

**BURNED-AREA REPORT**  
(Reference FSH 2509.13)

**PART I - TYPE OF REQUEST**

A. Type of Report

- 1. Funding request for estimated WFSU-SULT funds
- 2. Accomplishment Report
- 3. No Treatment Recommendation

B. Type of Action

- 1. Initial Request (Best estimate of funds needed to complete eligible rehabilitation 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: Caples Fire
- B. Fire Number: CA-ENF-030945
- C. State: California
- D. County: El Dorado
- E. Region: 5
- F. Forest: Eldorado
- G. District: Placerville and Amador
- H. Fire Incident Job Code: P5MU8G (0503)
- I. Date Fire Started: 10/10/2019
- J. Date Fire Contained: Estimated 10/31/2019
- K. Suppression Cost: ~\$ 6,500,000 (as of 10/26/2019)

L. Fire Suppression Damages Repaired with Suppression Funds in miles

Completed Dozer Line	7.2
Completed Hand Line	11.26
Completed Line	12.85
Road as Completed Line	1.29

M. Watershed Number:

		Total Watershed	High	Moderate	Low	Unburned/ Very Low	Total
Upper Silver Fork American River	180201290201	35,409 (8.8% burned)	103	1,675	682	609	3,102
Lower Silver Fork American River	180201290202	35,957 (0.9% burned)	13	209	79	33	332
Grand Total			116	1,884	760	643	3434

N. Total Acres Burned:

NFS Acres (3434)

Other Federal ( )

State ( )

Private ( )

O. Vegetation Types: Barren rock outcrops, chaparral, jeffery pine, montane meadow, red fir, white fir, Sierra Nevada mixed conifer, riparian

#### **PART IV - HYDROLOGIC DESIGN FACTORS**

A. Estimated Vegetative Recovery Period, (years): 5 - 10

B. Dominant Soils:

Prior to glaciation, Cretaceous granitic plutons were overlain by Miocene volcanic material. Past glacial episodes carved the current canyon to its current profile and glacial carving and deposition set the stage for the current soils.

The rock outcrop soils consists of bedrock ground flat by the occupying glacier. Even though the dominant soil type is Rock outcrop, there are inclusions of at least 20% inclusions of residual soils that support vegetation. The Lithic Cryumbrepts soils generally are shallow soils associated with the rock outcrops and the canyon sides with boulder lateral moraine deposits. 21% of the area is mapped as a wet association, but because wet areas were mapped at coarse resolution, that association may have been overmapped. In general, the wet association represents soils of Convict, Schneider, and Government Meadows. Waca-Windy soils are the residual volcanic deposits found on ridgetops.

Soil Map Unit	Acres	Percent
ROCK OUTCROP	1056	30
LITHIC CRYUMBREPTS, 15 TO 75 PERCENT SLOPES	945	27
XERUMBREPTS-CRYUMBREPTS, WET ASSOCIATION, 5 TO 50 PERCENT SLOPES	723	21
WACA-WINDY COMPLEX, 5 TO 30 PERCENT SLOPES	188	5

C. Geologic Types:

See soil section

D. Miles of Stream Channels by Order or Class:

Stream Type	Total Fire	NFS Ownership
Ephemeral	11.1 miles	11.1 miles
Intermittent	1.8 miles	1.8 miles
Perennial	3.2 miles	3.2 miles

E Transportation System

Trails: 14.3 miles    Roads: 1.29 miles

**PART III - WATERSHED CONDITION**

A. Burn Severity (acres/percent of burn area):

Unburned: 642 acres (19 percent) Low: 760 acres (22 percent) Moderate: 1884 acres (55 percent)

High: 116 acres (3 percent)

B. Water-Repellent Soil (acres): 1500-1700 acres

~~C. Soil Erosion Hazard Rating (acres): Ermit modeling is used as a surrogate for Erosion Hazard Rating  
Soil erosion was not done because \_\_\_\_\_~~

