September 29, 2020

SLINK FIRE BURNED-AREA REPORT

PART I - TYPE OF REQUEST

A. Type of Report

☒ 1. Funding request for estimated emergency stabilization funds
☐ 2. No Treatment Recommendation

B. Type of Action

☒ 1. Initial Request (Best estimate of funds needed to complete eligible stabilization measures)

☐ 2. Interim Request #___
☐ Updating the initial funding request based on more accurate site data or design analysis

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: Slink

B. Fire Number: NV-HTF-30684

C. State: CA

D. County: Mono

E. Region: 04 - Intermountain

F. Forest: 17 – Humboldt-Toiyabe National Forest

G. District: Bridgeport and Carson Ranger Districts

H. Fire Incident Job Code: P4NH7R20 0417

I. Date Fire Started: Saturday August 29th, 2020

J. Date Fire Contained: 84% (as of 9/23/2020)

K. Suppression Cost: 14.2 million (as of 9/23/2020)

L. Fire Suppression Damages Repaired with Suppression Funds (estimates): as of 9/15/2020

Item	Unit	Amount Identified	Amount Repaired	No Repair Needed	Remaining
Mapped Dozer Line	Miles	10.0	3.0	0.9	6.1
Road as Control Line	Miles	6.4	6.4	0.0	0.0
Mapped Hand Line	Miles	11.9	5.2	0	6.8
Additional Hand Line	Miles	3.0	0	0	3.0
Spike Camps	Count	8	2	0	6.0
Drop Points	Count	11	3	0	8
Helispots	Count	22	3	7	12

M. Watershed Numbers:

Table 1: Acres Burned by Watershed

HUC #	Watershed Name	Total Acres	Acres Burned	% of Watershed Burned
160502010101	Silver King Creek	27,781	7,244	26%
160503020203	Mill Creek	18,932	2,404	13%
160503020205	Slinkard Creek	19,325	4,692	24%
160503020204	East Slough-West Walker River	42,278	5,908	14%
160502010105	Bagley Valley-East Fork Carson River	16,520	7	<1%
160502010102	Bryant Creek-East Fork Carson River	31,615	1,654	5%

N. Total Acres Burned:

	Acres			
Ownership	**Phase 1**	**Phase 2**	**Total**	**Percent**
NFS	6,595	8,450	15,060	69
BLM	2,636	-	2,652	12
DOD	14	-	14	<1
State	3,734	-	3,739	17
Private	262	219	262	1
Total	**13,241**	**8,669**	**21,910**	

O. Vegetation Types: Vegetation types in the Slink fire include sagebrush/bitterbrush communities, east side pine, Sierran mixed conifer, annual grassland, aspen, montane chaparral, pinyon-juniper, white fir, and subalpine conifer which includes whitebark pine; with smaller acreages of montane riparian and wet meadow.

Q. Dominant Soils:

	Phase 1		Phase 2		Total	
Map Unit Name	**Acres**	**Percent**	**Acres**	**Percent**	**Acres**	**Percent**
Canfire-Crispy-Rock Outcrop Association	3,392	23	-	-	3,392	15
Toiyabe-Corbett-Rock Outcrop Complex, 8 to 30% slopes	-	-	510	4	510	2
Toiyabe-Corbett-Rock Outcrop Complex, 30-50% slopes	-	-	3,138	25	3,138	14
Heenlake-Loope-Dogbed Association	1,988	13	-	-	1,988	9
Chrisflat very gravelly coarse sandy loam, 4 – 15% slopes	1,456	10	-	-	1,456	6
Pinew-Rock Outcrop Association	1,403	10	0.7	0	1,404	6
Joecut Association	1,116	8	1,672	13	2,788	12
Joecutt-Heenlake Association	-	-	558	5	558	2
Hawkinspeak-Thiefridge-Angelwhine Association	1,042	7	393	3	1,435	6
Lonecabin Complex, 4-15% slopes	878	6	-	-	878	4
Hawkinspeak-Hawkridge Association	580	4	1,893	15	2,473	11
Lousight-Lonecabin Association	445	3	-	-	445	2
Sofgran-Temo-Shalgran Association	2	-	760	6	762	3
Celeridge-Gerdog-Loope Association	373	3	825	7	1,198	5
Heenlake-Loope-Chenhigh Association	309	2	384	3	693	3

R. Geologic Types:
Andesite, Tuff Breccia, Granodiorite, Metamorphics, Mixed Alluvium

S. Miles of Stream Channels by Order or Class:

	Miles of Stream		
Stream Type	**Phase 1**	**Phase 2**	**Total**
Perennial	12.1	11.5	23.6
Intermittent	0.4	0	0.4
Ephemeral	25.4	10.5	35.9

Trail No.	Name	Length (Miles)
21017	Silver King Trail	4.8
21019	Driveway	2.2
21020	Corral Valley	2.4
21011	East Carson River	0.04
21018	Poison Flat	1.2
21013	Snodgrass	2.8

T. Transportation System:
Trails: *National Forest (miles):* 13.4 *Other (miles):*
Roads: *National Forest (miles):* 9.7 *Other (miles):* 9.11

This includes the NFS roads/trails that are on private within the fire but not non-fs roads on private.

