

Date of Report: September 11, 2006

BURNED-AREA REPORT
(Reference FSH 2509.13)**PART I - TYPE OF REQUEST**

A. Type of Report

- ☒ 1. Funding request for estimated emergency stabilization funds
☐ 2. Accomplishment Report
☐ 3. No Treatment Recommendation

B. Type of Action

- ☒ 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: Emerald Fire B. Fire Number: CA-BDF-008337
C. State: CA D. County: San Bernardino
E. Region: 05 F. Forest: San Bernardino National Forest
G. District: 51 H. Fire Incident Job Code: P5C5JS
I. Date Fire Started: August 29, 2006 J. Date Fire Contained: September 2, 2006
K. Suppression Cost: \$2.6 million
L. Fire Suppression Damages Repaired with Suppression Funds
 1. Fireline waterbarred (miles): 7.1 miles of hand line, 2.7 miles of dozer
 2. Fireline seeded (miles): None
 3. Other (identify): None
M. Watershed Number: 1807020305 (Middle Santa Ana River)
N. Total Acres Burned: 2,142
 NFS Acres(1223) Other Federal (N/A) State (N/A) Private (919)
O. Vegetation Types: Agriculture, Annual Grass/Forb, Barren, Buckwheat (White Sage), California Black Oak, California Sagebrush, Chamise, Lower Montane Mixed Chaparral, Willow-Alder
P. Dominant Soils: Cieneba, Trigo Family-Lithic Xerorthents.
Q. Geologic Types: Alluvial deposits exist on the south side of San Andreas Fault and primarily on private

land. Middle third of fire area consists of Gneissic granitoid rocks of metaigneous origin. Northeastern third of fire area is mostly a complex ancient landslide deposit overlying sedimentary and metasedimentary sandstone and Pelona schist-bearing conglomerate.

R. Miles of Stream Channels by Order or Class: : Perennial = 0 miles, Intermittant = 1.6 miles

S. Transportation System

Trails: 3.4 miles Roads: 15.2 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 74 (4%) (Unburned), 223 (10%) (low), 1151 (54%) (moderate), 694 (32%) (high)

B. Water-Repellent Soil (acres): 1842

C. Soil Erosion Hazard Rating (acres):
____ (low) ____ (moderate) 300 (high) 1842 (very high)

D. Erosion Potential: 13.5 tons/acre

E. Sediment Potential: 54,140 cubic yards / square mile one year following burn from Mill Creek Wash (average annual sediment yield) [normal level is 3780 cu.yd./sq.mi.)

PART IV - HYDROLOGIC DESIGN FACTORS

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

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

C. Equivalent Design Recurrence Interval, (years): 5

D. Design Storm Duration, (hours): 6

E. Design Storm Magnitude, (inches): 1.7

F. Design Flow, (cubic feet / second/ square mile): Using Rowe et al. Method

For Mill Creek Wash

equal or exceeded peak discharge	normal peak discharge (cfs/sq mi)
Q 2	3.3
Q 10	7.4
Q 25	10.2

G. Estimated Reduction in Infiltration, (percent): 32

H. Adjusted Design Flow, (cfs per square mile): Using Rowe et al. Method

For Mill Creek Wash

equal or exceeded peak discharge	1 year post burn peak discharge	Percent of pre-fire
Q 2	9.7	296%
Q 10	17.2	233%
Q 25	22.1	217%

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

Threats to Life and Property

Debris flows generated by soil slumps which occur during heavy rainstorms present a greater risk of death and injury to residents of Southern California than all other types of slope failures combined (Hollingsworth, 1981). Flooding, mud flows, debris flows and to a lesser extent rock falls are a threat to human life and property within and outside of the fire area.

Jaracz Property: Specifically home below confluence of two steep, severely burned watersheds. The existing berm along the channel appears inadequate to protect life and property in the event of a significant rainstorm or of accumulated slope saturation over multiple smaller precipitation events. The combined factors of two severely burned watersheds directly above the home, large volumes of loose stored sediment in the channels and on the steep slopes, and the location of the home in the floodplain directly below those watersheds indicate a very high risk to life and property creating an emergency situation. (See figure 1, Appendix A) Damage and/or loss of this house could occur as a result of flooding, mud flows and debris flows. The driveway, which provides the only access by vehicle to the property, is located within the main channel below the confluence of the described watersheds and is also expected to be damaged or lost as a result of flooding, mud flow, and debris flows creating an emergency situation.

Six other properties within the fire area and downstream of the moderate to severely burned watersheds are located on ridges above deep incised channels and are not expected to incur severe damage beyond nuisance sediment and ash from expected increased flows.