~~D. Erosion Potential: XX tons/acre for a 2 year event for the fire perimeter~~

~~Erosion potential by watershed pourpoint~~

Pourpoint Name	Erosion Rates, Tons/acre			
	2-year unburned	<b>2-year burned</b>	10-year unburned	<b>10-year burned</b>
Silver Fork Road Bridge				
Caples Trail Bridge				

~~E. Sediment Potential: \_\_\_\_\_ cubic yards / square mile Erosion rates are used as a surrogate for Sediment Potential~~

Soil erosion was not necessary to evaluate treatments was not modeled

**PART IV - HYDROLOGIC DESIGN FACTORS**

A. Estimated Vegetative Recovery Period, (years): 3-5 for ground vegetation

B. Design Chance of Success, (percent): \_\_\_\_\_

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

D. Design Storm Duration, (minutes): \_\_\_\_\_

E. Design Storm Magnitude, (inches): \_\_\_\_\_

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

G. Estimated Reduction in Infiltration, (percent): \_\_\_\_\_

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

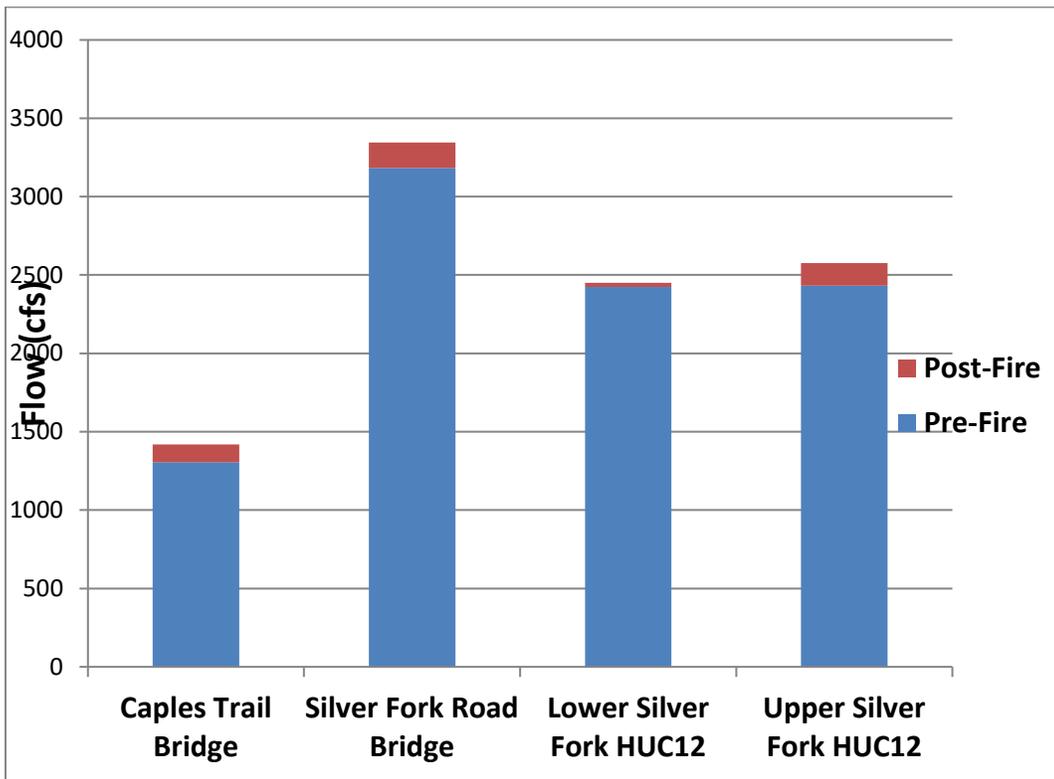
Summary of Watershed Response:

The Caples Fire started on October 10, 2019 and burned a total of 3,434 acres, all of which was on Forest Service lands. Overall soil burn severity for the Caples Fire is 3% high, 55% moderate, 22% low, and 19% very low to unburned. As described below, flooding is not a major concern, however, soil erosion and ash deposition in Caples Creek and associated impacts to water quality and aquatic habitat are a major concern. Additionally, the accumulation and movement of large wood within Caples Creek and South Fork Silver Creek has potential to damage both the bridge on Silver Fork Road and the trail bridge on Silver Fork Trail over Caples Creek.