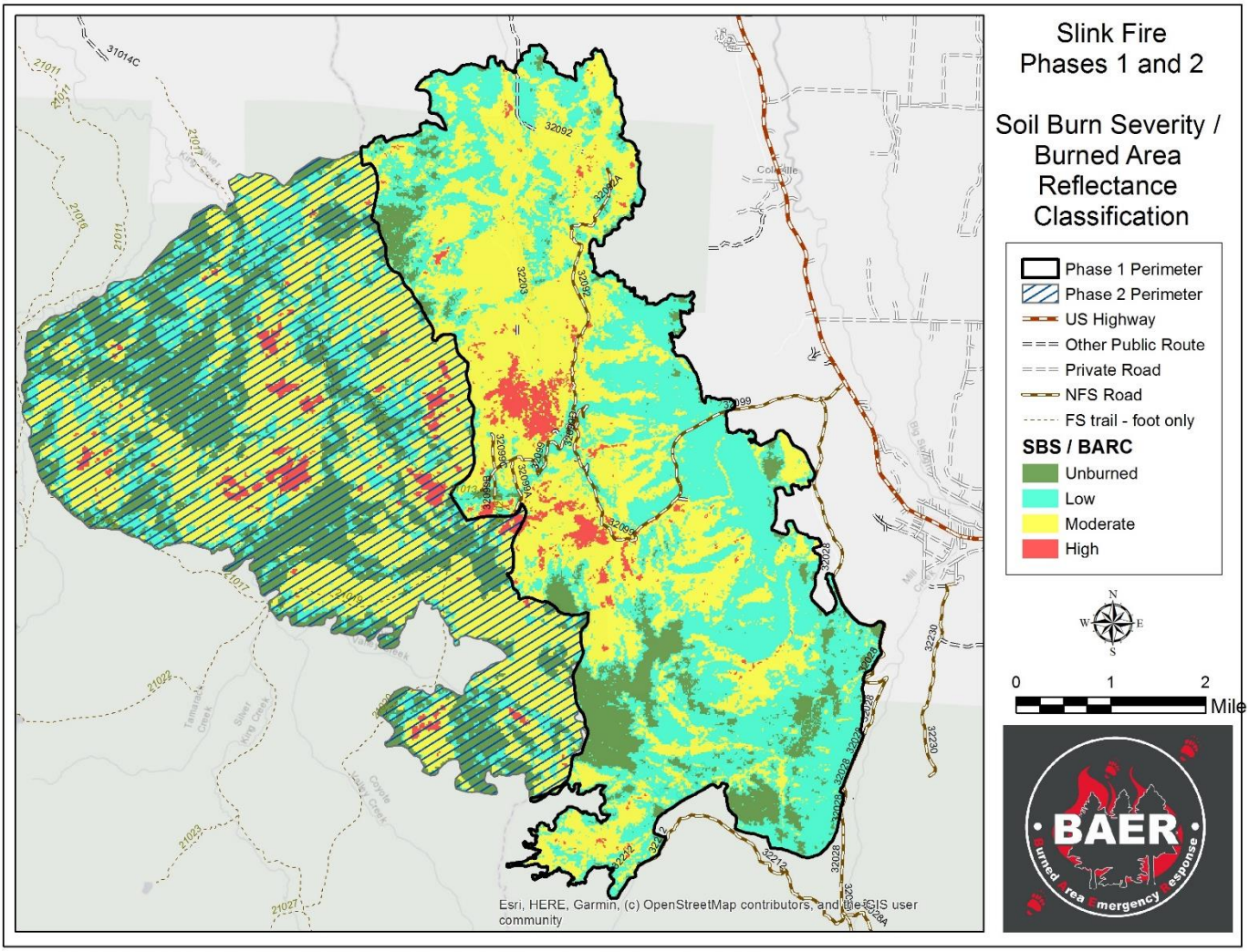
PART III - WATERSHED CONDITION

A. Burn Severity (acres):

Soil Burn Severity: The soil burn severity survey was conducted by aerial and virtual based reconnaissance of the burned area. Soil burn severity was interpreted according to the definitions in the Field Guide for Mapping Soil Burn Severity (http://www.fs.fed.us/rm/pubs/rmrs_gtr243.pdf). Due to Covid19 precautions the soil analysis was limited to viewing photos from the fire area taken by READ and BAER staff who were able to visit the site in the phase 1 portion. The phase II portion consisted of the Carson-Iceberg Wilderness. Activity in the area was limited to suppression activities. No field validation of the BARC map able to occur. The interpretations provided by the BARC map was used for the Burn Severity determinations.

Soil Burn Severity*	Phase	NFS	BLM	State	DOD	Private	Total	Percent
Unburned	1	1,072	329	96	3	15	1,515	10
	2	3,824	-	-	-	-	3,827	31
	Combined	**4,896**	**329**	**96**	**3**	**18**	**5,342**	**20**
Low	1	2,950	1,510	1,873	11	52	6,396	43
	2	2,580	-	-	-	7	2,587	21
	Combined	**5,530**	**1,510**	**1,873**	**11**	**59**	**8,983**	**33**
Moderate	1	3,439	1,090	1,650	3	201	6,383	43
	2	5,479	-	-	-	186	5,665	45
	Combined	**8,918**	**1,090**	**1,650**	**3**	**387**	**12,048**	**44**
High	1	206	36	211	-	9	462	3
	2	391	-	-	-	26	417	3
	Combined	**597**	**36**	**211**	**-**	**35**	**879**	**3**
Total	1	7,667	2,965	3,830	17	277	14,755	
	2	12,274	-	-	-	222	12,496	
	Combined	**19,941**	**2,965**	**3,830**	**17**	**499**	**27,252**	

*The interpretations provided by the BARC map was used for the Burn Severity determinations.



Soil Burn Severity for Phase 1 and Burned Area Reflectance Classification (BARC) for Phase 2 of the Slink Fire.

B. Water-Repellent Soil (acres): The degree and full extent of water repellent soils is largely unknown due to the inability to get on the ground and collect field data Phase 1: 1,369 estimated at 20 percent of the moderate and severe burn portions of the phase I perimeter, Phase 2: 1,216 estimated at 20 percent of the moderate and severe portions of the phase II perimeter. Approximately 2585 acres for the complete fire.

C. Soil Erosion Hazard Rating:

	Phase 1		Phase 2		Total	
Rating	**Acres**	**Percent**	**Acres**	**Percent**	**Acres**	**Percent**
Low	40	0.3	-	-	40	0.1
Moderate	2,635	18	2,537	20	5,172	19
Severe	12,080	82	9,952	80	22,032	81
Total	14,755	100	12,489	100	27,244	100

D. Erosion Potential: 0.36 to 6.82 tons/acre

E. Sediment Potential: 165 to 3,117 cu yd/sq. mi. These estimates are for the complete fire but can be applied to soils in the Slinkard Cr. Headwaters and Silver King watershed.

F. Estimated Vegetative Recovery Period (years): 1-5 years for grass and forb components, 5-10 years for shrub components, much longer for tree species.

