USDA-FOREST SERVICE FS-2500-8 (6/06)

Date of Report: September 30, 2007

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: Butler II

B. Fire Number: CA-BDF-009435

C. State: CA

D. County: San Bernardino

E. Region: 05

F. Forest: 12

G. District: Mountaintop

H. Fire Incident Job Code: P5DY5Q

I. Date Fire Started: Septermber 14, 2007

J. Date Fire Contained: September 20, 2007

K. Suppression Cost: $12,180,119 as of September 22

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 58 (Dozer and Hand line)
2. Fireline seeded (miles): None
3. Other (identify): None

M. HUC 6 Watershed Names: Crystal Creek, Bear Creek, Big Bear Lake, Holcomb Creek

N. Total Acres Burned: 13,825
NFS Acres(**13,715**) Other Federal ( ) State ( ) Private (110)

O. Vegetation Types: Desert transition chaparral, montane chaparral, cottonwood/willow riparian forest, montane wet meadow, black oak woodland, pinyon pine woodland, Great Basin sage scrub, Jeffrey pine forest, mixed conifer forest, and mixed conifer/black oak forest.

P. Dominant Soils: Pacifico-Wapi families complex, Wapi-Pacifico families-Rock outcrop complex, Morical-Brader families association, Brader-Morical families association, Brader-Morical families association, Pacifico-

Preston families complex, Lithic Xerorthents-Springdale family-Rubble land association, Wapi-Pacifico families-dry-Rock outcrop complex, Olete-Goulding families association, Lizzant family-Lithic Xerorthents, calcareous association, Lithic Xerorthents, calcareous-Lazzant family association, Lithic Xerorthents, calcareous-Rock outcrop complex, percent slopes, Morical-Wind River families complex, Rubble land-Rock outcrop complex, Riverwash, Wapal family-Lithic Xerorthents, cool association.

Q. Geologic Types: Monzogranites from Butler Peak, Keller Peak and Fawnskin, Young alluvial fan deposits, alluvial valley deposits, colluvial and talus deposits, and landslide deposits are located through out the fire area. Sedimentary siltstone and carbonate formations are located in the north end of the fire.

R. Miles of Stream Channels by Order or Class: Perrenial Streams – 9.4 miles, Intermittent Streams – 32.4 miles.

S. Transportation System Trails: 6.8 miles Roads: 52 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 1,028 (unburned) 3,327 (low) 7,519 (moderate) 1,955 (high)

B. Water-Repellent Soil (acres):1955

C. Soil Erosion Hazard Rating (acres): 0 (low) 2744 (moderate) 8604 (high) Very High 2478

D. Erosion Potential: 16 tons/acre

E. Sediment Potential: 1230 cubic yards / square mile one year following burn from Holcomb Creek below the fire [normal level is 130 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): 10

D. Design Storm Duration, (hours): 12

E. Design Storm Magnitude, (inches): 8.0

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

For Holcomb Creek below fire boundary

Peak discharge: equal or exceeded peak discharge	Normal watershed peak discharge (cfs/sq mi)
Q 2	5
Q 5	9
Q 10	14

G. Estimated Reduction in Infiltration, (percent): 15

H. Adjusted Design Flow, (cfs per square mile): Using Rowe et al. Method
For Holcomb Creek below fire boundary

Peak discharge: equal or exceeded peak discharge	1 year post burn peak discharge (cfs/sq mi)	Percent of pre-fire
Q 2	8	153%
Q 5	13	141%
Q 10	18	135%

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:
The following paragraphs describe critical values at risk identified by the BAER Assessment Team. Table 1 summarizes all potential values at risk and emergency determinations identified by the BAER Team as a result of the Butler 2 Fire.

Burned Area Setting
In describing the values at risk and emergency conditions, the Butler II BAER team considered the setting and current/traditional use patterns in the area. The burned area contains two major through roads (3N14 and 3N16) that provide access from densely populated urban areas to the the burned area and the entire unburned western side of the district, another highly visited area that provides many recreational opportunities.

The burned area has a relatively high road density, several campgrounds, dispersed camping sites, and trails. There are many miles unclassified routes (non-system roads) within the burned area. The density of cultural resource sites within the burned area is high. Occurences of Federally listed plants and wildlife are known within the burn area.

The visitation rate is high and the area provides many recreational opportunities. The area is heavily used for off highway vehicle recreation. Due to removal of vegetation and ground cover, most of the burned area is highly susceptible to increased runoff, soil erosion, introduction/spread of noxious weeds, or increased access to sensitive sites. Fire related threats to life, safety, property, cultural sites, wildlife/plant habitat, and noxious weed invasion are excacerbated by the high road and trail densities, and use patterns of the area. Concern for adverse effects caused by increased access was a common theme throughout the analysis process.