Fish Hatchery Road, Newport Road: Both roads are privately owned (pers. conv. Jim Earsom, NRCS) and provide the primary ingress and egress for all seven homes within the fire area and downstream of burned watersheds. These roads are on unconsolidated alluvial deposits which are easily eroded. In addition, they are located directly below watersheds which are expected to produce large volumes of mudflow or debris flow, water and sediment, potentially flowing at “flash flood” speeds. Since most of the road crossings have no or inadequate drainage structures to pass large flows, those flows will carry large volumes of water and sediment across the roads, both eroding the existing road surface and dumping large volumes of sediment into the roadway. Area residents will likely be trapped within the area if they cannot evacuate before such flows, and emergency medical services could also be delayed.

State Highway 38: Forest Service Geologist (retired) Allen King conducted a recon with Cal Trans Geologist Chris Hoadley, to evaluate the risks to users, vehicles and the road surface. Risks are high from falling rock, potential debris slides, possible debris flows, and flooding, due to the low to high severity burned steep slopes adjacent to the highway. Observations included loose, fractured bedrock, loose boulders on steep slopes, potentially destabilized by removal of vegetation which provided partial slope support, insufficient berm height and length to stop or slow rock and soil coming off the slopes, insufficient catch basin depth and width in some

areas, insufficient shoulder width to construct berms or catchment basins, and one particular large boulder at least 200 feet vertically above the road which appears precariously located on steep slopes surrounded by the burn. Of the approximately one mile of roadway surveyed beneath the fire/within the fire boundary, approximately $\frac{3}{4}$ of that length will need no mitigation other than maintenance of existing structures. These conditions do constitute an emergency to both the highway, and travelers along the highway.

Forest Road 1N12: This road goes from Hwy. 38 to provide access to the Morton Peak lookout and the community of Forest Falls. It is sometimes used as emergency access when Hwy. 38 is impacted. The fire burned parts of the road with the road acting as the southeastern edge of the fire in places. There are multiple ephemeral channel crossings within the fire area which pose a threat to visitors from storm runoff during rainfall events, as there are no culverts. In addition, there is a risk of stream crossing failure leading to large amounts of sediment transported downstream degrading water quality and localized loss of the road prism.

Forest Road 1S12: This road leads from 1N12 to Morton Peak Lookout. The majority of this road is located in areas of high and moderate burn severity on steep slopes. This road is already gated and is subject to administrative closure. The road is used by visitors and Forest staff to access the lookout tower. This road presents a risk to users from mud flows, debris flows and to a lesser extent rock fall during storm events. In addition, there is a risk of crossings failure leading to large amounts of sediment transported downstream degrading water quality and localized loss of the road prism.

Both 1N12 and 1S12 are built primarily upon a large old landslide complex, with much hummocky ground and large boulders on steep slopes. Additional debris slides, slumping, rockfall, dry ravel deposition and possible debris flows put these roads and users at risk.

Forest Trail 2E03 (Santa Ana River Trail): This trail is a multiple use trail with high volume of equestrians, hikers and bikers all accessing it. Approximately 3.4 miles of this trail is within the fire area. 2E03 traverses across a large area of high and moderate burn severity with multiple ephemeral drainage crossings; crosses both metamorphic and granitic rock types, and is subject to the same types of slope instability as the forest roads. The top section near the Morton Peak lookout is particularly vulnerable to mud flows, flooding and rock falls due to the steep terrain it traverses. There is a risk of increased watershed efficiency and loss of trail tread along with the risks to life in the vulnerable sections. This trail receives regular, heavy use throughout the year with approximately 12 visitors during a weekday and 50 during the weekend. Treatment is proposed in the moderate and high severity areas.

Southern California Edison High Pressure water pipe: The pipeline is in the same situation as Fish Hatchery Rd. and Newport Rd. described above, however it is covered in some areas, and where exposed, may permit flow beneath. SCE has been made aware of the potential for damage to the pipeline from expected large volumes of mudflow or debris flow, water and sediment, potentially flowing at “flash flood” speeds.

Threats to Water Quality

Mill Creek Watershed: Southern California Edison collects water from this creek for the generation of electricity. From the Edison powerplant the water is piped to the City of Redlands for drinking. Other uses include recreation, fish habitat, and designated critical and occupied habitat for Federally Endangered southwest willow flycatcher. Because of the high to moderate burn severities and steep slopes there is a high likelihood of debris flows and flooding from the fire area into Mill Creek. Mill Creek will also continue to see increased erosion and sediment loads as a result of the 2005 Thurman Fire upstream from the Emerald Fire. The past 45 years have shown a recurrence interval for significant debris flows in the Forest Falls (community in Upper Mill Creek Watershed) area to be about 4 years (Morton, 1999). Overall Mill Creek is subject to high levels of sediment, and fairly regular flood events. SCE will not collect water from Mill Creek if turbidity levels are too high, which will in turn protect contamination of Redlands drinking water. The City of Redlands does have other alternatives for water when the Edison system is shut down.

Possible mudflow or debris flow, water and sediment, potentially flowing at “flash flood” speeds does create risk to individuals recreating in Mill Creek during storm events. While the Emerald Fire may have exacerbated these conditions, they already existed prior to the fire. When flash flood events are predicted San Bernardino County Sheriffs do patrol and advise the public the risks of recreating in Mill Creek.