G. Estimated Hydrologic Response (brief description): Increased watershed response to short duration, high intensity precipitation events are expected to occur within the burned area. Pre and post fire storm runoff modeling was completed using the WILDCAT5 model. The design storms selected for modeling include a 5-year 60-minute event that would produce an estimated 0.698" of rain and a 10-year 60-minute event that would produce an estimated 0.826" of rain.

The peak flow analysis indicates that pre-fire flows weighted by area were on average 1.85 cfs/mi^2 for the 5-year event and 5.23 cfs/mi^2 for the 10-year event. The post fire peak flows weighted by area averaged 33.85 cfs/mi^2 for the 5-year event and 60.32 cfs/mi^2 for the 10-year event. This increase in peak flow should be viewed as a relative change in response to the burned area's watershed characteristics.

The actual peak flow values will be scaled up or down in response to the intensity of the precipitation received over the burnscar and the portions of the burnscar that receive the precipitation. The drainages that are most at risk of impacts from flash floods or debris flows are the Little Antelope Valley headwaters, the Slinkard Valley headwaters, and Napoleon Canyon. The key take away message of the peak flow analysis is that watersheds which normally do not have a response to a severe thunderstorms are much more likely to have flash floods and debris flows due to the amount of moderate and high soil burn severity in the watershed source areas.

An additional assessment of post-fire debris flow threats for the Phase 1 analysis area was conducted by the USGS. At the peak 15-minute intensity of 24mm/hour (equivalent to approximately .25" of rain in 15 minutes) the highest probability of debris flow initiation is 40-60% in the larger basins that were modeled. When the peak 15-minute intensity of 40mm/hour was modeled (equivalent to approximately 0.40" of rain in 15 minutes), the highest probability of debris flow initiation in the larger basins increases to 80-100%. Debris flow threats were not assessed for the Phase 2 analysis area because a field validated SBS map was not generated due to safety concerns related to field access in remote areas of the Carson Iceberg Wilderness.

PART V - SUMMARY OF ANALYSIS

Introduction/Background

The Slink Fire started on August 29, 2020 and and full containment is unknown. As of end on September 23, 2020, containment was 84%. A BAER assessment team began field reconnisance of the burned area on September 12. BAER Assessements were conducted in two phases. Phase 1 included the eastern part of the fire and excluded the wilderness. Phase 2 area included the western part o the fire inside of the wilderness. The Phase 1 analysis area is 14,755 acres, while Phase 2 analysis was 12,489 acres. The phased analysis was used to make sure any Critical Values that may impact human health and safety and the communities of Coleville and Walker were timely identified.

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

Critical Value Matrix

Probability of Damage or Loss: *The following descriptions provide a framework to estimate the relative probability that damage or loss would occur within 1 to 3 years (depending on the resource):*
Very likely*. Nearly certain occurrences (90% - 100%)*
Likely*, Likely occurrence (50% - 89%)*
Possible*. Possible occurrence (10% - 49%)*
Unlikely*. Unlikely occurrence (0% - 9%)*

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

Magnitude of Consequences:
Major*. Loss of life or injury to humans; substantial property damage; damage to critical natural or cultural resources*
Moderate*. Injury or illness to humans; moderate property damage; damage to critical natural or cultural resources resulting in considerable or long-term effects.*
Minor*. Property damage is limited in economic value and/or too few investments; damage to critical natural or cultural resources resulting in minimal, recoverable or localized effects.*

1. Human Life and Safety:

- *Forest Visitors Safety:*
  The BAER team identified potential threats to Forest visitors/recreating public, and agency personnel (visiting or post-fire treatments) that are within or downstream/downslope of burned slopes, especially those with a moderate-high burn severity, from flooding and debris flows, hazard trees, loss of ingress and egress along/at roads, trails, and permitted sites. The probability of damage or loss is **possible or likely**, resulting from hazard trees along travel routes within the burn area have not been mitigated. Likewise, there are numerous road-stream crossings within the burn area or directly below moderate/high burn severity that are now at risk from flooding, debris flows, and rockfall. The magnitude of consequences is **major**, as a tree strike or entrapment could lead to serious injury or loss of life. As such, the risk is considered **high/very high.**

  - BAER funds are requested to treat these risks (*Treatments PS-1, PS-2 and PS-3*).

BAER recommends that human health and safety concerns on adjacent lands managed by the DOD, California state, and BLM also be evaluated for risk from flooding and debris flows, hazard trees.

2. Property:

- *NFS Roads (Rodriguez Golden Gate road #32099, Rodriguez Trailhead road #32099A, Golden Gate road #32099C, Prospects Spur road #32099B, Prospects Spur D road #32099D, Napoleon Canyon road #32092, Prospects Spur road A 32092A, Slinkard Creek road 32203, Lost Cannon Creek road 32212:*
  There is a threat to the NFS road prisms from increased runoff, erosion, and debris flows. Undersized and inadequate drainage structures are not expected to convey the expected increase in post-fire runoff and erosion and may damage Forest Service road infrastructure. The probability of damage or loss is **possible or likely**, because the identified NFS road prisms is expected to receive increased overland flow and accelerated erosion concentrating on route segments downslope from areas burned

at moderate and high severity. The magnitude of consequences is **moderate**. Increased runoff could lead to failure of these road segments, which could constitute a loss of Forest Service infrastructure and increased sediment to streams downslope. However, due to the relatively low angle of the burned slopes and short slope lengths, the magnitude is expected to be moderate. The resulting risk is **intermediate.**

- BAER funds are requested to treat these risks (*Treatment RD-1*).

BAER recommends that roads on adjacent lands managed by the DOD, California state, and BLM also be evaluated for risk from flooding and debris flows, and hazard trees. Part of Lost Canyon Creek Road 32212 is outside of the burn area. This road may experience some increased flow during high intensity rainstorms. However, the risk of erosion to the road prism is low. It is recommended that the Humboldt-Toiyabe National Forest monitor this section of the road.