State Highway 18 (outside the burned area) and Forest Roads (within the burned area)
Emergency conditions exist on and adjacent to State Highway 18 and forest roads within the burned area. Because the fire has created increased potential for rock-fall and debris flow on the steep slopes above the roads, increased potential for flooding at creek crossings and floodplains, and increased potential for road washouts, there is a threat to life and safety of road users and a threat to infrastructure (road damage and loss of investment).

There are 52 miles of Forest Service Roads (52 miles) within the burned area. The risk to infrastructure is created when increased runoff due to loss of vegetative cover and/or increased sediment movement alters drainage structure dimension (e.g. dips fill with sediment) and compromise their ability to function. There is a risk to human life at low water crossings (fords) and on roads with steep hill-slopes where the fire has consumed vegetation; there is an increased chance for debris flows and rock fall.

An emergency determination based on threat to property and/or life and safety was made on roads 3N14, 3N16, and 2N13, 3N97, 3N08, 3N93, 2N84, and 3N91. On 3N14 there increased potential for flooding and sediment delivery to Hanna Flat Campground from a debris flow.

The Hydrology, Geology, and Engineering Specialist Reports, available in the project file, describe threats and emergency conditions for roads in the burned area.

Forest Trails

Emergency conditions based on threat to property and/or life and safety exist on and adjacent to trails within the burned area. Values at risk are the trail (increased erosion of the trail…loss of investment) and threat to life and safety (potential for flooding at trail stream crossings, potential for debris flows in steep terrain with high burn severity). There are approximately 6.8 miles of trail within the burned area. Pacific Crest Trail runs through the project area with and crosses Holcomb Creek near Little Bear Springs. Increased runoff from erosion and sediment from burned hill-slopes threaten the prism of the Pacific Crest Trail. The trail traverses slopes of moderate and high burn severity slopes, and increased runoff onto the trail will lead to accelerated erosion. There may be rock fall/debris flow onto the trail. The Hydrology, Geology, and Engineering Specialist Reports, available in the project file, describe threats and emergency conditions for trails in the burned area.

Developed Campgrounds and Dispersed Campsites (Yellow Post Sites)

Emergency conditions based on threats to life and safety occur at several campgrounds and dispersed campsites within the burned area. Threats include flooding, debris flow, hazard trees, and exposure to hazardous materials. Hannah Flat Campground is at risk from potential debris flows, flooding, and increased sediment from erosion and debris flows from the slopes on Little Bear Peak. Campgrounds within the burn are Holcomb Crossing & Bench Camp along the Pacific Crest Trail (PCT), Little Bear Springs, Hanna Flat Campground, and Grays Peak Group Camp. Dispersed campsites (yellow post sites) within the burned area are 2, 3, 4, 5, 6, 7, 33, and 34. The Hydrology, Geology, and Engineering Specialist Reports, available in the project file, describe threats and emergency conditions for campgrounds in the burned area.

Hazardous Materials within the Burned Area

Increased potential for exposure to hazardous materials exists in multiple locations throughout the burned area. Plastic pipe, fiberglass signs, and toilets, damaged and/or partially consumed by fire, pose a threat to health and safety.

Threats to Water Quality (sediment and nutrient delivery)

Water quality in Grout Creek and Big Bear Lake are potential values at risk due to the nutrient TMDLs. Sediment delivery to Grout Creek and Big Bear Lake is expected to increase as a result of the fire. Sediment delivery to Holcomb Creek is also expected to increase as a result of the fire. However, "no emergency" was determined for the effects of sedimentation on water quality in both watersheds. Analysis was conducted for other values at risk such as recreation, archaeology, and biological sites subject to watershed responses (flooding and sedimentation). For the 10-year design storm, it is assumed that water and ash will reach Grout Bay and Deep Creek. In smaller rain events where water is not delivered from the burn area, ash will have the opportunity to deposit in channel and among the vegetation in the unburned area.

Soil Productivity

No Emergency was determined for Long -term Soil Productivity. On site soil erosion is predicted to increase significantly as a result of the fire, particularly in high burn severity areas. However, an emergency for long-term soil productivity was not determined. Despite some fire short-term fire effects to the soil, removal of protective soil cover, and accelerated rates of post-fire erosion, it is unlikely these soils will lose the ability to support the native vegetation that was found before the fire. Natural re-vegetation is expected to occur because a source of viable native seeds still exists and many species are expected to re-sprout rapidly. Additionally, 86% of the burned area was mapped as low and moderate burn severity.

