Sky Fire

Sierra National Forest

2500-8 BAER Assessment Report

June 28, 2015

Sky Fire
Sierra National Forest
2500-8 BAER Assessment Report
June 29, 2015
Executive Summary

On June 18, 2015, a wild fire occurred on the Bass Lake Ranger District, near the community of Cedar Valley and communities off Sky Ranch Road. The fire burnt approximately 500 acres of mixed vegetation types including ponderosa pine, canyon live oak, ceonothus, foothill pine, and annual grasses. The fire resulted in 111 (22%) acres of low soil burn seveity , 329 (66%) acres of moderate soil burn severity, and 59 (12%) acres of high soil burn severity.

A Burn Area Emergency Response (BAER) Assessement was conducted in the fire area to determine values at risk, make an emergency determination on those values at risk and and make recommendations on reducing the risk to those values.

All values at risk were evaluated and assessed in the fire area. The values at risk that were determinined to be an emergency include: 1) threats to 1.55 miles of forest system road; and 2) threats to the ecological integrity of the area from the spread of noxious weeds.

The Initial BAER Assessment Report recommends **$42,921** in treatment costs, which include the initial BAER assessment , work on 1.55 miles Forest System Roads, and early detection and eradication of noxious weeds on 4.46 miles of dozer lines and other areas in the high and moderate soil burn severity parts of the burn.

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

Date of Report: June 29, 2015

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: Sky Fire

B. Fire Number: CA-SNF-1058

C. State: CA

D. County: Madera

E. Region: 05

F. Forest: Sierra NF

G. District: Bass Lake RD

H. Fire Incident Job Code: P5JS5V (0515)

I. Date Fire Started: 06/18/2015

J. Date Fire Contained: 06/27/2015

K. Suppression Cost: ~ $5,100,000

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 4.46
2. Fireline seeded (miles): 0.0
3. Other (identify):

M. Watershed Number: HUC 12 -180400070101 (Nelder Creek-Lewis Fork)

N. Total Acres Burned: 499
NFS Acres (499) Other Federal (0) State (0) Private (0)

O. Vegetation Types: Ponderosa pine, Canyon live oak, Ceonothus, Foothill pine, Annual grass

P. Dominant Soils: Dominant soils in the burn area consist of Holland (334 acres) and Chiax (165 acres).

Q. Geologic Types: Summary: The geology in the Sky Fire is underlain with the Bass Lake Tonalite (Kbl) (493 acres) and Pilot Ridge Metamorphic rocks (Pzpq) (7 acres). Kbl consist of medium-grained, biotite-hornblende tonalite; varies to granodiorite and quartz diorite. Pzpq consists of massive quartzite, with interbedded phyllite and schist; siliceous marble and skarn occur locally.

R. Miles of Stream Channels by Order or Class: 1.0 miles of perennial streams, 2.1 miles of intermittent streams, and 4.2 miles of ephemeral streams.

