

**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: **Eclipse Complex**  
    **Abney Fire (KNF portion)**
- B. Fire Number: **CA-KNF-006098**  
    **OR-RSF-000647**
- C. State: **California**
- D. County: **Siskiyou and Del Norte**
- E. Region: **05 - Pacific Southwest**
- F. Forest: **Klamath and Six Rivers NF's**
- G. District: **Happy Camp/Oak Knoll (Klamath), Gasquet (Six Rivers)**
- H. Fire Incident Job Code: **Eclipse Complex: P5K9QB/0505**  
    **Abney Fire: P6K9PL/0610**
- I. Date Fire Started: **August 15, 2017**
- J. Date Fire Contained: **51% (10/6/17)**
- K. Suppression Cost: **\$45.9 MIL (10/8/17)**
- L. Fire Suppression Damages Repaired with Suppression Funds:
1. Fireline waterbarred (miles): ongoing
  2. Fireline seeded (miles): none known

3. Other (identify): 93.6 miles of suppression line 'features' with 25.7 miles completed (10/10).

- The **Eclipse Complex** is composed of two major fires: The **Oak Fire**, shared by the Klamath and Six Rivers National Forests, with approximately half of the burned acres in the Siskiyou Wilderness (Oak includes the 311 acre Buck Fire); and the **Cedar Fire**.
- The **Abney Fire** originated as part of the R6 Miller Complex on the Rogue River-Siskiyou NF and progressed south over the major Siskiyou Divide onto the Klamath NF; BAER assessments on the two Forests for this one fire are being coordinated but conducted separately.

M. Watershed Number:

	HUC_10	HU_10_NAME
Oak	1801020901	Indian Creek
	1801020904	Clear Creek
	1801020905	Dillon Creek
	1801020906	Ukonom Creek-Klamath River
	1801010102	Middle Fork Smith River (SRF)
	1801010103	South Fork Smith River (SRF)
Cedar	1801020902	Thompson Creek-Klamath River
Abney	1801020610	Horse Creek-Klamath River
	1801020611	Seiad Creek-Klamath River

N. Total Acres Burned: NFS Acres (X) Other Federal ( ) State ( ) Private (X)

	Klamath	Six Rivers	Private (KNF)	Private (SRF)	Fire Total
<b>Oak</b>	69,576	21,189	11.3	4.3	<b>90,781</b>
<b>Cedar</b>	9,260		111		<b>9,371</b>
<b>Abney</b>	9,979		637		<b>10,615</b>
<b>Total</b>	<b>89,927</b>	<b>21,189</b>	<b>759</b>	<b>4.3</b>	<b>110,880</b>

Note: the Cedar perimeter was modified by the BAER team to include burned acres outside the NIFC perimeter.

O. Vegetation Types:

North facing slopes affected by the Eclipse incident are occupied by mixed conifer forests dominated by Douglas-fir (*Pseudotsuga menziesii* Mirb. & Franco), sugar pine (*Pinus lambertiana* Douglas), ponderosa pine (*Pinus ponderosa* Lawson & C. Lawson), and incense cedar (*Calocedrus decurrens* (Torr.) Florin), with understories of mountain dogwood (*Cornus nuttallii* Audubon) in moist areas, and chinquapin (*Chrysolepis chrysophylla* (Hook.) Hjelmq.), Pacific madrone (*Arbutus menziesii* Pursh), California black oak (*Quercus kelloggii* Newberry), and canyon live oak (*Quercus chrysolepis* Liebm.) in drier areas at the lower elevations. True fir forests of white fir [*Abies concolor* (Gordon & Glend. Hildebr.)] and Shasta red fir (*Abies magnifica* A. Murray var. *shastensis* Lemmon) with mountain hemlock are found at the upper elevations.

The south facing slopes are generally shrubby, dominated by sticky white-leaf manzanita (*Arctostaphylos viscida* Parry), deer brush (*Ceanothus integerrimus* Hook. & Arn.) and snow brush (*Ceanothus velutinus* Douglas).

Unique vegetation elements are found within the Oak and Abney fire areas. In the Oak fire area, the Siskiyou Wilderness includes high concentrations (~15 species) of relic and rare conifers including: Brewer's spruce (*Picea breweriana* S. Watson), Alaska yellow cedar (*Callitropsis nootkatensis* (D. Don) Oerst. ex D.P. Little), whitebark pine (*Pinus albicaulis* Engelm.), and foxtail pine (*Pinus balfouriana* Balf.). In the Abney fire area, there are large stands of Baker's cypress (*Hesperocyparis bakeri* (Jeps.) Bartel) and knobcone pine (*Pinus attenuata* Lemmon) both of which lend credence to the frequent fire history of this area.