Cultural Resources

The fire has created a threat to cultural resources within the burned area. Removal of vegetative cover has increased visibility and accessibility to sites, making them more susceptible to ground disturbance. Removal of effective ground cover at the sites also raises the potential for soil erosion. In several locations lack of

vegetation, and remnant unclassified roads provide access to critical heritage resources. Potential degradation to the site could occur from looting, or driving in the area, or erosion of the site. Emergency conditions exist for prehistoric sites in the 3N16, 3N08P, 3N08H areas. The Cultural Resources Specialist Report, available in the project file, describes threats and emergency conditions for cultural sites in the burned area.

Wildlife

The fire area supports some very important and unique habitats and occurrences of rare wildlife species. In the fire area, there are known nest sites and designated critical habitat for southwestern willow flycatchers (federally-endangered), three nesting territories for California spotted owls (Forest Service Sensitive), and suitable habitat for mountain yellow-legged frogs (federally-endangered). There is modeled habitat for California red-legged frogs (federally-threatened) downstream from the fire; and there are known occurrences of arroyo toads downstream from the fire. Additional designated critical habitat for southwestern willow flycatchers occurs downstream from the fire area. Streams within and downstream of the fire area support several native fish species (including Sensitive species) and sport fisheries. There are also several abandoned mines with Sensitive bat species.

These habitats and species are at risk to further losses, disturbances, and degradation from post-fire impacts of sediment delivery and loss of water quality in aquatic systems, scouring of willow habitat out of riparian habitats, and loss of property and wildlife habitat at spring developments due to sediment delivery. Bats in abandoned mines are now at risk due to increased exposure to vandalism and disturbance due to elimination of screening. The greatest risk to all of these habitats and species (and many other wildlife species in the fire area) are the cumulative effects of fire, post-fire watershed impacts, and the potential long-term disturbance and habitat impacts from increased access by people and OHVs. The Wildlife Biologists Specialist Report, available in the project file, describes threats and emergency conditions for Federally listed and Forest Sensitive wildlife species in the burned area.

Emergency Determinations for Wildlife

Arroyo Toad: It is my determination that an emergency does not exist for arroyo toad downstream in Deep Creek as a result of post-fire effects of the Butler 2 Fire.

Mountain Yellow-Legged Frog: It is my determination that an emergency does exist for mountain yellow-legged frog in Grout Creek and Holcomb Creek as a result of post-fire effects of the Butler 2 Fire. No emergency exists in Deep Creek.

California Red-Legged Frog: It is my determination that an emergency does not exist for California red-legged frog in Deep Creek and Holcomb Creek as a result of post-fire effects of the Butler 2 Fire.

Southwestern Willow Flycatcher: It is my determination that an emergency does exist for southwestern willow flycatcher, designated critical habitat, and suitable habitat as a result of the fire and post-fire effects of the Butler 2 Fire.

California Spotted Owl: It is my determination that an emergency does exist for California spotted owl habitat as a result of the fire and post-fire effects of the Butler 2 Fire.

Bald Eagle: It is my determination that an emergency does not exist for bald eagle habitat as a result of the fire and post-fire effects of the Butler 2 Fire.

Aquatic and Riparian Species: It is my determination that an emergency does exist for aquatic and riparian habitat as a result of the fire and post-fire effects of the Butler 2 Fire.

Spring Developments: It is my determination that an emergency does exist for spring developments (as property with investments and as critical water sources for wildlife) as a result of the fire and post-fire effects of the Butler 2 Fire.

Mines/Sensitive Bats: It is my determination that an emergency does exist for sensitive bats as a result of the fire and post-fire effects of the Butler 2 Fire.

Botany

Vegetative Recovery – *Threats to Water Quality/Soil Stability, Introduction of Noxious Weeds*: Increased off-highway vehicle access to areas denuded of vegetation will impede vegetative recovery. The unknowing introduction and dispersal of invasive weeds into areas disturbed by fire suppression and rehabilitation has the potential to establish persistent weed populations. In addition, it is highly likely that existent weed infestations will increase in the burn area, due to their accelerated growth and reproduction and a release from competition with natives. These weed populations could affect the structure and habitat function of native plant communities within the burn area. It is expected that most native vegetation would recover if weed invasions are minimized. The high potential for the Butler 2 fire to increase the dominance of several invasive plant species on the Forest constitutes an emergency. All of these factors have the ability to impact Southwestern willow flycatcher, California arroyo toad habitat, water quality, and soil stability.