S. Transportation System

Trails: 0 miles Roads: 2.8 miles NFS; 0 miles Private

PART III - WATERSHED CONDITION

A. Burn Severity (acres): low – 111 (22%); moderate – 329 (66%); high - 59 (12%)

B. Water-Repellent Soil (acres): 28

C. Soil Erosion Hazard Rating (acres):
0 (low) 337 (moderate) 162 (high)

D. Erosion Potential: 8.56 tons/acre (5 year storm)

E. Sediment Potential: 4,471 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 2-3

B. Design Chance of Success, (percent): 95%

C. Equivalent Design Recurrence Interval, (years): 2

D. Design Storm Duration, (hours): 6

E. Design Storm Magnitude, (inches): 2.2

F. Design Flow, (cubic feet / second/ square mile): Nelder Creek-Lewis Fork(HUC12): 20.0

G. Estimated Reduction in Infiltration, (percent): 2.8%

H. Adjusted Design Flow, (cubic feet / second/ square mile): Nelder Creek-Lewis Fork(HUC12): 20.6

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

The Sky Fire burned approximately 500 acres of mixed conifer forest with a soil burn severity (SBS) mosaic of 111 acres of low SBS (22%), 329 arces of moderate SBS (66%), and 59 acres of high SBS (12%) (see Figure 1). Erosion potential for the burn area was predicted to be 8.56 tons/acres based on a 5 year storm. Hydrologic modelling consisted of two pour points associated with Values at Risk. The pour point for subdrainage A is located on Nelder Creek near a community off Sky Ranch Road. Modelling showed a water yield increase of only 8.5%, thus the emergency determination was considered low. The pour point at subdrinage B is located at the outlet of a culvert along Forest Road 06S11. This small catchment showed a 300% increase in runoff and thus the probablity of blockage, bypass, and road damage for this and other culverts downstream of the high SBS areas was considered high as was the emergency determination (for more information, please refer to the soils and hydrology reports).

Threats to Life and Property

Forest Service Roads: there are approximately 1.55 miles of system roads within the fire boundary that are at risk. Roads within the fire are native surface maintenance level (ML) 2. These roads are on decomposed granite which is very susceptible to erosion. Uncontrolled runoff can result in off-site damage and potential negative impacts to the transportation system and water quality.

Emergency Determination:

Imminent hazards to the road system vary from minor sloughing and rilling to overwhelming the existing erosion control structures leading to a partial or total loss of the road template for 06S11, 06S11A and 06S11F.

Probability of Damage or Loss: Likely

Magnitude of consequences: Moderate

Risk Level: High

Road	Assessment	Risk	Treatment
06S11 (0.76 miles)	Areas of moderate to high soil burn severity. Expected high watershed response, with a commensurate chance of debris blockage and bypass.	High	Clean roadside ditch and cutbacks sloughs; Install DI grate (7 locations); Install riprap at culver/lead-off outlet (5CY). Remove snags that have a potential to cause culvert damage and blockage.
06S11A and 06S11F (0.79 miles)	Areas of moderate to high soil burn severity. Expected high watershed response, with a commensurate chance of debris blockage and bypass.	High	Restore drainage function by upgrading and installing new drainage features.

Threats to Ecosystem Stability

An emergency has been determined for the Sky Ranch Fire for noxious weed invasion on Forest lands from medusahead, Yellow Star Thistle and Klamath weed due to the **high** risk of this species spreading to uninfested areas in the fire. Equipment from different parts of California, where known noxious weeds are known to occur, was in the fire area without being washed at the incident weed wash station. Seeds from known sources in and adjacent to the fire will likely establish in burned and disturbed forest areas, with a potentially significant threat to native vegetation communities. This BAER emergency can be mitigated by evaluating and treating known populations to limit fire-induced population growth and geographic expansion, as well as monitoring and treating specific locations for new infestations.

Emergency Determination:

Probability of damage or loss: Likely

Magnitude of Consequences: Moderate

Risk Level: High

Other Values at Risk (VAR) Evaluated

Watershed and heritage resources were evaluated and determined not be be a BAER emergency. Reports are available in the project reord.

B. Emergency Treatment Objectives:

1. **Threats to Life and Property**
   Protect route infrastructure by minimizing erosion of the road surface, provide for water control and reduce excessive flooding and sediment delivery into Nelder Creek.

2. **Threats to Ecosystem Stability**
   The objective of early detection surveys and rapid response treatment in the Sky Ranch Fire area is to reduce the potential for existing infestation expansion and new infestation establishment, in order to reduce impacts to native vegetation. The average rate of spread for medusahead is estimated at 12% under average conditions; however wildfire and associated disturbance can increase the rate of spread exponentially.