**P. Dominant Soils:**

Most common soil families are Holland, Skalan, Clallam, Deadwood, and Goldridge. These are gravelly to extremely gravelly loams and sandy loams on steep to very steep slopes, hydrologic groups B-D, moderately deep to very deep.

Map Unit Symbol	Map Unit Name	Acres	Percent of Fire	Texture	Depth (cm)	Hydro Group
<b>Abney Fire (Top 2 Map Units)</b>						
143	Holland-Skalan families association, 15 to 30% slopes.	3,286	31%	gravelly loam	152	C
183	Skalan-Clallam, deep-Decry families assoc., 15 to 70% slopes.	2,616	25%	v.gravelly loam	81	C
<b>Cedar Fire (Top 2 Map Units)</b>						
112	Clallam, deep-Deadwood families association, 50 to 90% slopes.	3011	32%	v.gravelly loam	107	C
118	Deadwood-Clallam, deep families association, 50 to 90% slopes.	2324	25%	ex.gravelly loam	41	D
<b>Oak Fire (Top 2 Map Units)</b>						
114	Clallam, deep-Goldridge, gravelly families assoc., 30 to 90% slopes.	13,190	15%	v.gravelly loam	107	C
118	Deadwood-Clallam, deep families association, 50 to 90% slopes.	12,250	14%	ex.gravelly loam	41	D

**Q. Geologic Types:**

The portion of the Klamath Mountains that make up the Eclipse Complex are composed of the following rock groups: Carbonate, metamorphic, metasedimentary, metavolcanic, plutonic felsic, plutonic intermediate, plutonic mafic, ultramafic.

**R. Stream Channels by Class (miles):**

	Perennial	Intermittent
Oak (Klamath)	143.0	234.5
(Six Rivers)	48.7	147.8
Cedar	10.6	33.4
Abney	19.7	39.3
<b>Total</b>	<b>222</b>	<b>455</b>

S. Transportation System (miles):

	Roads	Trails
Oak (Klamath)	70.2	33.1
(Six Rivers)	5.1	9.9
Cedar	0.4	0.8
Abney	43.1	7.3
<b>Total</b>	<b>119</b>	<b>51</b>

### **PART III – WATERSHED CONDITION**

A. Soil Burn Severity:

Acres Percent	Soil Burn Severity				Total
	Unb./V.Low	Low	Moderate	High	
OAK (KNF)	14,486	35,834	13,619	5,647	69,587
	21%	51%	20%	8%	81% (of Oak)
OAK (SRF)	10,170	6,622	2,723	1,679	21,194
	48%	31%	13%	8%	19% (of Oak)
BUCK	37	74	2	0	113
	33%	65%	2%	0%	0.1% (of total)
CEDAR	2,803	2,618	3,399	551	9,371
	30%	28%	36%	6%	8.5% (of total)
ABNEY	2,172	1,841	5,085	1,518	10,615
	20%	17%	48%	14%	9.6% (of total)
<b>Grand Total</b>	<b>29,669</b>	<b>46,989</b>	<b>24,827</b>	<b>9,395</b>	<b>110,880</b>
	<b>27%</b>	<b>42%</b>	<b>22%</b>	<b>8%</b>	

B. Water-Repellent Soil (acres):      Oak: 24%, 24,058 acres  
    Cedar: 18%, 12,065 acres  
    Abney: 62%, 6,603 acres

C. Soil Erosion Hazard Rating (acres):      Not processed (produced ERMIT erosion map)

D. Erosion Potential (tons/acre):      Oak: 23.2 tons/acre (range 0-103)  
    Cedar: 15.4 tons/acre (range 0-76)  
    Abney: 10.5 tons/acre (range 0-50)

There is a notably strong climatic gradient over the areas where these fires burned associated with distance from the coast, drying rapidly from west (Oak) to east (Abney).

E. Sediment Potential (cubic yards/square mile): Not calculated

## **PART IV – HYDROLOGIC DESIGN FACTORS**

- |  |             |       |
|--|-------------|-------|
| A. Estimated Vegetative Recovery Period (years):   | 3-5         |       |
| B. Design Chance of Success (percent):             | 90          |       |
| C. Equivalent Design Recurrence Interval (years):  | 5           |       |
| D. Design Storm Duration (hours):                  | 6           |       |
| E. Design Storm Magnitude (inches):                | 2.8         | Oak   |
|  | 2.2         | Cedar |
|  | 1.8         | Abney |
| F. Design Flow (cubic feet / second/ square mile): | See H below |       |
| G. Estimated Reduction in Infiltration (percent):  | 18          | Oak   |
|  | 16          | Cedar |
|  | 9           | Abney |
| H. Adjusted Design Flow (cfs, not per sq. mile):   |             |       |