Rare Plant Recovery: Federally endangered Cushenbury puncturebract, Forest Service Sensitive: lemon lily, Bear Valley phlox, Parish's rockcress, Mill Creek alumroot, San Bernardino owl's clover, Ewan's cinquefoil, Bear Valley milkvetch, crested milkvetch, chickweed oxytheca, Palmer's mariposa, Forest Service watch: Parish's California tea and southern jewelflower, and species of concern: stream orchid and several liverwort, lichen, and moss species were burned under low to high intensity in the Butler 2 fire. All of these species would have already bloomed and released their seed into the seedbank pre-fire. Seeds are more tolerant of heat on the ground than on the stem, leading to enhanced germination success and species recovery. All species, with the exception of Cushenbury puncturebract, are not threatened by eminent extirpation throughout their ranges. Cushenbury puncturebract populations in the burn area were burned under high intensity and impacted by dozer lines during the Butler 2 fire. In addition, Cushenbury puncturebract was threatened by OHV, weed infestations, and previous suppression activities before the Butler 2 fire. All of these impacts equate to a significant threat to the health and reproduction of Cushenbury puncturebract populations within the fire area. The Botanical Resource Specialist Report, available in the project file, describes threats and emergency conditions for Federally listed and Forest Sensitive species in the burned area.

Table 1: Summary of Potential Values at Risk and Emergency Determinations

Value At Risk	Concerns	Determination
Roads State Highway 18 (outside the burned area) and Forest Roads (within the burned area)	Increased potential for rock-fall and debris flow on the steep slopes above the roads, increased potential for flooding at creek crossings and floodplains, and increased potential for road washouts, there is a threat to life and safety of road users and a threat to infrastructure (road damage and loss of investment). Roads of concern are 3N14, 3N16, and 2N13, 3N97, 3N08, 3N93, 2N84, 2N79Y, 2N70 and 3N91. On 3N14 there is increased potential for debris flow adjacent to Hanna Flat Campground.	Emergency: Threats to Life, Property, and Watershed Condition Exist
Trails: Pacific Crest Trail	Increased runoff from erosion and sediment from burned hill-slopes threaten the prism of the Pacific Crest Trail. The trail traverses slopes of moderate and high burn severity slopes, and increased runoff onto the trail will lead to accelerated erosion. There may be rock fall/debris flow onto the trail. The Pacific Crest Trail (PCT) group campsites and the Little Bear Springs Campground are associated with the use of trail. Forest Service trail 1W07 at the crossing of Holcomb Creek.	Emergency: Threats to Life, Property, and Watershed Condition Exist

Developed Campgrounds and Dispersed Campsites	Emergency conditions based on threats to life and safety occur at several campgrounds and dispersed campsites within the burned area. Threats include flooding, debris flow, hazard trees, and exposure to hazardous materials. Campgrounds within the burn are Holcomb Crossing & Bench Camp along the Pacific Crest Trail (PCT), Little Bear Springs, Hanna Flat Campground, and Grays Peak Group Camp. Sites 2, 3, 5, 58, 60, 67 in Hannah Flat Campground have increased risk for flooding and sedimentation from erosion and debris flows. Crossing Holcomb Creek to access Little Bear Springs campground is a threat to life and safety. Hazard trees and hazardous materials exist within Little Bear Springs Campground. No emergency conditions exist at Greys Peak Campground. Dispersed campsites (yellow post sites) within the burned area are 2, 3, 4, 5, 6, 7, 33, and 34.	Emergency: Threats to Life, Property, and Watershed Condition Exist
Hazardous Materials	Increased potential for exposure to hazardous materials exists in multiple locations throughout the burned area. Plastic pipe, fiberglass signs, and toilets, damaged and/or partially consumed by fire, pose a threat to health and safety.	Emergency: Threats health and safety exist
Threats to Water Quality	Water quality in Grout Creek and Big Bear Lake are potential values at risk due to the nutrient TMDLs and the private property below the fire in Grout Creek. Sediment delivery to Grout Creek and Big Bear Lake is expected to increase as a result of the fire. Sediment delivery to Holcomb Creek is also expected to increase. Ash delivery to Big Bear Lake and Deep Creek is also expected to occur when and where runoff is generated.	No Emergency
Floodplains	There is a threat to human life to people recreating in the flood-prone areas of Grout Creek and Holcomb Creek, and tributaries	Emergency: Threats to Life
Soil Productivity	Vegetative recovery and hill-slope stabilization expected to occur within 3-5 years of the fire.	No Emergency
Recovery of Native Vegetation	Threats to Federally Listed plant species known within the burn area as a result of loss of vegetative screening was identified during the BAER assessment. The assessment team also identified a threat to native vegetative recovery and Federally Listed plant species as a result of the potential introduction of nonnative noxious weeds.	Emergency: Threats to Natural Resources
Threatened and Endangered Species Habitat	Threat to Federally listed wildlife species and developed springs exists as a result of the Butler 2 fire and the potential for the introduction of nonnative noxious weeds.	Emergency: Threats to T&E Species and Habitat Exist
Cultural Resources Pre-Historic	Emergency conditions exist for prehistoric sites in the 3N16, 3N08P, 3N08H areas. Removal of vegetative cover has increased visibility and accessibility to sites, making them more susceptible to ground disturbance. Removal of effective ground cover at the sites has raised the potential for soil erosion.	Emergency: Threats to Cultural Resource Sites Exist
Cultural Resources Historic	Recreation residences Bridge at State Highway 38/Grout Creek	No Emergency
Other Values Considered	Residences in Fawnskin/Green Valley Lake/North Shore Camp Whittle Southwest Gas Line Power Lines Plantations	No Emergency