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

Land **80** % Channel **-** % Roads/Trails **95** % Protection/Safety **-** %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	80		-
Channel	-	-	-
Roads/Trails	95	-	- - - -
Protection/Safety	-	-	-

E. Cost of No-Action (Including Loss): **$111,000 (see VAR Worksheet in Appendix A)**

F. Cost of Selected Alternative (Including Loss): **$28,371**

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader(s): Alan Gallegos/Keith Andy Stone (trainee)

Email: ajgallegos@fs.fed.us Phone: 559-297-0706 x4862 FAX: 559-294-4809
Email: kstone@fs.fed.us Phone: 760-376-3781 x683 FAX: 760-376-3795

H. **Treatment Narrative:**

Land Treatments: Priority areas, including 4.46 miles of dozer line will be surveyed in spring or early summer, 2016, when plants are easily detectable (bolting or flowering). Infestations will be mapped with a GPS, photographed, and flagged with noxious weed tape. Where feasible, new or isolated infestations will be treated by hand or mechanically (e.g. string-trimmer) during the same visit as the surveys.

For medusahead, treatments consist of hand pulling the plant up by the roots and bagging for disposal if seed heads are present. Hand treatment should only be attempted on small populations (e.g. treatment will take ~1 hour or less for two people). Mechanical treatment would be conducted for larger infestations and is most practical when an infestation has relatively high cover. Mechanical treatment consists of string-trimming plants at the "boot stage" (developing seed head is still in the leaf sheath and not yet flowering). Surveys and non-chemical treatments will be conducted by a two-person botany crew, with the goal of timing the visits appropriately so that when possible only one visit per site is needed. However, depending on phenology, infestation size, and treatment strategy, some infestations may be visited more than once. Large infestations will likely be visited twice or more- once for survey and mapping and additional visits as needed for dedicated treatment. Emergency surveys and treatments will be for one year, per BAER policy. Survey and treatment in subsequent years may be accomplished through a combination of Forest Service program funding and/or Weed Management Area/volunteer groups.

Channel Treatments: **None**

Roads and Trail Treatments: Proposed road treatments include: drainage structure cleaning, culvert repairs, drainage dips, removal of snags that have a potential to cause culvert damage and blockage, riprap armoring of slopes and drains, and restoration of road drainage function. There is no anticipated need for relocation of roads (see table below for details).

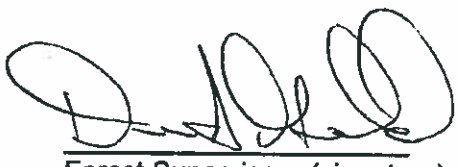
Roads With Proposed Treatment						
Road	**Assessment**	**Risk**	**Treatment**	**Qnty**	**Item cost**	**Total cost**
6S11	High clearance-vehicles road through burned area. Sections of moderate to high soil burn severity and steep slopes.	High	Cleanout roadside ditch and cutbanks sloughs(0.76 miles)	0.76	$ 5,000.00	$ 3,800.00
			Install DI grate (MP 0.52, 0.59, 0.67, 0.75, 0.86, 0.97, 1.05)	7	$ 550.00	$ 3,850.00
			Install riprap at culvert/lead-off outlet (5 CY, MP 0.69)	1	$ 750.00	$ 750.00
6S11A	Road primarily in moderate to high soil burn severity and steep slopes.	High	Restore drainage function (0.52 miles)	0.52	$ 5,000.00	$ 2,600.00
6S11F	Paved primary arterial road through burned area. Sections of moderate to high soil burn severity and steep slopes.	High	Restore drainage function (0.27 miles)	0.27	$ 5,000.00	$ 1,350.00
Storm inspection and response (5 days)				5	$ 1,500.00	$ 7,500.00
Snag removal				1	$ 3,000.00	$ 3,000.00
			Road treatment total (includes storm inspection and response)			**$ 22,850.00**