Design and Adjusted Design Flows		Q5 (cfs)		
Oak	Watersheds	Pre-Fire Discharge	Post-Fire Discharge	Ratio
KNF	Clear Creek HUC5	21988	27738	1.26
	Upper Clear Creek HUC6	11875	15516	1.31
	Ten Mile Creek HUC6	5227	6147	1.18
	North Fork Dillon Creek HUC6	7544	10111	1.34
	Oak Flat Creek-Klamath River HUC6	10682	12262	1.15
SRF	Upper South Fork Smith River HUC6	7266	8757	1.21
	Middle South Fork Smith River HUC6	5957	6005	1.01
	Siskiyou Fork Smith River HUC6	6191	6299	1.02
Cedar	Watersheds	Pre-Fire Discharge	Post-Fire Discharge	Ratio
KNF	Thompson Creek HUC6	4305	5430	1.26
Abney	Watersheds	Pre-Fire Discharge	Post-Fire Discharge	Ratio
KNF	Horse Creek HUC6	3907	4418	1.13
	Seiad Creek HUC6	5496	6649	1.21

## **PART V – SUMMARY OF ANALYSIS**

### **A. Describe Critical Values/Resources and Threats (narrative):**

The following is a brief summary of the BAER critical values within the fire areas or otherwise directly affected outside (downslope/downstream) of the fire areas. Threats to those values and associated risk assessment is also described. Possible response actions are described later in Part V-H below.

The risk matrix below (taken from Exhibit 2 of Interim Directive No.: 2520-2017-1), was used to evaluate the Risk Level for each value identified during 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

Note: probability of damage or loss described below is assessed assuming a 5-year recurrence interval storm occurs in the first winter – by definition a 20% probability of occurrence; IF that were to occur, then the probability of VAR damage or loss may be higher or lower than 20% (at least possible, perhaps more likely).

### **Values at Risk:**

#### **1. Human Life and Safety**

Human life and safety is at risk upon NFS roads and trails throughout the fire areas. The primary threat is from hazard trees falling when people are present to be a possible target. The probability of a strike to a moving target is unlikely, although consequences would be major. **Risk is Intermediate.**

There is a similar threat from flooding and debris flows upon NFS roads and trails in many watersheds within the fire areas. Danger points are fewer than with hazard trees, and people are very unlikely to be stationed at a threatened stream crossing at the moment a flood or debris flow occurs during a storm event. Consequences would still be major if it were to occur. **Risk is Intermediate.**

Upon trails, additional threats include injury from a compromised trail tread because of post fire erosion, washouts, or unseen cavities from burned out stumps or large roots. Many such instances would likely be present post-fire, so probability is possible. If a person were to become significantly injured (broken leg or ankle) and unable to egress the trail system, safety consequences would be major. **Risk is High.**

There are also *potential* threats to human life and safety upon **private lands** below the Cedar and Abney fires from flooding and to a lesser extent debris flows. These possible hazards need to be communicated to NRCS for follow-up and possible EWP actions if deemed necessary by other non-FS agencies or entities.



## 2. Property

Property in the form of NFS road and trail infrastructure is a BAER critical value, representing a significant investment at risk of being severely damaged by post-fire storm events, particularly along segments with contiguous areas of high + moderate soil burn severity on slopes above. Moderate SBS is included because these slopes are severely water repellent, which will produce a greatly elevated runoff response post-fire, just less sediment-laden than with similar High SBS source areas.

Roads are the single most valuable monetary investment on NFS lands, including original construction and periodic maintenance under normal (pre-fire) conditions. New post-fire conditions seriously threaten the capacity of drainage structures, integrity of road surfaces, and integrity of entire segments where stream diversion potential exists. The threat is increased runoff from High + Moderate SBS areas, creating greatly increased slopewash upon road surfaces, increased inboard-ditch flows spilling upon road surfaces, and increased instream flows that overwhelm culvert capacity at stream crossings, risking culvert failure along with failure of roadfill above injected into the fluvial system. This represents secondary threats to water quality and T&E fish habitat impacts on NFS lands. Probabilities and consequences vary, and **risks vary from Low to Very High**; risk assessments are itemized by road number in the Engineering specialist report. Only High to Very High risks were considered further for potential stabilization or drainage treatments, with a litmus test that drainage improvements must prevent much more costly damage repair later (economic argument, largely ignoring secondary natural resource damage).