Hydrologic Response:

Watershed response was modeled at 4 locations: Caples Trail Bridge, Silver Fork Road Bridge, Lower Silver Fork HUC12 Watershed, and Upper Silver Fork HUC12 Watershed. For a five year storm event (Q5), post-fire flows were estimated to increase from 1.1 to 8.6% (where areas of moderate and high soil burn severity were modeled to respond like a 10 year storm (Q10)).

Pour Point	Pre-Fire 5-Year Flow (cfs)	Post-Fire 5-Year Flow (cfs)	Percent Increase
Caples Trail Bridge	1306	1418	8.6%
Silver Fork Road Bridge	3183	3345	5.1%
Lower Silver Fork HUC12	2424	2449	1.1%
Upper Silver Fork HUC12	2431	2576	5.9%



Due to minimal increases in post-fire flow, flooding is not a major concern. However, impacts to water quality in Caples Creek is likely due to increased erosion and transport of sediment and ash to the creek (Pictures 1 and 2). There is also potential for the accumulation and transport of large wood within Caples Creek (Picture 3), which could damage both the bridge on Silver Fork Road, and the trail bridge on Silver Fork Trail (note that large wood debris jams were present in Caples Creek pre-fire, and are only expected to become larger as burnt trees fall into the stream).

Erosion Response:

Localized mineral sediment delivery is expected but due to the percentage of the watershed, the watershed increase will be small. Organic sediment (ash) is likely to be heavy during non-flushing low flows.

Geologic Response:

Geologic response, such as landslides and debris flows, were determined to be unlikely.

Aquatic Response:

Increased sediment from erosion will likely fill in pools, ash deposition will increase stream water pH, and increased organic matter will increase stream water oxygen use, all of which may impact aquatic habitat within Caples Creek and South Fork Silver Creek. No treatments are proposed due to the extent of moderate and high soil burn severity adjacent to Caples Creek.

**PART V - SUMMARY OF ANALYSIS**

**A. Describe Critical Values/Resources and Threats:**

**Values at Risk:**

The table below is Exhibit 02 from FSM 2523.1. This matrix was used to evaluate the risk level for each value identified during this BAER assessment. See FSM 2523.1 for additional information.

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

The table below is a summary of the values (some of which were not identified as 'critical' per Exhibit 01 from FSM 2523.1) within the Caples Fire, as well as, the threats to those values, the probability of damage or loss, magnitude of consequences and the resulting level of risk. Red shaded cells are those values that rated out as "very high" or "high" risk. Yellow shaded cells rated out "intermediate" risk and white cells rated out "low" or "very low".

**Caples Fire BAER - Forest Service Values at Risk Tracking Table**

<b>High / Very High Risk</b>	
<b>Intermediate Risk</b>	
<b>Low / Very Low Risk</b>	