- *Wilderness Trails*
  There is a threat to approximately 5.24 miles of trail prism on four system trails (Corral Valley, Driveway, Snodgrass, Silver King). The probability of damage or loss is **likely**, because increased post-fire runoff from areas of moderate and high BARC could damage trail prisms. In addition, indirect effects of flooding, sedimentation, and debris flow caused by increased post-fire runoff. The magnitude of consequences is **moderate**. The trail system is maintained on a yearly basis, contributing to a substantial investment. Increased runoff could lead to erosion of the trail prism. Due to the relatively low angle of the burned slopes and short slope lengths, the magnitude is expected to be moderate. The resulting risk is **high.**

  - BAER funds are requested to treat these risks (*Treatment TR-1*).

- *Water Impoundments (Slinkard Valley).*
  There is a threat to two diversion structure on NFS lands in Slinkard Valley due from filling during flash floods and debris flows. The probability of damage or loss is **likely**, because analyses indicated that Slinkard Valley is at risk from flash floods or debris flows (40-60% chance of debris flow) as response to a severe thunderstorms because of the amount of moderate and high soil burn severity in the watershed source areas. The magnitude of consequences is **moderate**. Increased runoff and sedimentation could lead to failure of this impoundment, which could constitute a loss of infrastructure and increased sedimentation to downstream Lahontan Cutthroat Trout population. The resulting risk is **high.**

  - BAER funds are requested to treat these risks (*Treatment CH-1*).

There are also water impoundments, agriculture structures and conveyance ditches downslope of the burn area on State and BLM managed lands. These areas should be evaluated to determine their risk.

- *Silver King Canyon Barrier*
  There is a threat of failure of a waterfall barrier in Silver King Canyon that separates habitats for non-native fish species from the Paiute cutthroat trout, a federally listed species. Flash floods and debris could occur compromising this barrier. The probability of damage or loss is **possible**, because lower Silver King Creek contains about 9 miles of occupied habitat. The burn area occurs upslope along the bottom 2 miles of occupied habitat. Minimal riparian was burned through that 2 miles of habitat because most of it occurred in Silver King Canyon which is buffered by cliff faces. However, 14% of the watershed burned at moderate and 1% at high severity. The magnitude of consequences is **major**. The waterfall barrier prevents the upstream movement of non-natives in the PCT occupied habitat. If a debris flow or other channel changing event were to occur there is the outcome would threaten the suitability of PCT habitat for the entire historic range of the PCT. The loss of the barrier would eliminate the historic range of PCT. The resulting risk is **high.**

  - BAER funds are requested to treat these risks (*Treatment CH-2*).

3. Natural Resources:

Native and naturalized plant communities, including Bi-State Sage Grouse habitat, where invasive noxious weeds were absent or in trace amounts.

- *Fire Suppression Activities*

  Increase of existing Category C weeds and introduction of new weeds resulting from suppression impacts (dozer lines, hand lines, drop points, helispots, other areas damaged by suppression and repair) pose a threat to Native and naturalized plant communities. The probability of damage or loss is **likely**, because areas of exposed soil due to fire suppression activities are susceptible to weed invasion and spread. There are known weed infestations along access roads. No weed wash was established for the first 12 days of fire incident. Increased fire traffic during suppression brought vehicles and equipment in contact with known weed infestations and likely spread them. The magnitude of consequences is **moderate.** Introduction and expansion of weeds can suppress native vegetation recovery and lead to a loss of native and naturalized plant communities. Vegetation type conversion to annual grasslands and expansion of Category C weeds into areas disturbed by fire suppression and within the burned area are likely; potentially increasing fire frequency. The resulting risk is **high.**

  - BAER funds are requested to treat these risks (*Treatments LD-1*).

- *Non-Suppression Activities (BAER-Specific)*
  There is a threat of spread of weeds due to fire especially in high and moderate soil burn severity areas near known infestations and adjacent to transportation system within the burned area. The probability of damage or loss is considered **likely**, as the fire has rendered approximately 48% (moderate-high severity) of the habitat vulnerable to introduction of new weeds and expansion of existing weeds. There is one known infestation within burned area. Frequent use of roads within the burned area by fire vehicles and equipment. Vehicles and equipment were not washed prior to entry. The magnitude of consequences is **moderate.** Most of the fire area was weed-free prior to the fire. Aggressive weeds can rapidly colonize areas within the fire area and suppress natural recovery. Loss of native and naturalized plant communities to type converting to annual grasslands and expansion of weeds into the burn area and increasing fire frequency. There is a risk of spread and introduction of noxious weeds into the areas of the C-I Wilderness disturbed by fire. Forest Service direction and Wilderness Stewardship objectives seek to minimize the establishment of non-native invasive species to prevent unacceptable habitat degradation of burned areas within the C-I Wilderness, while allowing for the recovery of the native plant community. The resulting risk is **high.**

  - BAER funds are requested to treat these risks (*Treatments LD-2 and LD-3*).

- *Natural Resources Soil and Water*
  There is a threat of impacts to water quality, and agriculture water supply from NFS lands, from increased sediment/nutrient loading following high intensity rain events. Likewise, there is the threat of the loss of soil productivity and reduced hydrological function. The probability of damage or loss is considered **possible or likely**, as erosion and transport of sediment, ash, and nutrients are expected to occur. The magnitude of consequences is **minor**, and intact, unburned, or lightly burned riparian buffers are expected to filter most of the pollutants. Soil damage is expected to be recoverable and localized. The resulting risk is **low.**

- *Threatened and Endangered Species, Paiute Cutthroat Trout.*
  There is a threat of habitat degradation of Paiute cutthroat trout (PCT) in Silver King Canyon and Corral Valley Creek from increase sedimentation, ash, and nutrients. In addition, Silver King Canyon has a barrier that restricts movements of non-native fish into PCT occupied habitats (See Silver King Barrier above). The probability of damage or loss is considered **possible.** Corral Valley Creek contains about 3.3 miles of occupied habitat, with 40% of the watershed burned at moderate and high severity. Lower Silver King Creek contains about 9 miles of occupied habitat. The burn area occurs

upslope along the bottom 2 miles of occupied habitat. Fourteen percent of the watershed burned at moderate and 1% at high severity within the watershed. The magnitude of consequences is **major.** If a debris flow or other channel changing event were to occur there is the possible potential for post-fire runoff to affect the PCT habitat, specifically spawning areas that occur throughout the low gradient meadow systems where fines are likely to settle out. This could result in the loss of cohorts. There are 9 populations of PCT. Six Corral Valley Creek is one of six of those that occur in the Silver King Watershed. In addition, if a debris flow or other channel changing event were to occur from post-fire runoff in Silver King Canyon, the loss of the barrier would eliminate the historic range of PCT. The resulting risk is **High.**

- BAER funds are NOT requested to treat these risks (*Natural recovery and working with partners to identify and mitigate risks to PCT populations*).