There will be some impacts due to increased ash and sedimentation into Mill Creek which could potentially affect aquatic species. Increased debris flows could remove riparian vegetation several years after the fire, although the over all impacts are expected to be short term and minimal.

Threats to Threatened, Endangered and Sensitive Species

San Bernardino Kangaroo Rat (SBKR): Mill Creek wash watershed does contain critical habitat for SBKR which can be found in all phases of alluvial fan sage scrub, as well as coastal sage scrub and chaparral habitat. Periodic and unpredictable flooding that redefines stream channel sediments is necessary to keep a stream segment suitable for SBKR. Severe levels of flooding and debris flows could adversely alter habitat and potentially cause loss of individual kangaroo rats within the flood channel. The lack of vegetation, relative gentle slopes, and multiple road systems through and adjacent to the west and south sides of the fire area may allow entry to illegal off-highway vehicle use which would impede native vegetative recovery and serve as vectors for the dispersal of nonnative species. Because of the potential for high levels of disturbance from off highway vehicle traffic (motorcycle tracks observed on dozer line during assessment – See photo 2, Appendix A), release from competition with native species, and accelerated growth and reproduction, the influx of nonnative weed species could affect the structure and habitat function of native plant communities within the burn area; which would cause adverse effects to SBKR designated critical habitat and individuals.

California Gnatcatcher (CAGN): Designated critical and occupied habitat for CAGN occurs outside the Forest boundary, within the fire area. Suitable habitat for CAGN does exist on Forest land within the fire area. CAGN is not expected to recolonize the area until the habitat begins to recover. The same concerns as described above for SBKR, off- highway vehicles, nonnative weeds, and vegetative type conversion could all contribute to the long-term loss of suitable habitat for CAGN within the Emerald fire area.

Threats to Ecosystem Stability/Soil Productivity

Accelerated slope instability (both NFS and Private lands): As discussed above, the potential for various types of slope instability, both shallow and deep seated, is increased due to the removal of vegetation and the change in soil saturation characteristics. Although both landsliding and fires are natural processes, the fire accelerated soil loss and exposure of more rocky ground in some areas will affect the vegetative re-growth and habitat characteristics. There is high likelihood that existent weed infestations will increase in the burn area, due to their accelerated growth, reproduction, and release from competition with native species. These weed populations could affect the structure and habitat function of native plant communities within the burn area and contribute to soil instability. An emergency does exist with respect to vegetative recover due to the high potential for the Emerald fire to increase the dominance of several invasive plant species.

Threats to Cultural Resources

Historic Rock Retaining Walls: Several historic rock retaining walls were located along Forest roads 1N12 and 1S12 at low water crossings. As described in the discussion for Forest Road 1N12 and 1S12, there is a risk of stream crossing failure and localized loss of the road prism, which could also result in loss or damage of these historic features.

B. Emergency Treatment Objectives:

Land Treatments

Ecosystem Stability and Habitat Recovery: Reduce disturbance of soils and increase the likelihood of native vegetative recovery within the fire area on National Forest lands. Accelerated vegetation re-growth/restoration, decrease disturbance and weed establishment/dispersal, and early detection of weed invasions and consequent manageable eradication.

Channel Treatments - None

Road and Trail Treatments

1N12 and 1S12 Road Stabilization: Upgrade and supplement existing erosion control structures on Forest Road 1N12 and 1S12 to facilitate proper water drainage off the system roads, preserve the road bed, preserve associated historical properties, and decrease watershed efficiency.

Santa Ana River Trail Stabilization: Upgrade and supplement existing erosion control structures on the Santa Ana River Trail to facilitate proper water drainage off the trail, preserve the trail tread, and decrease watershed efficiency.

Protection and Safety Treatments

Private Property: Jaracz Property, Fish Hatchery Road, Newport Rd., SCE Pipeline treatment objectives were to increase the awareness of the property owners, Natural Resource Conservation Service (NRCS), and San Bernardino County Flood and Fire agencies of the potentially hazardous conditions resulting from the Emerald fire.

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

Land 90 % Channel N/A % Roads/Trails 90 % Protection/Safety 100 %

D. Probability of Treatment Success

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

E. Cost of No-Action (Including Loss): \$17,600,000

F. Cost of Selected Alternative (Including Loss): \$455,419

G. Skills Represented on Burned-Area Survey Team:

☒ Hydrology ☒ Soils ☒ Geology ☐ Range ☐

<input type="checkbox"/> Forestry	<input checked="" type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input checked="" 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 type="checkbox"/> Fisheries	<input type="checkbox"/> Research	<input type="checkbox"/> Landscape Arch	<input checked="" type="checkbox"/> GIS	

Team Leader: Marc Stamer, San Bernardino National Forest

Email: mstamer@fs.fed.us

Phone: (909)382-2828

FAX: (909) 866-8192

Core Team

Todd Ellsworth (Soil Scientist)
 Rob Taylor (Hydrologist)
 Kim Boss (Wildlife Biologist)
 Jason Bill (GIS)

Allen King (Geologist)
 William Kerwin (Archaeologist)
 Katie VinZant (Botanist)
 Frank Beccera (Engineering)

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 Surveys

Surveys will begin in 2007 during the flowering periods of weed species. Because of differences in flowering times for all potential species, two visits may be required during the growing season. Completion of surveys in riparian areas, dozerlines, and known invasive and sensitive plant populations would be the first priority. The second survey priorities would be along roads, handlines, and staging areas. Surveys of the general habitats in the burned area would be the lowest priority. Detailed weed detection survey guidelines are attached in Appendix B.