B. Emergency Treatment Objectives:

- Cultural Resource Sites – Objectives are to increase soil stability and reduce the potential for erosion to protect cultural sites. Use fencing to reduce or prevent vehicular access to cultural resource sites.
- Noxious Weeds - Reduce the potential for impaired vegetative recovery and introduction/spread of noxious weeds.
- Road and Trail Treatments – Objective is to improve road drainage to protect the road system. Reduce erosion fro the road surface and sediment delivery to stream channels. Reduce the threat to life and safety for road users.
- Protection and Safety Treatments – Ensure communication of potential post fire values at risk has occurred. Reduce threat to life and safety by closing hazardous areas and roads until watershed stabilization has occurred and/or the threats/hazards have been removed. Re-evaluate the burned area before lifting the closures.
- Protection of Developed Spring Infrastructure

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

Land **90** % Channel **N/A** % Roads/Trails **95** % Protection/Safety **90** %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	90%	95%	N/A
Channel	N/A	N/A	N/A
Roads/Trails	90%	95%	N/A
Protection/Safety	90%	95%	95%

E. Cost of No-Action (Including Loss): $5.3 million

F. Cost of Selected Alternative (Including Loss): $851,325

G. Skills Represented on Burned-Area Survey Team:

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

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Core Team

Eric Schoder – Soil Scientist/2500-8 Co-Author
Robert Taylor – Hydrologist
Katie VinZant – Botanist
Robin Eliason – Wildlife Biologist
Doug McKay – Archaeologist
Greg Napper – Roads Engineer
Alan Gallegos - Geologist
Andrew Briebart - Hydrologist
Erin Shapiro - Botanist
Angelica Mendoza – Wildlife Biologist Trainee
Dorit Millard – Archaeologist
Frank Baccerra – Roads Engineer

Jason Bill – GIS
Jordon Zylstra – GIS

Adjunct Team

Scott Eliason – Botanist
Chon Briebiscas – Recreation
Rudy Tantare - Forester
Jonathan Cook-Fisher – Recreation
Jeff Kermode (Cal Trans) – Geologist

H. **Treatment Narrative:**

- **Implementation Team:** To provide for logistics and tracking of treatment implementation.

Treatment Cost

Unit	Unit Cost	#Units	Total
Implementation Team Leader	$330/day	21 days	$6,930
Hydrologist/Soil Scientist	$330/day	7 days	$2,310
Total			**$9,240**

Land Treatments:

- **Noxious Weed Detection Surveys:** Surveys will begin in 2008 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, drop points, safety zones, and known invasive and sensitive plant populations will be the first priority. The second survey priorities will be along roads, handlines, and staging areas. Surveys of the general habitats in the burned area will be the lowest priority. All locations of weed species will be mapped, using the San Bernardino NF "weed species to map" list. Surveys will be completed using the NRIS protocol available at the national website: http://fsweb.ftcol.wo.fs.fed.us/frs/rangelands/index.shtml. Results will be entered into the NRIS database. Noxious weed detection survey plan is attached as appendix A.

Treatment Cost:

Unit	Unit Cost	#Units	Total
1-GS-11 botanist	390/day	5 days	1,950
2-GS-07 botanists	170/day	10 days	3,400
Vehicle mileage	0.55/mile	200miles	110
TOTAL COST			**5,460**

- **Cultural Resource Protection Site:** Closure of existing gates on 3N17 would protect Native American traditional cultural property from increased vehicular activity, erosion, and vandalism. Fencing would be used along road corridors of 3N16 and 3N08 to prevent destruction from unauthorized OHV access and slope erosion and facilitate re-vegetation. Native wood chippings would be used to cover exposed archaeological deposits from vandalism and would help stop displacement of artifacts.

Treatment Cost:

UNIT	UNIT COST	# OF UNITS	TOTAL COST
Hand Crew	$5000/day	1 days	$5,000
GS-11 Archaeologist	$400/day	3 days	$1,200
Wood Chips	$60/ton	30 tons	$1,800
Rubber-tired Loader	$150/hour	10 hours	$1,500
Total:			**$9,500**

- **Developed Spring Protection/Removal Hazardous Material(Plastic Pipe):** Nine spring developments are present within the fire perimeter. Eight of these springs have had some damage due to the fire and have a potential for post-fire impacts due to sediment and debris. These springs are in

danger of being impacted by sediment of mudflows that would reduce their ability to provide water to wildlife species. Sediment deflectors or traps will be constructed by hand above the spring developments to reduce the amount of sediment entering the water tanks. Function of spring developments needs to be protected to successfully provide water for wildlife.