- *Threatened and Endangered Species, Lahontan Cutthroat Trout.*
  There is a threat of habitat degradation of Lahontan cutthroat trout in Mill Creek and Poison Flat Creek from increase sedimentation, ash, and nutrients. The probability of damage or loss is considered **unlikely**, as there is unburned riparian buffer between the burn area and the occupied stream. Mill creek habitat consists of a series of beaver ponds. Approximately 8% of the Poison Flat Creek watershed burned within the occupied LCT habitat. The magnitude of consequences is **minor**, as impacts are to be local. Beaver ponds and intact, unburned, or lightly burned riparian buffers are expected to filter most of the pollutants. Poison Flat Creek burn severity was moderate and low. The resulting risk is **very low.**

4. Cultural and Heritage Resources:

- *Unauthorized artifact collection and OHV use on historic trail segments.*
  There is a threar of the loss of historic context and contents due to unauthorized artifact collection and OHV use on newly exposed trail segments. The probability of damage or loss is **likely**, because archaeological and historic sites are vulnerable to metal detectorists and artifact collectors in the area. The fire has exposed a known significant historic immigrant trail and other cultural sites. Burned vegetation has also opened up areas that may have previously not been accessible to OHV traffic. This exposure makes the historic trail alignment and artifacts susceptible to damage from unauthorized motorized use and collection. The magnitude of consequences is **moderate**. In most cases, damage to cultural resource sites represents an irretrievable loss of traces of the past. Cultural resources are non-renewable. Removed artifacts from historic contexts degrade the meaning of historic sites and features and their potential to provide important information about the past to this and future generations. The nature of unauthorized collection or trail degradation from OHV use means that impacts resulting in total irretrievable loss of a site or feature are expected but unpredictable and also are likely to occur over time. A moderate consequence rating appropriately addresses the likelihood of these types of damage based on their nature and potential for significant impact. The resulting risk is **high.**

  - BAER funds are requested to treat these risks (*Treatments CR-1 and CR-3*).

- *Erosion and sedimentation of histroic trail segments caused by slope run-off or downed trees).*
  There is a threat to the the histroic trail segments (loss of trail) from increased runoff, erosion, and debris flows. The probability of damage or loss is **likely**. Field observation and burn severity models reflect areas of this trail that are at risk of erosion/sedimentation due to vegetation loss and landscape position. Landscape variables and observed past erosion support the likely probability (50-89%) of damage to the historic trail feature that, while it may not result in large scale obliteration of all the trail within the fire area, could scour or fill sections of the trail feature in specific locations. The magnitude of consequences is **moderate**. In most cases, damage to cultural resource sites represents an irretrievable loss of traces of the past. Cultural resources are non-renewable. This historic trail segment is a significant resource that is vulnerable to erosion and modern vehicle or OHV traffic. The section of trail in the fire area is recognized by the National Park Service as part of the California National Historic Trail (NHT), designated by Congress in 1992. Management objectives for NHT

sites promote preservation of remaining features in order to share the resource with the public.The section of trail within the fire area includes sections with integrity and others that have already been impacted by erosion. The remaining integrity of trail segments is at risk from increased post-fire erosion and would represent damage to this critical resource with considerable and long term effects to the trail as a whole. The resulting risk is **high.**

- BAER funds are requested to treat these risks (*Treatments CR-2 and CR-3*).

BAER recommendations include that cultural resources on adjacent lands managed by the DOD, California state, and BLM also be evaluated for risk from unauthorized collection/looting and erosion. In particular, it is recommended that the extent of the CNHT that crossed from NFS lands onto State and BLM lands be closed to access from OHV in some way as well at effective access points to reduce the probability of damage from OHV traffic as well as looting along the trail post-fire.

B. Emergency Treatment Objectives:

- Mitigate and protect, to the extent possible, threats to personal injury or human life of forest visitors and Forest Service employees by raising awareness through posting hazard warning signs on roads and trails, reinforcing road and trail tread, improving road and trail drainage and stream crossings, and communicate hazard of flooding, and debris flows. Communicate to cooperating agencies and community groups.

- Protect or minimize damage to NFS investments in roads and trail infrastructure by installing drainage features capable of withstanding potential increased stream flows and/or debris flows. Minimize damage to key NFS travel routes.

- Protect or mitigate potential post-fire impacts to critical cultural resources within the burned area.

- Treat invasive plants that are a threat to native and naturalized ecosystems by minimizing the expansion of existing populations in the burned area and control of expected invasion of noxious weeds within and adjacent to the area where soils/vegetation was disturbed as a result of fire suppression activities.

- Assist cooperators, other 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, public utilities and other infrastructure.

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

*Land **n/a** % Channel **95** % Roads/Trails **90** % Protection/Safety **100** %

*EDRR treatments would be conducted in the spring/summer 2021.

D. Probability of Treatment Success

Table 2: Probability of Treatment Success

	1 year after treatment	3 years after treatment	5 years after treatment
Land	80	50	35
Channel	60	70	80
Roads/Trails	75	90	100
Protection/Safety	85	95	100

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

Human Health and Safety: Human Life and Safety do not have a market value, but an injury would exceed $1,000,000, providing a substantial benefit/cost ratio.

Property: The cost to rebuild sections of the road after they are washed out, eroded, or buried includes estimates to bring in material to build up the damaged roads. The cost of not fixing the proposed 2.34 miles of road is approximately $95,940, providing at least a 3% benefit/cost ratio. This does not include the lost value to project management, fire suppression, and recreation. Likewise, there has been substantial investment into the wilderness trails, as the Forest maintains the trail network annually. The cost of not fixing the proposed 5.24 miles of trail is 97,500 (including loss), representing at least 8% benefit/cost ratio.