Weed detection surveys to determine whether ground disturbing activities related to the Emerald Incident and the fire itself have resulted in the expansion of noxious weeds is requested for the first year. Estimated costs are based on the assumption that two visits would be necessary because of the differences in flowering times. If timing is such that all the target species are detectable in one visit, the actual costs would be lower than displayed below.

FY 2007

GS-12 botanist (\$410/day x 1 day)	\$ 410.00
2-GS-09 Botanist (\$255/day x 7 days)	\$3,570.00
<u>Vehicle mileage (500 miles @0.55/mile)</u>	<u>\$ 275.00</u>
TOTAL for weed detection surveys for FY07	\$4,255.00

Channel Treatments: None

Roads and Trail Treatments:

Forest Road 1N12 and 1S12 Stabilization and Protection of Cultural Resources

Reshape dips, install new drains, install spillway, flume, rip rap at critical points along Forest roads in the moderate to high burn severity areas. There are approximately 15.2 miles of road within the burn.

Estimated Costs:

Reshape dips:	\$10,000.00
<u>Install Structure and rip rap</u>	<u>\$13,000.00</u>
Total:	\$23,000.00

Santa Ana River Trail Stabilization

Place tread retaining structures and waterbars in critical points along the trail in the moderate and high burn severity areas. Approximately 3.4 miles of the trail is in the burned area. Based on the initial field visit the Team concluded that the trail needed approximately 40 waterbars, 2 rock tread retaining structures, 2 trail retaining walls, and 30 ephemeral stream crossing stabilization. In addition, several areas need tread stabilization and 3-4 hazard trees need removing to safely implement emergency stabilization measures.

Estimated Costs:

1 Crew (CC's @ \$2088/day for 8 days):	\$16,704.00
1 Hydro tech. (GS-09-5 days + per diem/mileage)	\$ 3,000.00
1 Implementation Team Leader (GS-09 14 days)	\$ 4,900.00
Total:	\$24,604.00

The BAER Assessment Team evaluated two alternatives during the analysis. Both alternatives included the above stabilization measures, however Alternative 1 included the restriction of trail use to foot traffic only; and Alternative 2 (selected) proposed nonrestricted use. Because of the high frequency of use primarily from mountain bikers, multiple locations for access to the trail (signing at multiple locations outside of the burn), and unlikelihood effectively restricting trail use the District and Forest selected Alternative 2.

Protection/Safety Treatments:

Natural Vegetative Recovery Protective Fencing

Install several three-strand, smooth wire fencing segments, approximately 1 mile in combined length at access points along Forest Road 1N12 and on the west side of the fire to reduce the impacts of off-highway vehicle travel in areas recovering from the fire.

Estimated Cost:

Materials (One-mile three-strand, smooth wire):	\$ 2600.00
Installation Crew (2,088/day):	\$10,440.00
Total:	\$13,040.00

Santa Ana River Trail Hazard Advisory Signs

A sign would be placed at the east and west trail heads. Treatment costs include 4 signs as Forest personnel has indicated that the initial signs could be vandalized. Signs should be placed on two wooden posts for durability. Language could include "Caution: burned watershed, risk of flash floods and rock falls." Carsonite signs would also be placed along the trail within the fire area warning users of potential post fire hazards and urging cautious travel.

Estimated Cost:

Signs at entrance of trail:	\$2,000.00
Carsonite signs:	\$ 750.00
Total:	\$2,750.00

Forest Road 1N12 and 1S12 Signs

A sign would be placed on Forest Road 1N12 at the south end (junction Highway 38) and the north end (burn perimeter), and also at the gate on 1S12. Treatment costs includes 6 signs so as to have replacements in the event of vandalism. Language could include "Caution: burned watershed, risk of flash floods and rock falls."