Trails are viewed similarly as an infrastructure investment on NFS lands, now threatened by compromised tread integrity from burned out organic materials (cavities) and inadequate tread and crossing drainage post-fire where in proximity of High + Moderate SBS source areas on slopes above. Approximately half of the Oak Fire area is within the Siskiyou Wilderness; the trail system is extensive, including Clear Creek and Kelsey National Recreation Trails. High-status trails are also present on the Cedar Fire (Boundary NRT) and Abney Fire (Pacific Crest National Scenic Trail). It was not feasible for boots-on-the-ground assessment of much of this trail system mileage. A unique GIS assessment method was developed (by Jim Schmidt) to identify trail segments either intersecting (easy) or lying *below* a defined minimum-critical-size source area of High + Mod SBS (new). This was followed by discussions with District recreation specialists on realistic needs and costs along these segments to prevent outright trail failure. The resulting treatment prescriptions are admittedly mostly a virtual exercise with costs grossly estimated. As defined, eligible trail segments have **High to Very High Risk**. This GIS process could be used as easily for roads in the future to focus and streamline the field assessment.

A pit toilet at No-Man's trailhead (Oak Fire, Clear Creek NRT) was the only other NFS property value identified as at-risk, with debris flow being the threat. Probability of loss is possible with a consequence of minor; **Risk is Low**.

## 3. Natural Resources

Native plant communities on NFS lands where invasive species or noxious weeds are absent or present in only minor amounts is a BAER critical value. Such areas are present in each of the fire areas, and in particular "pristine" areas in the Siskiyou Wilderness on Klamath and Six Rivers Forests. Despite being Wilderness, there was significant suppression traffic to wilderness trailheads and hand-lines constructed in wilderness. Most or all of this suppression traffic originated from fire camps that are highly-infested with virtually every problem weed along the Klamath and Scott River corridors. Thus these areas that are not

currently infested are threatened with new vectors of introduction, with large areas of bare mineral soils exposed for colonization. The probability of damage is likely with a consequence of major for Wilderness to moderate elsewhere; **Risk is High to Very High.**

Soil productivity and hydrologic function on NFS lands is a BAER critical value. Hydrologic function is impaired in High and Moderate SBS areas, here having severe and widespread water repellency that will greatly increase runoff with post-fire storm events. Soil productivity is affected by soil organic matter (SOM) loss from combustion during the fire and post-fire soil erosion. SOM loss was minimal in these fires; only a portion of the High SBS has significant SOM combustion below 1-2 cm depth. Erosion hazard was assessed using ERMiT, and erosion rates given a 5-year runoff event are relatively low (~15 tons/acre) compared to similar soils in other fire incidents. A threshold of concern for soil productivity as an *in-situ* value is > 20 tons/acre erosion potential; this may be arbitrary, but given that post-fire erosion is a natural ecological and geomorphic process, these projected erosion rates are viewed as a minor to moderate consequence. Combined with a possible probability, **Risk is Low to Intermediate.** Notably, there may well be short-term impacts to commodities such as decreased livestock forage in range allotments, but this is not a BAER critical value warranting response action. No response actions beyond natural recovery were recommended for soil productivity. Impaired hydrologic function will be addressed by directly protecting values at risk where increased runoff poses the threat, rather than treating source areas with more expensive land treatments.

T&E fisheries habitat for Coho and other Salmonids is at risk from several in-stream threats post-fire. Threats are posed by short and long term modification of suitable and occupied habitat due to scouring, sedimentation, debris flows, modifications to water quality due to sediment and ash, modification of streamside vegetation and stream bank conditions, and possible increased water temperature due to loss of shading. These changed conditions will also impact aquatic invertebrates and other FS sensitive species (not BAER critical values). Road treatments will address some threats, otherwise no response actions beyond natural recovery are recommended (not effective and/or not cost-effective).

ESA-listed northern spotted owls (*Strix occidentalis caurina*), including critical habitat, suitable occupied habitat, and protected activity centers (PACs) are present in the fire areas. Fire-caused tree mortality has certainly rendered some habitats unsuitable and created direct impacts to local population life-cycles. Probability of damage or loss is very likely, with moderate consequences (considerable long term effects); **Risk is Very High.** There are no known response actions to mitigate these risks. Destroyed habitat cannot be mitigated or replaced in the short-term. While some additional tree mortality will occur post-fire, it is not thought to be of a magnitude that would further significantly affect additional owl habitat at the stand or home range scale. Indirectly, other BAER activities should be scheduled outside the nesting period near known and likely nest sites, where possible. The critical nesting period is Feb. 1 to July 31 and mechanical activities that occur within 0.25 miles of active owl nest sites have the potential to disturb and disrupt owls, depending on a variety of factors including the type of noise and the frequency and duration of the activity. BAER treatments should be coordinated with the local wildlife biologists (address through consultation).

#### **4. Cultural Resources**

*Cultural resources are confidential in nature, so little specificity is provided here.*

*One multi-value pre-historic & historic site:* This site is located near a major river and near a trailhead where artifacts are newly-exposed by fire consuming protective cover. Threats



include erosion and potential looting. The lack of ground cover increases visibility of artifacts and the potential for site looting. Additionally flooding through the site will likely erode surface artifacts and result in the loss of data and site integrity. Probability of damage or loss is very likely. Consequences for loss of archaeological value is nearly always major for cultural resources, once lost it cannot be recovered. **Risk is Very High.** Treatment (stabilization and concealment) is recommended.