The cost to rebuild the water impoundments would be approximately $50,000, each, for a total of $100,000. The cost to rebuild the barrier and reestablish PCT would likely exceed $1,000,000. The initial cost to restore PCT into this native drainage has surpassed this estimate. Delaying emergency treatment could permanently remove the exterpate PCT from this stream.

Land Treatments - Native and Naturalized Plant Communities: Approximately $146,336, plus $300,000 to complete NEPA on needed land treatments. As such, the benefit/cost ratio exceeds 65%.

Cultural and Heritage Resources: Economic values can not be placed on the loss of cultural and heritage resources. The cultural or historic resource at risk is eligible, or potentially eligible, for listing on the National Register of Historic Places (NRHP). Delaying emergency treatment could permanently remove the cultural significance of this site.

F. Cost of Selected Alternative (Including Loss):

Human Health and Safety Treatments:

"Entering Burned Area" signs are needed to alert the public of possible threats to their life and safety that exist within or downstream of a burned area. The signs contain language specifying items to be aware of when entering a burn area such as falling trees and limbs, rolling rocks, and flash floods.

PS-1 Hazard Warning Signs Cost Estimate.

Item	Unit	Unit cost	# of units	Total Cost
Hazard Warning Signs on Roads	Each	877	6	$5,262
Total Cost:				**$5,262**

Treatments to stabilize cultural sites would occur as described in CR-1 and CR-2. Hazard trees need to be removed to ensure safe treatment implementation during post-fire emergency treatments.

PS-2 Hazard Warning Signs Cost Estimate.

Item	Unit	# of units	Total Cost
Hazard Warning Signs on Trails (including labor)	Each	**8**	**2,200**
Total Cost:			**2,200**

PS-3 Hazard Tree Removal at Cultural Site Work Areas Cost Estimate

Item	Unit	Unit cost	# of units	Total Cost
Hazard Tree Falling Crew	days	$1000	4	**$4,000**

Property:

NFS Road Treatments

RD-1 Road Treatments

Road Number	Road Name	Dips	Culvert Cleaning	Ditch Preparation Miles	Cost
32099	Rodriguez, Golden Gate	0	2	1	$4,359
32092	Napoleon Canyon	4		1	$8,542
32203	Slinkard Creek	Keep road closed with gate			$0
32212	Lost Cannon Creek	0	1	0.5	$2,179
32099A	Rodriguez Trailhead	Natural Recovery			$0
32099C	Golden Gate	Natural Recovery			$0
32099B	Prospects Spur	Natural Recovery			$0
32099D	Prospects Spur D	Natural Recovery			$0
32092A	Prospects Spur A	Natural Recovery			$0
Equipment Mobilization					$2,221
Total Road Treatment Cost:					**$17,301**

Water Impoundment

CH 1. Install (Beaver Dam Analog) BDA Structures

Item	Cost per Unit	Total
Hand Crew (5 people- x 3 days)	$200	$3,000
Crew Leader (GS-12 x 3 days)	$450	$1,350
Posts (100)	$8	$800
Vehicle - Pick ups (2) (360 miles)	$0.60	$648
BDA Installation Total		**$5,789**

CH 2. Storm Inspection and Response

Labor	Cost per Unit	Total
Crew (2 people- x 5 days)	$200	$2,000
Crew Leader (GS-12 x 2 days)	$450	$900
Vehicle - Pick ups (1)	$0.60	$540
Materials and Supplies		$500
Total		**$3,940**

Native and Naturalized Plant Communities:

Total cost of treating 38 acres of dozer lines, hand lines, drop point, spike camps, and helispots related to suppression repair activities is $4,748. Costs associated with EDRR on 67 acres of moderate-to-high severity burn areas near known vector corridors and existing infestation is $1,942. Costs associated with the installation of Boot Brush Stations at two wilderness trailheads within the burned area to minimize weed introduction is $1,918, for a total cost of $8,608.

LD 1 - Suppression Repair EDRR

Item	Unit	Unit Cost	# of Units	Cost
GS-5 Technician	day	$150	7	$1,050
GS-5 Technician	day	$150	7	$1,050
GS-11 District Range/Weed Specialists - coordination & reporting	day	$431	4	$1,724
Vehicle mileage for Carson RD*	mile	$0.60	840	$504
Vehicle mileage for Bridgeport RD**	mile	$0.60	700	$420
Total Treatment Costs:				**$4,748**

LD 2- BAER-Specific EDRR Cost Per Day

Item	Unit	Unit Cost	# of Units	Cost
GS-5 Technician	day	$150	3	$450
GS-5 Technician	day	$150	3	$450
GS-11 District Range/Weed Specialist - coordination & reporting	day	$431	2	$862
Vehicle mileage for Bridgeport RD**	mile	$0.60	300	$180
Total Treatment Costs:				**$1,942**

LD 3- Boot brushes at wilderness trailheads

Item	Unit	Unit Cost	# of Units	Cost
Boot Brush Station w/ Interpretive Panel	station	$525	2	$1,050
Wooden posts, bases and hardware	installation	$60	2	$120
GS-5 Recreation Technician	day	$160	2	$320
GS-5 Recreation Technician	day	$160	2	$320
Vehicle mileage for Bridgeport RD	mile	$0.60	180	$108
Total Cost for FY2021				**$1,918**

Cultural and Heritage Resources:

Total Cultural and Heritage Resource Protection Costs: **$26,530**

CR-1 Heritage Protection Signs

Personnel Services:	**Cost**
One GS-11 @ $458/day x 2 days	$916
Materials and Supplies:	
Signs and posts (10 signs/post)	$220
Travel Cost:	
Use Rate of $0.44/mile @ 300 miles (150 miles/day)	$132
Total Treatment Costs:	**$1, 268**

CR-2 Erosion Abatement

Personnel Services:	**Cost**
Days for FS personnel to pack or outside packing options estimate	$4,000
FS personnel assistance for installation (2 GS-11s @ $458/day x 3 days)	$2,748
Remove logs that have fallen across trail prism (5 person crew x 3 days)	$3,000
Materials and Supplies:	
Straw wattles, 25-ft sections – 10 sections @ approx. $35/section	$350
Travel Cost:	
Use Rate of $0.44/mile @ 1800 miles (150 miles/day)	$792
Total Treatment Costs:	**$10,428**