Treatment Cost:

Unit	Unit Cost	# of Units	Cost
Two Biologists	$200/day	20 days	$8,000
One Archaeologist	$400/day	3 days	$1,200
Total			**$9,200**

Note: Cost may be reduced by half if we are able to recruit volunteers from California Deer Association and/or Quail Unlimited to help implement the land treatments. In that case, we would need one Forest Service employee for 21 days to do the planning and coordination. It is very likely that we could get this commitment.

Channel Treatments: N/A

Roads and Trail Treatments:

- **Trail Storm-Proofing:** Trail stabilization on the 6.8 miles of trail within the fire area will provide drainage and stability to reduce trail damage and unacceptable degradation to downstream values. Stabilization methods will include the installation of rolling dips, water bars, and outsloping where appropriate below areas of high-burn severity, along trail sections with sustained grade through burn areas that lack adequate drainage, and along trail segments that have potential to deliver sediment to streams.

Treatment Costs:

Unit	Unit Cost	# of Units	Cost
Type two had crew	$5000/day	5 days	$25,000
Hydrologist/Soil Scientist	$350/day	5 days	$1,750
Archaeologist	$450/day	5 days	$2,250
Botanist	$200/day	1 day	$200
Total			**$29,200**

- **Trail Storm Inspection and Response:** Storm inspection and response will be conducted to ensure storm proofing treatments continue to function thus preventing loss of water control along system trails. Two recreation technitions will inspect and repair dips and water bars after storm events have moved through the fire area.

Treatment Cost:

Unit	Unit Cost	# of Units	Total
Two Recreation Technitions	200/day	52 days	$20,800
Total			**$20,800**

- **System Road Storm-Proofing:** This treatment entails work primarily addressing the capacity of dips that catch surface runoff and direct flows to existing overside drains. The dips need to be enhanced in dimension to handle increased flows and sediment movement. Incidental to this work are activities such as: Clean blockage of drainage ways such as overside drains; removing ruts and gullies and restoring needed inslope or outslope. Improving the existing drainage facilities will insure they are as effective and efficient as possible to handle the anticipated post-burn flows.

Treatment Cost:

Unit	Unit Cost	# of Units	Total
Installation of dips	$2,000/each	5	$10,000
Improve road drainage	$1,000/each	96	$96,000
Total			**$106,000**

- **Storm Inspection and Response:** This treatment will ensure the function of drainage and identify and correct hazards during and after storm events, for risks such as flash flooding, rock fall, debris flow clean up, and plugged road drainage structures. Ensure water flow through drainage facilities. Clear blockages to restore drainage function for next storm. Includes minor slump and slide removal where needed to assure continued operation of drainage facilities. Treatment cost varies with storm event, but can be expected to run approximately $2000 per day when equipment is required and $1,000/day for a shovel patrol, depending on the storm event, action taken, labor and equipment used, and amount of clean up needed.

Treatment Cost:

Unit	Unit Cost	# of Units	Total
Storm proofing roads (shovel work)	$1,000/day	20 days	$20,000
Storm proofing roads (equipment work)	$2,000/day	20 days	$40,000
Total			**$60,000**

Protection/Safety Treatments:

- **Interagency Coordination/Interim Reporting:** Interagency coordination started during the fire and continued throughout the BAER Assessment. Continuing this coordination by providing the BAER Assessment Report, specialist reports and attending meetings is anticipated. This treatment will also provide funds for the completion of interim/accomplish reports.

Treatment Cost:

Unit	Unit Cost	#Units	Total
Hydrologist	400/day	4 days	$1,600
Forest BAER Coord.	$330/day	5 days	$1,650
Total			**$3,250**

- **Area Closure – 2N13 from C spur to Westpoint. Holcomb Creek to Butler Peak Ridge:** To protect life and provide for public safety, implementation of an area closure that would prohibit, by Forest Order, any public access (administrative use allowed) into the area defined as: within the the Butler II fire from the juntion of Forest Road 2N13/2N13C to Westpoint; from Holcomb Creek to Butler Peak Ridge. Required fencing and gates are accounted for in the "System Road Closure" and "Fence and Barrier" treatments. This treatment will include the development of supporting Forest Order.

Treatment Cost:

Unit	Unit Cost	#Units	Total
Staff	$300/day	2	$600
Signs	$300/each	12	$3,600
Two Rectreation Tech.	$200/day	3	$1,200
Total			**$5,400**

- **System Road Closure:** Implementing a system road closure on all system roads through the fire except for Forest Road 3N16 is necessary to mitigate threats to life, property, and/or adjacent resources. This

treatment will also include the closure of developed and dispersed campsites within the fire area. To effectively implement the closure 14 gate locations were identified. Regulatory, Closure, and Warning signs will also be placed at key points of entry into the fire area. This closure will also be supported by a forest order for enforcement.