*Historic cabin – erosion and flooding impacts:* A historic cabin not far from a river channel was assessed by the team archaeologists and hydrologist. The threat is flooding impacts and associated erosion destroying surface and subsurface artifacts and resulting in the loss of data and site integrity. It was judged that the probability of flooding impacts at this site given a 5-10 year storm event is unlikely. The consequences are judged as moderate if damage were to occur as this is not a unique representation of period sites; **Risk is Low.**

#### **5. Other Values:**

Other values are non-BAER Critical Values that are potentially at risk due to changed conditions post-fire. These values may be NFS values or non-NFS values that may be threatened from post-fire effects originating primarily on NFS lands. Activities to address other non-BAER NFS values have been identified as "Management Recommendations" within specialist reports, and can be considered for discretionary program funding. Threats to non-NFS values should be communicated to the appropriate parties or entities through interagency coordination procedures.

#### **B. Emergency Treatment Objectives (narrative):**

The primary objective of this BAER Report is to recommend prompt response actions deemed effective, reasonable, and necessary to effectively manage and reduce risks to BAER critical values including human life and safety, property, and natural and cultural resources on NFS lands. To that end, where natural recovery or other administrative actions (such as closure) are deemed insufficient or ineffective, the application of BAER treatments would minimize on-site damages to the identified values at risk. The emergency treatments being recommended by this BAER assessment team are specifically designed to achieve the following objectives:

1. Protect human life and safety by posting hazard/warning signs on roads and trails to highlight situational awareness when entering the burned areas.
2. Protect NFS investment in transportation infrastructure (road and trail) by improving surface drainage, eliminating diversion potential by the construction of critical dips (roads) or waterbars (trails), improving culvert inlet capacity by cleaning out and in some cases installing end sections, and storm-patrol. A few culverts are crushed and must be replaced to avoid larger fill failures.
3. Protect ecological value of native plant communities, currently in uninfested condition, by detecting and treating sites (EDRR) where introduction of noxious weeds may have occurred following fire suppression activities, and other uninfested sites in proximity of known weed sources. Similar detection approach for Port Orford Cedar root disease.
4. Provide assistance to cooperators including local, State, and Federal agencies with the interpretation of the assessment findings to identify potential post-fire impacts to communities and residences, domestic water supplies, and public utilities or infrastructure (BAER Coordinator responsibility, with remote help from team specialists). Specifically:
  - a. Communicate and coordinate hazards to private values off of NFS lands,

including NRCS for private property values and CalTrans for state transportation routes **\*\*threats have been identified\*\*** (BAER Coordinator responsibility).

- b. Coordinate with State and County OES and NWS/NOAA to communicate hazards and warnings to the public for areas prone to flooding with imminent storm events (BAER Coordinator responsibility).

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

Land 80%      Channel NA      Roads/Trails 70%      Protection/Safety 90%

D. Probability of Treatment Success

Treatment	Years after Treatment		
	1	3	5
Land	80	85	95
Channel	NA	NA	NA
Roads/Trails	80	90	90
Protection/Safety	80	70	40
Initially, visitors will heed the warning signs. Complacency is expected after the initial year unless there is a damaging event.			

E. Cost of No-Action (Including Loss): \$5.5 million (roads – cost of reconstruction, if possible)

F. Cost of Selected Alternative (Including Loss): \$363,603 (roads alone)

G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input checked="" type="checkbox"/> Geology	<input type="checkbox"/> Range	<input checked="" type="checkbox"/> Recreation
<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 checked="" type="checkbox"/> GIS	<input type="checkbox"/> Landscape Arch	

Team Leader: **Dave Young**

Email: [daveyoung@fs.fed.us](mailto:daveyoung@fs.fed.us)

Phone: 530-226-2545

FAX: 530-226-2481

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:**

**EDRR (Early Detection Rapid Response):** Treatments to mitigate the noxious weed emergency include detection surveys in high priority areas and concurrent treatment of any new noxious weed populations located during those surveys. Detection surveys will be conducted in areas along fire lines, trails, and existing roads where invasion by noxious weeds is most probable.

Surveys will be conducted during appropriate seasonal times for detection of target noxious weeds in 2018.

All newly discovered noxious weed populations on Forest Service land will be mapped and entered into the National Resource Inventory System (NRIS) according to National protocol. Treatment will be recorded as directed by the same National protocols. Noxious weed treatment will consist of hand pulling to root depth and if seed is present, plants will be bagged and disposed of properly.