Estimated Cost:
Signs at road junctions(6)

\$3,000.00

Private Property

Members of the BAER Assessment team met initially met with all seven property owners identified at risk on Friday, September 1st and Saturday September 2nd. Property owners were advised of potential for increased flooding and debris flows, and warned that ingress and egress along Fish Hatchery Road and Newport Road would be compromised and potentially impassible. All property owners were advised to store extra food, water, and medical supplies in the case road damage/loss prevented ingress and egress from residences. Team members also met with Mr. David Jaracz regarding the potential for damage and loss of his house during a storm event. Marc Stamer (BAER Team Leader), Rob Taylor (Team Hydrologist), and Glenn Barley (CDG Forester) recommended that Mr. Jaracz move both of his travel trailers (2) to the upper part of his property above the wash and keep stocked with extra food, water and medical supplies. We also recommended that he maintain due diligence and if a storm was predicted that it would be recommended to stay in his trailers instead of the house. BAER team members also coordinated a meeting with Mr. Jaracz, Jim Earsom (NRCS), Jim Middleton (NRCS) on Tuesday, September 5th; and once again discussed potential danger of fast flood events damaging his house and access to his property. The group also met with property owners Mr. Slater, and Mr. Coonrod and discussed concerns with potential fast flood events and loss of access roads. The BAER Assessment Team also contacted San Bernardino County Flood and San Bernardino County Fire OES regarding the concern of post-fire downstream effects to the seven residences at risk.

Dave Hildebrand (SCE East Branch Hydro-supervisor) was contacted on two different occasions to discuss the potential damage that may occur to the high pressure water pipe which crosses Mill Creek at the Highway 38 junction, and runs along Fish Hatchery Rd.

Larry Heasley (Cal Trans Maintenance Manager I) was contacted on two different occasions to discuss the potential damage that may occur along State Highway 38 as a result of increased erosion, rock fall, and debris flows. Allen King (BAER Team Geologist) met with Chris Hoadley (Cal Trans Engineering Geologist) on State Highway 38 to discuss potential concerns to the highway as a result of the fire. Detailed discussions by milepost along State Highway 38 are described in the geologist report submitted by Allen King.

Greg Gage (City of Redland Utilities Manager) was contacted on two different occasions by Marc Stamer (BAER Team Leader) regarding potential impacts to water quality in Mill Creek as a result of the Emerald Fire.

Estimated Costs (Note this was completed during the assessment):

BAER Assessment Team Members

Time for Contacts/Coordination:

\$3000.00

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.)

Landscape Treatments:

Fence Effectiveness Monitoring

To ensure effectiveness of fencing treatment monitoring funds are requested. Fenced areas will be monitored by Forest Service employees bi-weekly to check status of fence and effectiveness in reducing

off-highway vehicle travel onto burned National Forest Lands. The Fence Effectiveness Monitoring Plan is attached as Appendix C.

Estimated Cost:

1 GS-05/26 days: **\$5200.00**

SAR Trail Treatment Stabilization Monitoring

Because of the high use associated with this trail and the inability to effectively close the trail from public use the Forest is requesting funds to monitor stabilization treatments implemented along the trail. Storm inspection/response monitoring funds are requested to ensure effectiveness of trail stabilization measures on a weekly basis by district personnel. The SAR Trail Treatment Stabilization Monitoring Plan is attached as Appendix D.

Estimated Cost:

1 GS-05/52 days: **\$10,400.00**

Forest Road Treatment Stabilization Monitoring

Storm inspection/response monitoring for Forest Roads 1N12 and 1S12 will be conducted through the first year after the fire to ensure road stabilization treatments are functioning properly. This response will focus on identifying and treating potential hazards such as clogged culverts, plugged drains, and dips that may have filled in with sediment. The Forest Road Treatment Stabilization Monitoring Plan is attached as Appendix E.

Estimated Cost:

1 GS-09/4 days: \$1,200.00

Treatment of Potential hazards: \$2,000.00

Total: **\$3,200.00**

Part VI – Emergency Stabilization Treatments and Source of Funds
Interim #

Line Items	Units	Unit Cost	NFS Lands		Other \$	Other Lands				All Total \$
			# of Units	BAER \$		# of units	Fed \$	# of Units	Non Fed \$	
A. Land Treatments										
Noxious Weed Detection Surveys	Each	4225	1	\$4,225	\$0		\$0		\$0	\$4,225
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Land Treatments				\$4,225	\$0		\$0		\$0	\$4,225
B. Channel Treatments										
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Channel Treat.				\$0	\$0		\$0		\$0	\$0
C. Road and Trails										
Road Stabilization				\$0	\$0		\$0		\$0	\$0
-Reshape dips	contract	10000	1	\$10,000	\$0		\$0		\$0	\$10,000
-Install Structures/riprap	contract	13000	1	\$13,000	\$0		\$0		\$0	\$13,000
SAR Trail Stabilization										
-1 Crew/8 days	day	2088	8	\$16,704						
-1 Hydrotech/perdiem/mileage	day	600	5	\$3,000						
Implementation Team Leader	day	350	14	\$4,900						
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Road & Trails				\$47,604	\$0		\$0		\$0	\$23,000
D. Protection/Safety										
SAR Trail Signs	each	500	4	\$2,000	\$0		\$0		\$0	\$2,000
SAR Carsonties	each	50	15	\$750	\$0		\$0		\$0	\$750
Veg. Recovery Protective Fence	mile	13040	1	\$13,040	\$0		\$0		\$0	\$13,040
Risk Awareness	each	3000	1	\$3,000						
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Structures				\$18,790	\$0		\$0		\$0	\$15,790
E. BAER Evaluation										
Team Member Salaries	day	350	65	\$22,750						
Perdiem/Mileage	unit	4500	1	\$4,500						
Helicopter Flight	1	2,209	1	\$2,209			\$0		\$0	\$0
<i>Insert new items above this line!</i>				---	\$0		\$0		\$0	\$0
Subtotal Evaluation				\$29,459	\$0		\$0		\$0	\$0
F. Monitoring										
Fence Effectiveness	day	200	26	\$5,200	\$0		\$0		\$0	\$5,200
SAR Trail Treatment	day	200	52	\$10,400						
Road Treatment	day	300	4	\$1,200						
-Equipment	each	2000	1	\$2,000						
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
Subtotal Monitoring				\$18,800	\$0		\$0		\$0	\$5,200
G. Totals				\$118,878	\$0		\$0		\$0	\$48,215
Previously approved										
Total for this request				\$118,878						