CR-3 Protection and Erosion Monitoring

Personnel Services:	**Cost**
Estimated cost to contract Section 106 compliance for BAER treatments	$8,000
One GS-11 @ $458/day x 8 days for overhead and consultations (SHPO and Tribal)	$3,664
One GS-11 @ $458/day x 5 days for monitoring and documentation	$2,290
Travel Cost:	
Use Rate of $0.44/mile @ 2000 miles (150 miles/day) [multiple vehicles]	$880
Total Treatment Costs:	**$14,834**

F. Skills Represented on Burned-Area Survey Team:

☒ Soils ☒ Hydrology ☒ Engineering ☒ GIS ☒ Archaeology
☒ Weeds ☒ Recreation/Trails ☒ Fisheries ☒ Wildlife
☐ Other:

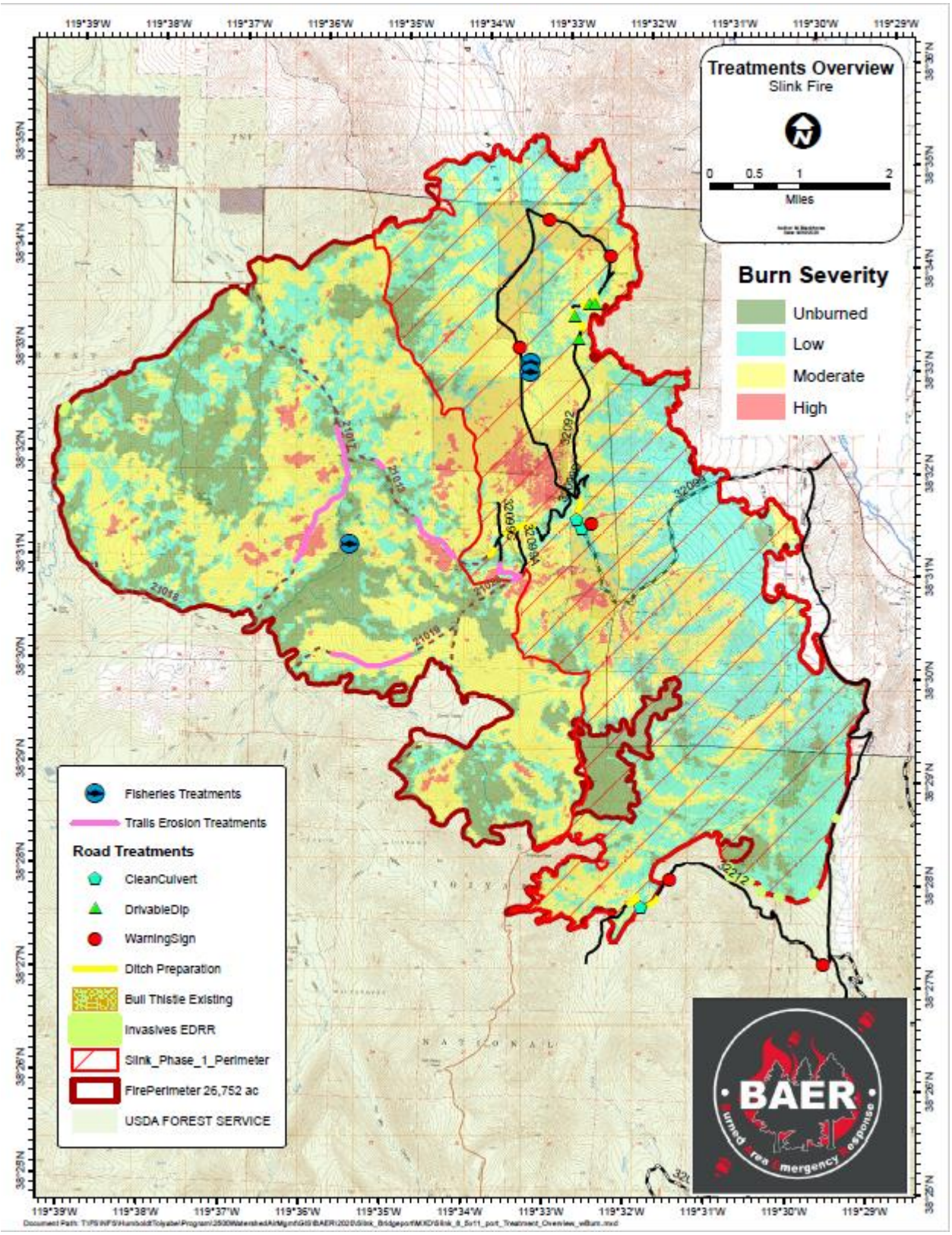
Team Leader: Kendal Young
Email: kendal.young@usda.gov **Phone(s)** Office: 775-355-5313 Cell: 775-276-4659

Forest BAER Coordinator: John McCann
Email: john.mccann@usda.gov **Phone(s):** 775-355-5339

Team Members: *BAER Team Members by Skill*

Skill	Team Member Name
Team Lead(s)	Kendal Young Dirk Netz (trainee)
Soils	Jim Hurja
Hydrology	Brendan Waterman
Engineering	Anita Lusty
GIS	Mariah Blackhorse
Archaeology	Chimalis Kuehn
Botany/Weeds	Tim Kellison
Recreation	Brian Hansen
Wildlife	Rachel Van Horne (aquatics) Maureen Easton (consulted)

Treatment Narrative:



Human Health and Safety:

Entering Burn Area Warning Signs

Warning signs to warn the public that they are entering a burned area and to watch for flooding and hazard trees will be placed Rodriguez Golden Gate road #32099, the Napoleon Canyon road #32092, Slinkard Creek road #32203. and the Lost Cannon Creek road #32212. Likewise burn area warning signs would be placed at trailheads or along trails where the public would be entering burn area hazards.

Hazard Trees Removal
For Cultural Resources, remove hazard trees/logs within treatment work areas associated with erosion stabilization and at junction with the NFS road to obscure trailhead.