Category	Life/ Property/ Resources	Value at Risk	Threat to Value at Risk	Probability of Damage or Loss	Magnitude of Consequence	Risk	Treatment	Notes
Recreation	Life and Safety	Human Life and Safety in the burn scar	Hazard trees, debris flow, stump holes, rock fall, unstable trail tread, flash flood	Likely	Major	Very High	<b>P1</b> Trail hazard and Closure Signs and <b>L3</b> Forest Closure	Recommend Forest Closure.
Recreation	Property	Caples and Silver Fork Trails system	Loss of water control, soils erosion, loss of trail tread	Likely	Minor	Low	<b>T1</b> -Trail tread stabilization	The risk is low, however, damage is likely and stabilization would occur when other work is being done in the area
Botany/ Weeds	Resources	Native and Naturalized Communities	Invasive weed introduction and spread related to fire suppression activities	Very Likely	Moderate	Very High	<b>L1</b> -Early Detection and Rapid Response	Priority areas include dozer lines drop points and other disturbed areas in the fire area.
Heritage	Resources	Historic and Pre-Properties	Debris flow impacting site integrity/ Looting	Possible	Moderate	Intermediate	<b>None</b>	Forest cultural resources and watershed staff evaluated and found to have little risk
Engineering	Property	Silver Fork Road Bridge	Debris Jam and subsequent flooding	Possible	Major	High	R2- Large Wood Removal	Highly dependent on storm characteristics
Recreation	Property	Caples Creek Footbridge	Debris Jam and subsequent flooding	Likely	Moderate	High	R2- Large Wood Removal	Highly dependent on storm characteristics
Wildlife	Resources	Mountain Yellow Legged Frog	Sedimentation/ channel scour	Unlikely	Minor	Very Low	No Treatment	Small area of critical habitat spatially overlaps the fire perimeter but actually lies outside the fire.
Soils	Resources	Soil Productivity	Erosion	Likely	Possible	Moderate	No Treatment	Extent of effects will be minor.
Watershed	Resources	Water Quality	Organic ash and sediment	Very Likely	Moderate	Very High	No effective Treatment	Loss of stream stability due to burned riparian vegetation, increased runoff and bulking in channel, risk to water quality from loss of riparian buffer and increased sediment and nutrient loading, loss of infiltration capacity from burned soils and loss of roughness and surface soil protection from vegetation canopy and litter

## B. Emergency Treatment Objectives:

The primary objective of this Burned Area Emergency Response Report is to recommend prompt actions deemed reasonable and necessary to effectively protect, reduce or minimize significant threats to human life and property and prevent unacceptable degradation to natural and cultural resources. The application of these BAER treatments are expected to minimize on-site and downstream damages to the identified values at risk previously mentioned. The emergency treatments being recommended by the Caples Fire BAER Team are specifically designed to achieve the following results:

### Proposed Land Treatments

The objective of the land treatments are to:

- a. Retard the spread of invasive weeds as a result of suppression repair activities. (L1)
- b. To mitigate the hazards to life and safety and protect other BAER values. (L2)

### Proposed Road and Trail Treatments

The objective of the road and trail treatments are to:

- a. Protect and stabilize bridges on Forest Service roads and trails at risk of damage as a result of increased runoff and erosion from the fire. (R1, R2, T1, T2)
- b. Mitigate public safety hazards along NFS roads and trails. (R1, R2, T1, T2, P1)
- c. Reduce risk to downstream infrastructure where possible. (R2, T2)

### Proposed Protection/Safety Treatments:

The objective of the protection and safety treatments are to:

- a. To caution forest visitors recreating and administrative users about the potential hazards that exist within the burned area. (P1, P2)
- b. Improve public safety by keeping Forest users out of the burn area during major storm events. (P1, P2)

### Proposed Channel Treatments:

There are no proposed channel treatments.

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

Land NA% Channel NA% Roads/Trails 50% Protection and Safety 20%

## D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	70	75	80
Channel	NA	NA	NA
Roads/Trails	90	90	90
Protection/Safety	85	90	95

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

F. Cost of Selected Alternative (Including Loss):

\*All treatments were evaluated for cost benefit in order to justify the treatment. Proposed treatments are justified see cost/ benefit spreadsheet in project record.

G. Skills Represented on Burned-Area Survey Team:

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

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Vince Pacific - Hydrology	
Eric Nicita - Soils	
Jordan Serin - Archeology	
Matt Brown - Botany	
Jeff Mabe - Fisheries	

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:**

**L1 - Invasive Weed Detection and Control Treatment related to suppression:**

Early Detection Rapid Response (EDRR) surveys and treatments will be conducted in 2020 for Eldorado target invasive plant species. EDRR is a strategy developed to increase efficiency of weed work by combining surveying, mapping, and immediate treatment of new weed populations as they are discovered. Since the Caples ICP was set up in a known infestation of spotted knapweed there is a high potential for propagules to spread into areas disturbed during fire suppression (fire lines, staging areas, transport routes, etc.). These areas will be surveyed for new infestations and treated to prevent establishment.