EDRR Treatment Cost	Detection Survey Area (acres)	Total
Klamath NF (Oak Fire)	50 (road), 5 (trail), 18 (fireline)	\$11,508
Six Rivers NF (Oak Fire)	107 (road), 9.5 (fireline)	\$11,108
Klamath NF (Cedar Fire)	20 (road), 3.5 (fireline)	\$5,676
Klamath NF (Abney Fire)	24 (road), 7 (trail), 12 (fireline)	\$4,140
<b>Total</b>		<b>\$32,432</b>

**ED-POC (Early Detection of Port Orford Cedar Root Disease):** The threat is introduction of the pathogen to currently uninfected watersheds as a result of suppression activities, with a delayed window for detection similar to weeds concerns. Detection surveys for Port Orford root disease include soil and water bait traps that involve anchoring seedlings near waterways and placing foliage in streams. Effective detection surveys for this pathogen usually require multiple years in order to ensure the disease is at detectable levels. BAER funds are being requested to help with first year implementation costs of detection surveys, including the procurement of seedlings and installation of bait traps. Botany Program dollars will be used to support this work in subsequent years including the continued monitoring of traps as well as PCR genetic screening tests for the presence of the pathogen. If the disease is discovered in previously uninfected areas, administrative closures can be used until a long-term solution such as sanitation or planting of resistant varieties can be implemented. Projected BAER cost is \$1,920.

**Cultural Site Protection:** A cultural site treatment for site surface protection and concealment is needed to insure features or subsurface remains are not damaged or exposed by erosion, soil movement, or looting. FS # 05055200183 is located directly adjacent to the proposed trailhead and parking/camping area for the Clear Creek trail. Establishing this infrastructure at this location will greatly increase pedestrian traffic at this location. The location of the site (between the parking area and the creek edge) and its recent exposure by the Oak fire puts it at great risk of erosion and looting. It is also the flattest location in the area and this alone will entice campers to inhabit the site area. Concealment and stabilization of the site will minimize erosion damage as water runs off of the compacted semi-impermeable surface of the parking area into the site, and reduce the impacts of the increased use.

This treatment should consist of using the district's chipper and a crew to spreading wood chips and native plant seed across approximately 1 acre of cultural site surface. The wood material used should be collected from any road side felling or hazard treatments of FS road 15N32 or other adjacent roads within the Oak fire burn area. The use of local material will reduce the likelihood that non native plant seed will be introduced into the site. READ notes of the site area pre burn report that the site was covered with Star Thistle. This treatment may reduce if not slow the reoccurrence of star thistle within the site area. A archaeologist would be present for any onsite work. A forest botanist would determine the best seed to use and monitor the application and effectiveness of the treatment.

### **Channel Treatments:**

None recommended.

### **Road and Trail Treatments:**

**Road Treatments:** Directed runoff features are critical to maintaining stable, sustainable, and safe roadways. Uncontrolled runoff will result in significant damage and likely loss to the road system. Types of number of treatments proposed are as follows:

<b>Major work items</b>	
<b>Description</b>	<b>Estimated Quantity</b>
<b>Critical dips:</b> Divert water off the road surface, disperse surface water flows, and reduce erosion.	138 (61% of project cost)
Replace incinerated Drop Inlet Covers (EA): prevent debris from bottlenecking/clogging culvert inlet	50
Riprap armoring of CMP inlets/outlets (CY): reinforce the bank(s) to dissipate hydraulic energy and prevent local scour	62
CMP replacements (EA): restore water flow through road prism at critical draws	2
Bridge guardrail replacement (LF): protect vehicle traffic at tight curve/deep gorge in bridge railing that was destroyed by a fallen burned tree.	60
Clean out CMP inlets (EA): restore clogged CMPs to pass design flowrate	137
Vented Ford: provides a permeable fill for water to pass through the road even if/when debris flow plugs the CMP inlet.	1
Major CMP restoration and inlet armoring ( <i>Salt Gulch</i> ): restore clogged culverts to pass design flowrate	1
Surface blading (miles):	2

**Road Storm Patrol:** Treated roads will be monitored within one month after major storm events. Storm patrols will be conducted on an as-needed basis after major storm events. Klamath NF Engineering will request approximately \$4,000 for monitoring funds (salary and vehicle costs).

**Trail Treatments:** For all areas that intersect or are below areas of high-moderate severity burns (20 acres or greater in size) with the potential or visible evidence to be lost through erosion: Construct new or clean out existing waterbars, construct new or clean out dips. At stream crossings with the potential or visible evidence of trail tread loss: Divert water off trail tread through rocking stream corridor edges or other emergency temporary means to protect overall investment, until later, more permanent improvements can be completed. Additionally, fill root system/stump cavities with available rock/soil to prevent further trail tread loss through erosion/water channeling. Anticipated cost is \$53,531. This includes one-time re-inspection (anytime during spring-early

summer when trail system is snow-free) of all temporary BAER improvements to determine status (i.e., working, needs repair, needs complete repair).