PART VII - APPROVALS

1. /s/ Max Copenhagen
Forest Supervisor (signature)

9/11/06
Date

2. /s/ Vicki A. Jackson (for)
Regional Forester (signature)

9/14/06
Date

Appendix A

Figure 1: Photograph of subwatersheds above 34200 Fish Hatchery Road (Jaracz House).

Figure 2: Dozer line on west edge of Emerald Fire. Note the tracks trough the black created by both single track and two wheeled vehicles.

Appendix B

NOXIOUS WEED DETECTION SURVEY PLAN

Fire Name: Emerald Month/Year: August 2006

Author: Katie VinZant

Author Duty Station: San Bernardino National Forest: Mountaintop District

A. Background

Reducing the introduction and spread of non-native invasive species has been identified as a Forest Service Strategic Goal for 2003-2008. Desert wheatgrass (*Agropyron desertorum*), wild oats (*Avena fatua*), black mustard (*Brassica nigra*), cheatgrass (*Bromus tectorum*), red brome (*Bromus madritensis*), tocalote (*Centaurea melitensis*), storksbill (*Erodium cicutarium*), horehound (*Marubium vulgare*), tree tobacco (*Nicotania glauca*), milk thistle (*Silybum marianum*), Spanish broom (*Spartium junceum*), and saltcedar (*Tamarix ramosissima*) are known to occur within the burn area and along access routes to the burn. In addition, tree-of-heaven (*Ailanthus altissima*), giant reed (*Arundo donax*), fennel (*Foeniculum vulgare*), and fountain grass (*Pennisetum setaceum*) are known from locations less than one mile away. Several plant vectors such as Forest roads, trails, wind, and waterways occur within the fire area. In addition, seed could have been transported into the burn on suppression equipment and supplies. Fire is known to enhance the establishment of all weed species present.

B. Management Concerns

Noxious weed invasions interfere with habitat recovery and ecosystem health within burned areas and fire suppression sites (*e.g.* hand and dozer lines, drop points, and staging areas). In particular, noxious weeds hinder the recovery of habitat, especially in coastal sage scrub and riparian areas, by aggressive colonization and reduction of water quality and quantity.

C. Objectives

To determine if the fire and associated ground disturbing activities has promoted the establishment and spread of noxious weeds to the extent that eradication efforts are necessary. Early detection dramatically increases the likelihood of successful treatment. If weeds are detected, a supplemental request for BAER funds will be made for eradication.

D. Parameters

Noxious weed presence, location, density, population size, and persistence

E. Locations

In and along roads, trails, dozerlines, handlines, riparian areas, and adjacent to known sensitive and invasive plant populations

F. Weed Detection Survey Design and Methodology

Surveys will begin in 2007 during the flowering periods of weed species. Because of differences in flowering times for all potential species, two visits may be required during the growing season. Completion of surveys in riparian areas, dozerlines, and known invasive and sensitive plant populations would be the first priority. The second survey priorities would be along roads, handlines, and staging areas. Surveys of the general habitats in the burned area would be the lowest priority. All locations of weed species would be mapped, using the San Bernardino NF “weed species to map” list (Table 1.). Surveys would be completed using the NRIS protocol available at the national website: <http://fsweb.ftcol.wo.fs.fed.us/frs/rangelands/index.shtml>. Results would be entered into the NRIS database.