Property:

Roads Treatments:
Treatments considered for the transportation system include natural recovery, road closures, minimal road drainage structures, reshaping the crown of the road, preparing ditches for increased runoff, culvert cleaning, and culvert installation. Natural recovery is used as a treatment on the Rodriguez Trailhead road 332099A. the Golden Gate road #32099C, Prospects Spur #32099B, Prospects Spur A #32099A, Prospects Spur D #32099D and Slinkard Creek #32203. Minimal road treatments of cleaning culverts, preparing ditches, and driveable dip construction is recommended for the Rodriguez Golden Gate road #32099, the Napoleon Canyon road #32092 and the Lost Cannon Creek road #32212.

Trail Treatments: Storm proof trail system in high and moderate burn severity classes where slopes can concentrate runoff onto the trail prism. Storm proofing includes creating run off ditches, water bars and removing side bars where needed.

Land Treatments:

Native and Naturalized Plant Communities: EDRR surveys on 102 acres of HTNF lands based on values at risk, current infestation sizes, and areas that were disturbed by suppression activities, resulting in unacceptable risks to natural resources. EDRR surveys will be conducted by HTNF personnel. The weed risk to native plant community recovery can be mitigated at low cost by implementing EDRR within the first year after the fire. New, small weed infestations located during EDRR surveys will be manually treated upon discovery. Existing infestations found to be expanding due to the fire or fire suppression activities would be re-mapped and evaluated for treatment. The installation of Boot Brush Stations at the Snodgrass Creek and Corral Valley Trailheads will reinforce the efficacy of the EDRR surveys already proposed for trailheads and along wilderness trails under the Slink Fire BAER assessment. Boot Brush Stations will provide a quick and simple way for the public and forest personnel to remove unwanted weed seeds and other propagules from their boots prior to entering the burned areas within the C-I Wilderness. In addition, these stations include interpretive panels providing information on invasive plant species and their negative impacts to ecosystems, while highlighting the importance of the Boot Brush in mitigating the potential for impacts. The Snodgrass Creek and Corral Valley Trailheads are located within the fire perimeter along the eastern boundary of the C-I Wilderness, near Rodriguez Flat.

Cultural Resource Stabilization: Place heritage protection signs at high use areas and locally known historic sites to mitigate adverse effects to cultural resources. Ten fiberglass ground driven posts with 3x4 decals are needed. In addition, treatments would physically block and visually obscure a portion of the NHT route where it intersects with FS Rd 212 (Lost Cannon Creek Road) to discourage unauthorized OHV use and collection along the trail. Use on-site timber/brush to create slash to temporarily screen this access while the trail is more exposed. Implement erosion control on at-risk portions of the trail on NFS lands. Use either on-site vegetation slash to lay down on susceptible slopes above the trail feature or, when not available, install straw wattles in drainage areas with risk of erosion. Monitoring is recommended to assess the effectiveness or potential impact of treatments recommended for cultural resources as well as other resource treatments. Monitoring will document changes to the site in terms of artifact and feature composition that indicate archaeological looting, runoff, and flash flooding is occurring and could affect site integrity. The results of monitoring events will be used to determine if additional management action is required to protect these sites. These visits may be designed to incorporate tribal consultation to address specific tribal values in the fire area.

Channel Treatments:

Water Impoundments: Treatment proposed to stabilize the water impoundments includes installing a BDA/lop and scatter type structure above and below the ponds to further slow flow down before and after the pond structures. The BDA type teeth structures would be constructed above and below the ponds using a hydraulic post hole pounder. Lop and scatter woody material (both burned and unburned above the BDA structures to act as “logjam” material for the BDA teeth structures in the event of a debris flow.

Silver King Canyon Barrier: Crews will inspect the barrier for potential to fail and conduct minor techniques consistent with wilderness values to ensure pre-fire conditions can withstand expected sediment and erosion delivery. Post-storm inspection and response will occur to determine if natural recovery is meeting the site-specific objective of ensuring that the post-fire condition doesn't lead to connectivity between occupied, critical PCT habitat and non-native fish habitat. If damage or decreased effectiveness is identified, follow-up treatment will be considered.

I. Monitoring Narrative: N/A

PART VI – EMERGENCY STABILIZATION TREATMENTS AND SOURCE OF FUNDS

			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										
LD-1 EDRR - Suppression	acre		38	4,748	0		0		0	$ 4,748
LD-2 EDRR- Non-Suppression	acre		67	1,942	0		0		0	$ 1,942
LD-3 Boot Brushes (Wilderness)	Project			1,918	0		0		0	$ 1,918
CR-1 Heritage Protection Signs	Project			1,268	0		0		0	$ 1,268
CR-2 Cultural Site Stablization	Project			10,428	0		0		0	$ 10,428
CR-3 Protect. & Erosion Mon.	Project			14,834	0		0		0	$ 14,834
Subtotal Land Treatments				35,138	0		0		0	$ 35,138
B. Channel Treatments										
CH-1 Channel Stabilization	Project			5,789	0		0		0	$5,789
CH-2 Storm Insp.&Resp.	Project			3,940	0		0		0	$3,940
Subtotal Channel Treatments				9,729	0		0		0	$9,729
C. Road and Trails										
RD-1 Road Stabilization	Project		1	17,301	0		0		0	$17,301
TR-1 Trail Stabilization	Project		5	11,902	0		0		0	$11,902
Subtotal Road and Trails				29,203	0		0		0	$29,203
D. Protection/Safety										
PS-1 Hazard Warning (Roads)	Project			5,262	0		0		0	$5,262
PS-2 Hazard Warning (Trails)	Project			2,200	0		0		0	$2,200
PS-3 Hazard Tree Removal	Project			4,000	0		0		0	$4,000
Subtotal Protection/Safety				11,462	0		0		0	$11,462
E. BAER Evaluation										
Initial Assessment	Report			69,206.00	0		0		0	$69,206
Subtotal Evaluation				69,206	0		0		0	$69,206
F. Monitoring										
Subtotal Monitoring				-	0		0		0	$0
G. Totals				85,532	0		**0**		**0**	**$85,532**
Previously approved										
Total for this request				**85,532**						

PART VII - APPROVALS

1. WILLIAM DUNKELBERGER Digitally signed by WILLIAM DUNKELBERGER Date: 2020.09.30 11:19:09 -07'00' 9/30/20

Forest Supervisor Date