Protection/Safety: **None**

Part VI – Emergency Stabilization Treatments and Source of Funds Interim # 1

		NFS Lands				Other Lands				All
		Unit	# of		Other	# of	Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	BAER $	$	units	$	Units	$	$
A. Land Treatments										
GS-11 Botanist		357	5	$1,785	$0		$0		$0	$1,785
GS-5 Temp botanists		141	10	$1,410	$0		$0		$0	$1,410
GS-5 Temp botanists		141	10	$1,410	$0		$0		$0	$1,410
Supplies		350	1	$350	$0		$0		$0	$350
Mileage		0.54	600	$324	$0		$0		$0	$324
FOR		242	1	$242			$0		$0	$242
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$5,521	$0		$0		$0	$5,521
B. Channel Treatments										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treat.				$0	$0		$0		$0	$0
C. Road and Trails										
6S11:Cleanout roadside ditch and cutbanks sloughs(0.76 miles)		5000	0.76	$3,800	$0		$0		$0	$3,800
6S11: Install DI grates (7)		550	7	$3,850	$0		$0		$0	$3,850
culvert/lead-off outlet (5 CY)		750	1	$750						$750
6S11A:Restore drainage function (0.52 miles)		5000	0.52	$2,600						$2,600
6S11F:Restore drainage function (0.27 miles)		5000	0.27	$1,350						$1,350
Storm inspection and response (5 days)		1500	5	$7,500						$7,500
Remove snags to prevent culvert damage/blockage		3000	1	$3,000						$3,000
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$22,850	$0		$0		$0	$22,850
D. Protection/Safety										
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$0	$0		$0		$0	$0
E. BAER Evaluation										
Team salaries				$11,734		1	$11,734		$0	$11,734
Mileage/per diem				$816		1	$816		$0	$816
Implementation				$2,000		1	$2,000			$2,000
Insert new items above this line!				—	$0		$0		$0	$0
Subtotal Evaluation				$14,550	$0		$14,550		$0	$14,550
F. Monitoring										
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$0	$0		$0		$0	$0
G. Totals				$42,921	$0		$14,550		$0	$42,921
Previously approved										
Total for this request				$42,921						

PART VII - APPROVALS

1. 
Forest Supervisor (signature)

7/20/15
Date

2. for Bernie T. Grant
Regional Forester (signature)

8/7/2015
Date

Approved with modifications in the table below.

Part VI – Emergency Stabilization Treatments and Source of Funds

			NFS Lands							
Line Items	Units	Unit Cost	# of Units	BAER $						Approved $
A. Land Treatments										
GS-11 Botanist				$1,785			$0		$0	$1,785
GS-5 Temp botanists				$1,410			$0		$0	$1,410
GS-5 Temp botanists				$1,410						$1,410
Supplies				$350						$350
Mileage				$324						$324
FOR				$242			$0		$0	$242
Insert new items above this line!				$0			$0		$0	$0
Subtotal Land Treatments				$5,521			$0		$0	$5,521
B. Channel Treatments										
Insert new items above this line!				$0			$0		$0	$0
Subtotal Channel Treat.				$0			$0		$0	$0
C. Road and Trails										
6S11: Cleanout roadside ditch and cutbanks slo				$3,800			$0		$0	$3,800
6S11: Install DI grates (7)		550	7	$3,850						$3,850
culvert/lead-off outlet		750	1	$750						$750
6S11A: Restore drainage		5000	0.52	$2,600						$2,600
6S11F: Restore drainage		5000	0.27	$1,350						$1,350
Storm inspection and response		1500	5	$7,500			$0		$0	$2,000
Remove snags		3000	1	$3,000			$0		$0	$500
Insert new items above this line!				$0			$0		$0	$0
Subtotal Road & Trails				$22,850			$0		$0	$14,850
D. Protection/Safety										
				$0			$0		$0	$0
				$0			$0		$0	$0
				$0			$0		$0	$0
Insert new items above this line!				$0			$0		$0	$0
Subtotal Structures				$0			$0		$0	$0
E. BAER Evaluation										
				---			$0		$0	$0
Insert new items above this line!				---			$0		$0	$0
Subtotal Evaluation				$14,550			$0		$0	$0
F. Monitoring										
				$0			$0		$0	$0
Insert new items above this line!				$0			$0		$0	$0
Subtotal Monitoring				$0			$0		$0	$0
G. Totals				$28,371			**$0**		**$0**	**$20,371**
Previously approved										
Total for this request				**$28,371**						