Table 1. Weed Species to Map

** <i>Acroptilon repens</i>	Russian knapweed
** <i>Ageratina adenophora</i>	Eupatory

** <i>Ailanthus altissima</i>	Tree of heaven
* <i>Arundo donax</i>	Giant reed grass
A ** <i>Asphodelus fistulosus</i>	Asphodel
** <i>Atriplex semibaccata</i>	Saltbush
* <i>Brassica tournefortii</i>	African mustard
** <i>Carduus pycnocephalus</i>	Italian thistle
* <i>Centaurea solstitialis</i>	Yellow star thistle
* <i>Centaurea maculosa</i>	Spotted Knapweed
** <i>Centaurea melitensis</i>	Tocalote
** <i>Cirsium vulgare</i>	Bull thistle
** <i>Conium maculatum</i>	Poison hemlock
* <i>Cortaderia selloana</i>	Pamapas grass
* <i>Delairea odorata</i>	German Ivy
* <i>Dipsacus sativus</i>	Teasel
*** <i>Dimorphotheca sinuata</i>	African daisy
A * <i>Eichornia crassipes</i>	Water hyacinth
** <i>Elaeagnus angustifolius</i>	Russian olive
** <i>Eucalyptus globulus</i>	Blue gum
** <i>Ficus carica</i>	Fig
* <i>Foeniculum vulgare</i>	Fennel
*** <i>Fumaria officinalis</i>	Fumitory
** <i>Hedera helix</i>	English ivy
A * <i>Hydrilla verticillata</i>	Hydrilla
* <i>Lathyrus latifolius</i>	Perennial sweetpea
* <i>Linaria genistifolia</i> ssp. <i>dalmatica</i>	Dalmatian toadflax
A * <i>Ludwigia</i> sp.	Water primrose
A * <i>Myriophyllum aquaticum</i>	Parrotfeather
** <i>Nicotiana glauca</i>	Tree tobacco
*** <i>Olea europaea</i>	Olive
** <i>Pennisetum clandestinum</i>	Kikuyu grass
** <i>Pennisetum setaceum</i>	Fountain grass
*** <i>Picris echioides</i>	Bristly ox-tongue
*** <i>Piptatherum miliaceum</i>	Smilo grass
** <i>Potamogeton crispus</i>	Curlleaf pondweed
*** <i>Prunus cerasifera</i>	Cherry plum
A ** <i>Retama monosperma</i>	Bridal broom
** <i>Ricinus communis</i>	Castorbean
** <i>Robinia pseudoacacia</i>	Black locust
* <i>Rubus discolor</i>	Himalayan blackberry
*** <i>Salsola tragus</i>	Russian thistle
*** <i>Salsola paulsenii</i>	Barbwire Russian thistle
*** <i>Saponaria officinalis</i>	Bouncing bet
*** <i>Schinus molle</i>	Peruvian pepper tree
* <i>Spartium junceum</i>	Spanish broom
* <i>Tamarix ramosissima</i>	Saltcedar
*** <i>Tribulus terrestris</i>	Puncture vine

CAL-IPC List Catagories

*Severe: Most Invasive Wildland Pest Plants; documented as aggressive invaders that displace natives and disrupt natural habitats.

**Moderate: Wildland Plants of Lesser Invasiveness; plants that spread less rapidly and cause a lesser degree of habitat disruption

***Limited: Wildland Plants of Limited Invasiveness; plants that have a limited distribution and impact on natural habitats or species for which there is not adequate information to describe its threat to wildlands

A Red Alert: Plants with potential to spread explosively, infestations currently localized or small

Table constructed from CAL-IPC invasive plant species listing of 2006: www.cal-ipc.org

G. Reporting

A Weed Detection Survey Report would be submitted to the regional BAER coordinator and the Mountaintop District Ranger. If weed introduction and spread has occurred, an Interim BAER report would be completed to request eradication funding. Reporting costs are included in figures below.

H. Costs: Weed Detection Surveys for One Year =\$4,255.00

Weed detection surveys to determine whether ground disturbing activities related to the Emerald Incident and the fire itself have resulted in the expansion of noxious weeds is requested for the first year. Estimated costs are based on the assumption that two visits would be necessary because of the differences in flowering times. If timing is such that all the target species are detectable in one visit, the actual costs would be lower than displayed below.

FY 2007

GS-12 botanist (\$410/day x 1 day)	= \$ 410.00
2-GS-09 Botanist (\$255/day x 7 days)	= \$3,570.00
Vehicle mileage (500 miles @0.55/mile)	= \$ 275.00
TOTAL for weed detection surveys for FY07	= \$4,255.00

I. Personnel

SBNF staff will be used for surveys

J. Responsible Staff

Melody Lardner, Forest Botanist

K. Follow-up Actions

Design and implement follow-up treatments as needed. Plan for integrated weed management and NEPA analysis using non-BAER funding.

Emerald Fire
Fence Effectiveness Monitoring

The 2500-8 report requests funds to monitor the effectiveness of fencing. The fencing is to restrict access to critical San Bernardino Kangaroo Rat and California Gnatcatcher habitat that could be degraded from off highway vehicle travel and noxious weed invasive species, impacting native vegetative recovery.

1. Monitoring Questions

- a. Are the fences restricting vehicle access in to the burned area?
- b. Have the fences been cut or tampered with since it was constructed or previously maintained?
- c. Are there specific locations where the fences are being cut?
- d. Are there signs of cross country off highway vehicle travel? Are specific areas being targeted?