Infestations will be inventoried using the Eldorado NF Invasive Plants Data Form, 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. Surveys and treatments will be conducted by two-person botany crews, 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. Treatments will be conducted by manual, mechanical or chemical methods in accordance with the forest-wide Eradication and Control of Invasive Plants Environmental Assessment (ENF 2013). Herbicide treatment will be used only where manual or mechanical methods are not effective or feasible.

In addition to the two-person crews of botanists/weed specialists, funding is available for regular or overtime for additional staff (e.g. members of a fire crew, TSI crew, or timber marking crew, etc.) to assist during the short treatment window. Emergency surveys and treatments will be for one year only per BAER regulations. Survey and treatment in subsequent years may be accomplished through a combination of Forest Service program funding, coordination with hydroelectric utilities, and collaboration with Weed Management Area volunteer groups.

**L2- Forest Closure:** Currently the Forest has issued a closure area surrounding the Caples Fire (Order NO. 03-19-12) and expires December 31, 2019. It is recommend that this closure stays in place for a minimum of 1 year due to risk of falling trees, flooding, and bridge damage on forest users, and that the risk associated with the burn scar be reevaluated prior to lifting the closure.

### **Roads Treatments:**

#### **R1- Storm Inspections:**

After storms, patrols will assess bridges for damage and debris jams. This will occur at the bridge on Silver Creek road that crosses South Fork Silver Creek, and the trail bridge on the Old Silver Lake Trail. The patrols will be conducted by a Forest Service Soil Scientist or Hydrologist.

#### **R2- Large Wood Removal:**

The bridge across South Fork Silver Fork on Silver Fork Road has potential for log jams and associated bridge damage. There are multiple significantly large log jams in Caples Creek and South Fork Silver Creek (pre-fire), and an abundance of additional burnt trees is likely. If trees accumulate, a Type 2 excavator will be necessary to remove the large wood accumulation to minimize potential for future damage to the bridge.

#### **T1 - Trail Stabilization –**

Work will include the installation of drainage features (out sloping, rolling grade dips, knicks, water bars) and snagging trees as appropriate for worker safety. This work is necessary to protect the trail asset by diverting anticipated increases in surface runoff off the trail. The trail work will be implemented by Forest Service Soil Scientist and Hydrologist.

#### **T2- Large Wood Removal:**

The trail bridge across Silver Fork Trail has potential for log jams and associated bridge damage (the main support beam is in the center of the channel). There are multiple significantly large log jams in Caples Creek (pre-fire), and an abundance of additional burnt trees is likely. If trees accumulate, a 10 person hand crew (due to no road access) will be necessary to remove the large wood accumulation to minimize potential for future damage to the bridge.

#### **P1 – Hazard Warning Signs**

This treatment will design and install burned area warning signs to caution forest visitors recreating and administrative users about the potential hazards that exist within the burned area. It is consistent with the language provided in the BAER Treatments Catalog. The warning signs will identify the types of hazards to watch for within the burned area. This treatment will place hazard warning signs to inform users of the dangers associated with entering/recreating within a burned area. The purchase and installation of signs at each of the identified locations will be consistent with Forest Engineering Standards at these locations. A Forest Service employee will inspect the signs for visibility, damage, or loss and replace as needed.

**P2- BAER Implementation/Interagency Coordination:** Continued distribution of public information is considered essential for public safety in conveying the risk within the burn. Communication with special use holders such as El Dorado Irrigation District as well as user groups such as Trout Unlimited will help to communicate hazards on National Forest System lands and potential impacts. Implementation of BAER activities will require Forest BAER Coordinator time.