**Protection/Safety Treatments:**

Potential threats to the public and agency personnel include flooding and debris flows, hazard trees, and rockfall along roads and trails, particularly downstream or downslope of areas with moderate to high soil burn severity.

**Hazard Warning Signs - Roads:** Purchase and install burned area hazard warning signs, road route markers, and road closure signs at roads that enter or are within the burned area.

**Hazard Warning Signs - Trails:** Purchase and install burned area hazard warning signs at the trailheads and/or trail segments where they enter the burned areas outside wilderness boundaries. 18 signs are proposed (14 on Klamath and 4 on Six Rivers) for a cost of \$2,135.

**Coordination, Communication, and Consultation**

Over the next year it is critical that appropriate agencies maintain due diligence and continue to inform the public, private land owners, and operators of public utilities of the potential threats resulting from post-fire watershed response. This is coarsely costed for 5 days' time for the Forest BAER Coordinator, \$2,250, which would be just hours on occasional days spread over time.

**I. Monitoring Narrative:**

None recommended.



**Klamath National Forest-- Eclipse Complex BAER Assessment Team**

**AA & Forest Contacts:**

Patty Grantham	Forest Supervisor (KNF)			
Jeff Marszal	District Ranger (Happy Camp-Oak Knoll)	530-493-1712		
Bill Wall	KNF BAER Coordinator <a href="mailto:wwall@fs.fed.us">wwall@fs.fed.us</a>	541-620-1396	541-820-3864	
Merv George	Forest Supervisor (SRF)			
David Palmer	District Ranger (Gasquet)	707-674-7843	530-627-3207	
John McRae	SRF BAER Coordinator <a href="mailto:jmcrae@fs.fed.us">jmcrae@fs.fed.us</a>	707-845-8017	707-441-3515	

**BAER Assessment Team:**

NAME	POSITION	EMAIL	CELL PHONE	WORK PHONE	HOME FOREST
Dave Young	Team Leader	<a href="mailto:daveyoung@fs.fed.us">daveyoung@fs.fed.us</a>	530-227-9050	530-226-2545	Shasta Trinity
Dave McComb	Hydrology Lead	<a href="mailto:dmccomb@fs.fed.us">dmccomb@fs.fed.us</a>	775-225-7714	530-994-3401	Tahoe
Greg Laurie	Hydrology (T)	<a href="mailto:glaurie@fs.fed.us">glaurie@fs.fed.us</a>	530-926-1965	530-841-4534	Klamath
Shawn Wheelock	Hydrology (T)	<a href="mailto:swheelock@fs.fed.us">swheelock@fs.fed.us</a>	520-820-2737	530-336-3340	Lassen
Will Tripp	Soils	<a href="mailto:wtripp@fs.fed.us">wtripp@fs.fed.us</a>	254-459-9262	530-841-4591	Klamath
Doug Peters	Soils	<a href="mailto:dwpeters@fs.fed.us">dwpeters@fs.fed.us</a>	661-246-9723	530-252-6456	Lassen
Juan delaFuente	Geology	<a href="mailto:jdelaFuente@fs.fed.us">jdelaFuente@fs.fed.us</a>	<none>	530-841-4413	Klamath
Beal	Geology (T)	<a href="mailto:dbeal@fs.fed.us">dbeal@fs.fed.us</a>	405-822-0955	530-841-4583	Klamath
Erin Lonergan	Botany	<a href="mailto:erindlonergan@fs.fed.us">erindlonergan@fs.fed.us</a>	530-327-8994	530-841-4403	Klamath
Larry Arrington	Eng. Roads	<a href="mailto:larrington@fs.fed.us">larrington@fs.fed.us</a>	530-925-1653	530-964-3767	Shasta Trinity
Dave Wohlers	Eng. Roads (T)	<a href="mailto:dwohlers@fs.fed.us">dwohlers@fs.fed.us</a>	907-205-1076	530-841-4448	Klamath
Bob Weaver	Arch. Heritage	<a href="mailto:robertweaver@fs.fed.us">robertweaver@fs.fed.us</a>	707-344-2027	707-275-1412	Mendocino
Jim Schmidt	GIS (AD)	<a href="mailto:jtschmidt.p38@gmail.com">jtschmidt.p38@gmail.com</a>	209-352-9786		Stanislaus (AD)
Elaine Elliott	GIS	<a href="mailto:eelliott@fs.fed.us">eelliott@fs.fed.us</a>	530-321-2092	530-258-5179	Lassen
Charlotte Corbett	GIS	<a href="mailto:ccorbett@fs.fed.us">ccorbett@fs.fed.us</a>		530-841-4454	Klamath
Karl Dietzler	Recreation	<a href="mailto:kdietzler@fs.fed.us">kdietzler@fs.fed.us</a>		530-441-4487	Klamath
[none]	Wildlife				
[none]	Fisheries				