Treatment Cost:

Unit	Unit Cost	#Units	Total
"Angeles" Style Gate	$8,000 each	4	$32,000
Two Inch Pipe Gate	$4,000 each	10	$40,000
Closure Signs	$300 each	25	$7,500
Regulatory Signs	$500 each	25	$12,500
Protection Life Signs	$300 each	13	$3,900
Total			**$95,900**

- **Trail Closure and Reroute/Signs:** Threats to life and public safety exist along system trails that are located within the fire area. To effectively close system trails that enter the fire area the installation of directional signs and trail closure signs is required. To effectively close the Pacific Crest Trail, a temporary reroute has been delineated and will need to be signed.

Treatment Cost:

Unit	Unit Cost	# Units	Total
Trail Closure Signs	$300/each	9 each	$2,700
PCT Reroute Signs	$300/each	9 each	$2,700
Two Recreation Technitions	$200/day	5 days	$2,000
Total			**$7,400**

- **Installation of "Bat Friendly" Mine Gate:** There are five abandoned mines in the fire perimeter that are now extremely visible and creating "attractive nuisances" to the public. The fire has eliminated vegetation that previously hid or made the mine openings less obvious. It will take many years for vegetation to recover enough to provide screening for these mines. As such, they pose a safety risk to the public. Additionally, bats and bat habitat in these abandoned mines are now susceptible to disturbance and vandalism due to very high visibility since vegetation that once screened the adits is now gone. Even if there is a closure of roads and trails in the fire area, these mines are visible from Forest Road 3N16 which will remain open around the perimeter of the fire, and would pose a threat to safety for those exploring the area.

Treatment Cost:

Unit	Unit Cost	#Units	Total
Bat "Friendly" Gate	$8,000	5 gates	$40,000
Biologist	$330/day	15 days	$4,950
Archaeologist	$400/day	2 days	$800
Total			**$45,750**

Note: The California Department of Conservation, Office of Mine Reclamation, has been partnering with the SBNF to provide partial funding for closure of abandoned mines. It is likely that they would provide ½ of the funding if the Forest Service matched this funding. In addition, they have recently been using a different construction technique using road culverts that is less expensive. If these sites are suitable for this technique, costs may be closer to $5000/mine.

- **Hazard Tree Removal:** System roads and trails through within the fire area will be closed to entry except for administrative use purposes. Administrative use is critical to allow Storm Inspection/Response Treatments, and to recreation staff to repair developed and dispersed sites that were

damaged during the fire. Also, Forest Road 3N16, which runs along the north and west side of the fire area, will remain open to provide public access to the west side of the Mountiantop Ranger District. Hazard tree removal started during the incident to provide for firefigher safety during the fire, however, hazard trees along system roads, trails, and campsites are present, and currently pose a threat to Forest employees that will work within the fire area through the winter. Hazard tree removal costs include one skid steer for 2 days to clear any hazard trees that have to be dropped across system roads.

Treatment Costs:

Unit	Unit Cost	# Units	Total
2 Fallers (Class C)	$1,600/day	5 days	$8,000
Skid Steer	$110/hour	20 hours	$2,200
Total			**$10,200**

- **Vegetative Screening**: Guidance in FSM 2523 directs that plant materials, including shrubs or trees, are appropriate emergency stabilization measures "when needed to reduce unacceptable erosion, to stabilize critical or significant cultural resources, to prevent permanent impairment to critical habitat for Federal and state-listed proposed or candidate threatened or endangered species or to prevent detrimental invasion by non-native plants." Direction for all planted materials is to "use only planted materials that will be effective within two growing seasons."

  This treatment consists of planting local native shrubs and grasses, and applying locally collected native plant seed at key locations along Forest road 3N16 which will remain open along the north and west side of the fire, within high and moderate intensity burn areas to block off-road vehicle access. The objective of this treatment is to protect occupied and Critical Habitat of the endangered species Cushenbury puncturebract (*Acanthoscyphus parishii* var. *goodmaniana*), and to promote vegetative recovery. The Mountaintop Ranger District Greenhouse Program currently has plants in stock thus ensuring implementation and effectiveness of this treatment would be immediate. This treatment will be pared with barriers.