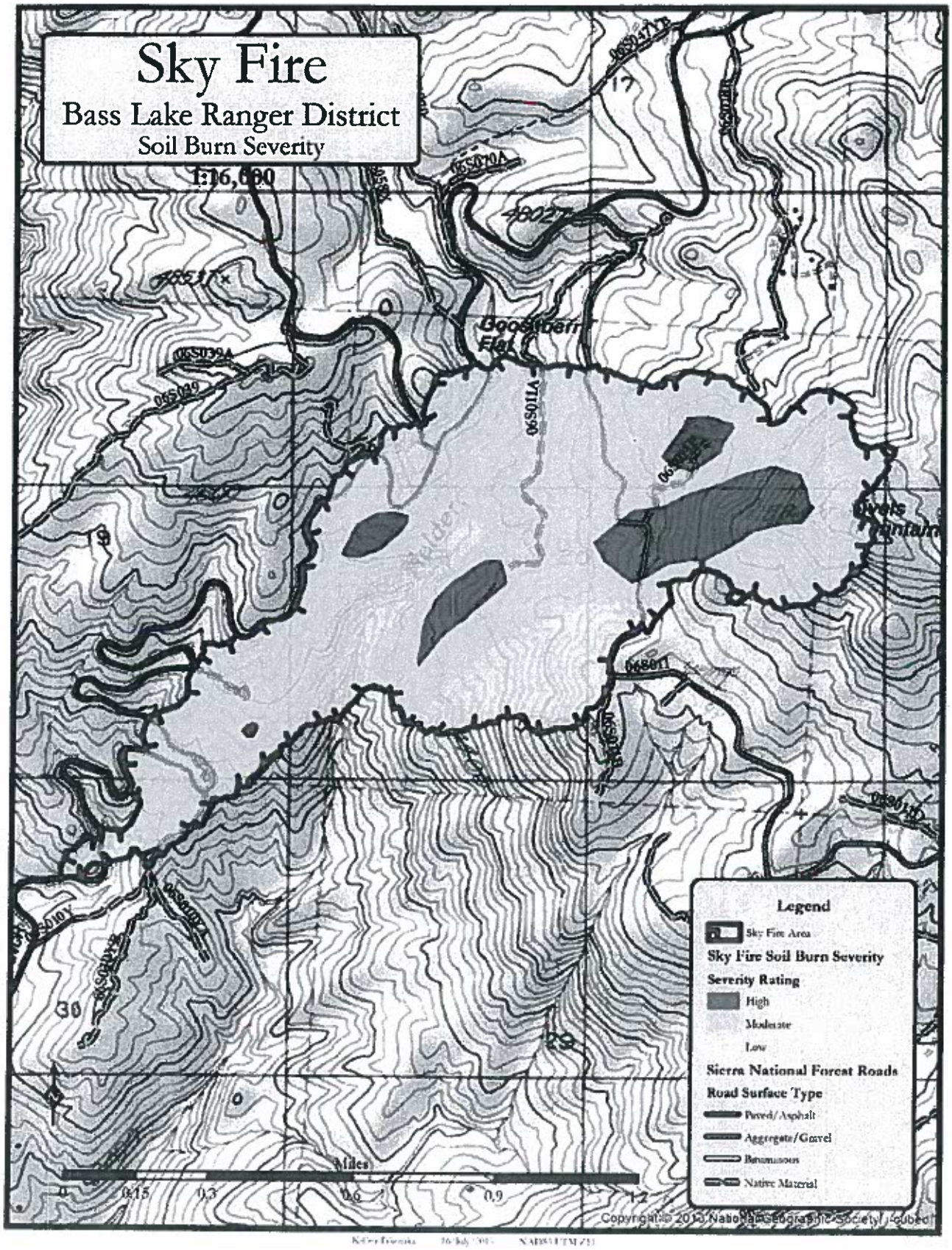


Figure 1 - Soil Burn Severity Map for the Sky Fire