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

Line Items	Units	NFS KLAMATH				NFS SIX RIVERS				All
		Unit	# of	BAER \$	Other \$	# of	BAER \$	# of	Non Fed \$	Total \$
<b>A. Land Treatments</b>										
Cultural Protection	total			\$2,108	\$0		\$0		\$0	\$2,108
Weeds - EDRR	total			\$21,324	\$0		\$11,108		\$0	\$32,432
Botany - ED-POC	total			\$1,920						\$1,920
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<b>Subtotal Land Treatments</b>				\$25,352	\$0		\$11,108		\$0	\$36,460
<b>B. Channel Treatments</b>										
<i>Insert new items above this line!</i>							\$0		\$0	\$0
<b>Subtotal Channel Treatments</b>				\$0	\$0		\$0		\$0	\$0
<b>C. Road and Trails</b>										
Road Stabilization	total	363,603	1	\$363,603	\$0		\$0		\$0	\$363,603
Road Storm Patrol	total	4,000	1	\$4,000	\$0		\$0		\$0	\$4,000
Trail Stabilization	miles	2,141	21	\$44,966		4	\$8,565			\$53,532
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<b>Subtotal Road and Trails</b>				\$412,569	\$0		\$8,565		\$0	\$421,135
<b>D. Protection/Safety</b>										
Hazard/Warning Signs	total	2,350	1	\$2,350	\$0		\$0		\$0	\$2,350
Haz. Signs (Trails)	total			\$1,660	\$0		\$474		\$0	\$2,134
Coordination/Consultation	days	450	5	\$2,250						
<i>Insert new items above this line!</i>							\$0		\$0	\$0
<b>Subtotal Protection/Safety</b>				\$6,260	\$0		\$474		\$0	\$4,484
<b>E. BAER Evaluation</b>										
Initial Assessment	days		10	\$94,003	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				---			\$0		\$0	\$0
<b>Subtotal Evaluation</b>				---	\$0		\$0		\$0	\$0
<b>F. Monitoring</b>										
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<b>Subtotal Monitoring</b>				\$0	\$0		\$0		\$0	\$0
<b>G. Totals</b>				\$444,181	\$0		\$20,147		\$0	\$462,079
Previously approved										
Total for this request				\$444,181			\$20,147			\$462,079

## PART VII - APPROVALS

- 1A. *Patricia Gault* 10.12.17  
 Forest Supervisor (Klamath) Date
- 1B. *Patricia Gault* 10.12.17  
 Forest Supervisor (Six Rivers) Date  
*FOR MERV GEORGE, JR. (see attached email)*
2. *Bonnie T. Bryant* 10/19/2017  
 Regional Forester (signature) Date

## **Grantham, Patricia A -FS**

---

**From:** George, Merv L -FS  
**Sent:** Tuesday, October 10, 2017 3:44 PM  
**To:** TenPas, Jeff D -FS  
**Cc:** Young, Dave -FS; Wall, William -FS; Grantham, Patricia A -FS; McRae, John -FS  
**Subject:** Re: Eclipse Complex draft 2500-8

Yep i have left Patty a voicemail giving my approval. Thanks....

**Merv George Jr.**  
**Forest Supervisor**  
**Forest Service**  
**Six Rivers National Forest**  
**p: 707-441-3534**  
**c: 707-373-4151**

**mgeorge@fs.fed.us**

**1330 Bayshore Way**

**Eureka, CA 95501**

**[www.fs.fed.us/srnf](http://www.fs.fed.us/srnf)**



**Caring for the land and serving people**

On Oct 10, 2017, at 2:59 PM, TenPas, Jeff D -FS <[jtenpas@fs.fed.us](mailto:jtenpas@fs.fed.us)> wrote:

Hi Dave, thanks for all the work on this BAER. It looks good. Let's get the 2500-8 BAER request in and approved.

Merv, if email isn't working, how about if you give Sup Grantham a call and authorize her to sign for you as well? That will get both signatures on the same form and in one place too.

<image001.png> **Jeff TenPas**  
**Regional Soil Scientist and BAER Coordinator**  
**Forest Service**  
**Pacific Southwest Region**  
**p: 707-562-8955**  
**c: 707-567-5937**  
**[jtenpas@fs.fed.us](mailto:jtenpas@fs.fed.us)**  
**1323 Club Drive**  
**Vallejo, CA 94592**  
**[www.fs.fed.us](http://www.fs.fed.us)**  
<image002.png><image003.png><image004.png>