  Treatment Cost:

Unit	Unit Cost	# Units	Total
1-GS-11 Botanist	375/day	6	2,250
1-GS-09 Botanist	250/day	25	6,250
2-GS-05 Forestry Techs	200/day	30	12,000
Planting/Greenhouse Supplies	5/plant	1500	7,500
Vehicle mileage	0.55/mile	300	165
TOTAL COST			**28,165**

- **Fences and Barriers (Protection of Life, Property, Resources)**: Fences and rock barriers are needed to protect recovering areas from uses that will cause erosion or interfere with vegetative recovery, protection of cultural sites, and protection of Critical Habitat of the endangered species Cushenbury puncturebract (*Acanthoscyphus parishii* var. *goodmaniana*). Controls are also needed to ensure effectiveness of an administrative closure described above, thus limiting immediate threats to public safety and property, and protect recovering areas.

  Treatment Cost:

Unit	Unit Cost	# Units	Total
Fencing Material		5 miles	$25,000
Boulders			No cost
Dumptruck	80/hour	20	$1,600
Loader	150/hour	20	3,000
TOTAL Fencing and Barriers			**$29,600**
Type II Crew	5,000/day	5	$25,000
Archeological monitor	400/day	6	$2,400
Botanical monitor	200/day	3	$600
Implementation supervisor	200/day	5	$1000
TOTAL COST			**$29,000**
Grand Total			**$58,600**

I. **Monitoring Narrative:**

Monitoring is specifically designed to answer the question: Did BAER treatments provide the needed protection and rehabilitation of the burned area? The effectiveness monitoring efforts identified for the Butler 2 fire include: 1) Monitoring to confirm that BAER treatments are effective in reducing impacts to TES species and natural vegetative recovery; 2) Monitoring the effectiveness of treatments designed to mitigate impacts cultrual resources; 3) Monitoring the effectiveness of closure treatments to mitigate potential impacts to life and public safety.

Monitoring Cost:

Unit	Unit Cost	#Units	Total
Archaeologist	$250/day	52 days	$13,000
Two Biologist/Resource Patrol	$250/day	52 days	$26,000
Total			**$39,000**

J. Recommendations: The following recommendations were developed during the BAER assessment process:

Evaluate vegetative recovery and consequential threats to life, public safety, property, cultural, and natural resouces prior to reopening of burn area.

Evaluate campsites for potential increased erosion/sedimentation concerns prior to reopening campgrounds and dispersed campsites.

Coordinate with California Department of Transportation on suitable locations for stockpiling material deposited on State Highway 18 to minimized sidecasting which could potentially impact Bear Creek.

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

To view active spreadsheet, double click to select and then scroll through spreadsheet.

Two Rectreation Tech.	day	200	6	$1,200	**$5,400**		
System Road Closure							
"Angeles" Style Gate	each	8,000	4	$32,000			
Two Inch Pipe Gate	each	4,000	10	$40,000			
Closure Signs	each	300	25	$7,500			
Regulatory Signs	each	500	25	$12,500			
Protection Life Signs	each	300	13	$3,900	**$95,900**		
Trail Insp. and Response							
Rec. Technicians	days	200	104	$20,800	**$20,800**		
Trail Closure and Reroute/Signs							
Trail Closure Signs	each	300	9	$2,700			
PCT Reroute Signs	each	300	9	$2,700			
TwoRecreation Technitions	day	200	10	$2,000	**$7,400**		
Install Bat Mine Gate							
Bat "Friendly" Gate	each	8,000	5	$40,000			
Biologist	days	330	15	$4,950			
Archaeologist	days	400	2	$800	**$45,750**		
Hazard Tree Removal							
2 Fallers (Class C)	days	1,600	5	$8,000			
Skid Steer	hours	110	20	$2,200	**$10,200**		
Fences and Barriers							
Fencing Material	miles	5000	5	$25,000			
Boulders	0	0	0	$0			
Dumptruck	hours	80	20	$1,600			
Loader	hour	150	20	$3,000			
Type II Crew	days	5,000	5	$25,000			
Archeological monitor	days	400	6	$2,400			
Botanical monitor	days	200	3	$600			
Implementation supervisor	days	200	5	$1,000	**$58,600**		
Insert new items above this line!						$0	
Subtotal Protection_Safety				$247,300		$0	
E. BAER Evaluation							
Salary				$57,733			
Perdeim_Vehicles				$11,428			
Supplies_Helicopter				$1,728	**$70,889**		
Insert new items above this line!						$0	
Subtotal Evaluation				$70,889		$0	
F. Monitoring							
Treatment Eff. Monit.				$39,000		$0	
Insert new items above this line!				$0		$0	
Subtotal Monitoring				$39,000	**$39,000**	$0	
G. Totals				$613,954	**$613,954**	$0	
Previously approved							
Total for this request				**$613,954**			

PART VII - APPROVALS

1. /s/ Max Copenhagen — 10/1/2007
   Forest Supervisor (signature) — Date

2. _____ _____
   Regional Forester (signature) — Date