2. Measurable Indicators

- a. Number of times fence is repaired
- b. Length of damage to soil and vegetation
- c. Vehicle traffic signs

3. Data Collection Techniques

- a. Photo documentation of site
- b. Inspection Checklist (attached)
- c. Cars parked in parking area

4. Analysis, evaluation, and reporting techniques

Due to the high resource values at risk the monitoring findings will be evaluated weekly. If the monitoring shows the treatment to be ineffective at restricting vehicle access and soil/vegetative damage, an interim report will be submitted. Emergency funding for enforcement protection or other appropriate treatment may be required based on the monitoring findings. (Physical detection monitors)

5. Monitoring report timeframes

The report will be evaluated weekly and if the treatment is effective, fence inspection checklist findings will be compiled monthly and summarized by the following:

- a. Number of fence breaks
- b. Number of times vehicle entry
- c. Location of fence breaks
- d. Destination of vehicle access
- e. Vegetative damage characteristics
- f. Use of parking area

Fence Inspection Checklist

Date: _____
Time: _____

Inspector _____

Describe locations reviewed during inspection: _____

Was the fence cut? _____. If so at what location
(GPS) _____

Were there additional fence cuts? (GPS) _____

Were there signs of vehicle entry to the area? _____

Photo taken of vehicle tracks _____

Photo taken of fence break _____

Native vegetation review findings: Signs of damage, vehicle traffic, or other disturbance within
burn ____ Yes ____ No?

If so identify by GPS the location and note on sketch map. _____

Describe signs of soil/vegetative damage _____

Were there cars parked in or adjacent to the burn area.? _____

If yes, how many? _____

Photo taken of vehicles _____

Recommended repairs needed _____

Appendix D:

Emerald Fire SAR Trail Stabilization Effectiveness Monitoring

The 2500-8 report requests funds to monitor the effectiveness of stabilization treatments along the SAR Trail. The treatments are designed to upgrade and supplement existing erosion control structures on the Santa Ana River Trail to facilitate proper water drainage off the trail, preserve the trail tread, and decrease watershed efficiency.

1. Monitoring Questions
 - a. Are the treatments effectively decreasing watershed efficiency within the burned area?
 - b. Have the treatments effectively preserved trail tread within the fire area?
 - c. Are there specific locations where treatments have failed?
2. Measurable Indicators
 - d. Number of times structures are plugged, filled, or broken down.
 - e. Area of loss of trail tread
3. Data Collection Techniques
 - f. Photo documentation of site
 - g. Inspection Checklist (attached)
4. Analysis, evaluation, and reporting techniques

Due to the high resource values at risk the monitoring findings will be evaluated weekly. If the monitoring shows the treatment to be ineffective at stabilizing trail and there is extensive loss of trail tread an interim report will be submitted.

5. Monitoring report timeframes

The report will be evaluated weekly and if the treatment is effective, checklist findings will be compiled monthly and summarized by the following:

- h. Number of compromised water bars
- i. Length of trail tread lost
- j. Number of compromised rock retaining walls

Trail Inspection Checklist

Date: _____
Time: _____

Inspector _____

Describe locations reviewed during inspection: _____

Was there trail damage? _____. If so at what location and what structure
(GPS)_____

Describe damage and cost to repair? (GPS)_____

Were there warning signs in place?_____

Photo taken of trail damage_____

Photo taken of sign damage_____

Recommended repairs needed_____

Appendix E:

Emerald Fire Forest Road Stabilization Effectiveness Monitoring

The 2500-8 report requests funds to monitor the effectiveness of stabilization treatments along the Forest Roads 1N12 and 1S12 (Road to Morton Peak Lookout). The treatments are designed to upgrade and supplement existing erosion control structures on Forest Service Roads to facilitate proper water drainage off the road, preserve the road tread, and decrease watershed efficiency.

1. Monitoring Questions
 - a. Are the treatments effectively decreasing watershed efficiency within the burned area?
 - b. Have the treatments effectively preserved road bed within the fire area?
 - c. Are there specific locations where treatments have failed?
2. Measurable Indicators
 - d. Number of times structures are plugged, filled, or broken down.
 - e. Area of loss of road bed.
3. Data Collection Techniques
 - f. Photo documentation of site
 - g. Inspection Checklist (attached)
4. Analysis, evaluation, and reporting techniques

Monitoring will be conducted after storm events. If the monitoring shows the treatment to be ineffective at stabilizing road and there is extensive loss of road bed or infrastructure an interim report will be submitted.

Road Inspection Checklist

Date: _____

Inspector _____

Time: _____

Forest Road _____

Describe locations reviewed during inspection: _____

Was there road damage? _____. If so at what location and what structure (GPS) _____

Describe damage and cost to repair? (GPS) _____

Were the warning signs in place? _____

Photo taken of road damage _____

Photo taken of sign damage _____

Recommended actions to repair: _____

Appendix F: References

Morton, Douglas M. Debris Flows at Forest Falls, San Bernardino County, CA July 11, 1999. USGS Provisional Report.