BAER report would be completed to request eradication funding.