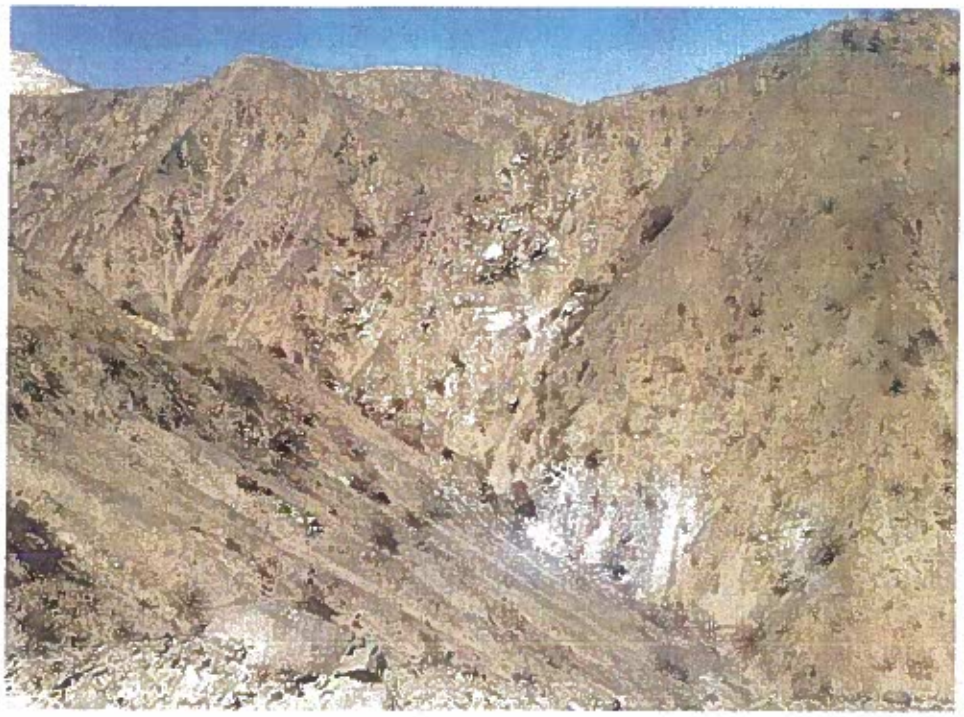
USDA-FOREST SERVICE

FS-2500-8 (6/06)
Initial Request
Date of Report: July 9, 2016

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: Fish Fire

B. Fire Number: CA-ANF-002419

C. State: CA

D. County: Los Angeles

E. Region: 05

F. Forest: Angeles National Forest

G. District: 52

H. Fire Incident Job Code: P5KA89

I. Date Fire Started: June 20, 2016

J. Date Fire Contained: July 5, 2016

K. Suppression Cost: $5.2 million

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 3 miles of hand line, 11 miles of dozer line
2. Fireline seeded (miles): None
3. Other (identify): None

M. Watershed Number: HUC 12: 180701060601 (Santa Fe Flood Control Basin-San Gabriel River), 180701050302 (Santa Anita Wash- Rio Hondo)

N. Total Acres Burned: 4223
NFS Acres (2668) State (640) Private (915)

O. Vegetation Types: Mixed Chaparral, Canyon/Coast Live Oak Woodland, Coastal Sage Scrub, Riparian Willow Scrub.

P. Dominant Soils: Trigo family, granitic substratum, 60 to 90 percent slopes (**35%**); Vista-Trigo, granitic substratum-Modesto families complex, 40 to 70 percent slopes (**30%**); Trigo, granitic substratum-Exchequer families-Rock outcrop complex, 60 to 100 percent slopes (**29%**)

Q. Geologic Types: The burned area is located in the Transverse Province, on the southern flanks of the San Gabriel mountain range. The San Gabriel Mountains are an east-west range bounded by the San Andreas and San Gabriel faults. Primary rock types are Precambrian and Cretaceous gneisses and granodiorite granitics, which produce toppling rockfall failures.

R. Miles of Stream Channels by Order or Class: Perennial = 0 miles, Intermittent = 0 miles, Ephemeral=18.5 miles

S. Transportation System

Trails: 3 miles Roads: 7.8 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 168 (4%) (unburned), 924 (22%) (low), 2863 (68%) (moderate), 268 (6%) (high)

B. Water-Repellent Soil (acres): 3378 (**80%** of fire has water repellency)

C. Soil Erosion Hazard Rating (acres):
xx (low) xx (moderate) xx (high) xx (very high)

D. Erosion Potential after fire: 15 tons/acre Erosion potential before fire: 1.5 tons/acre

E. Sediment Potential: reported as tons per acre in D.

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years):	3-10
B. Design Chance of Success, (percent):	75
C. Equivalent Design Recurrence Interval, (years):	2
D. Design Storm Duration, (hours):	1
E. Design Storm Magnitude, (inches):	0.96
F. Design Flow, (cubic feet / second/ square mile):	23
G. Estimated Reduction in Infiltration, (percent):	50
H. Adjusted Design Flow, (cfs per square mile):	80

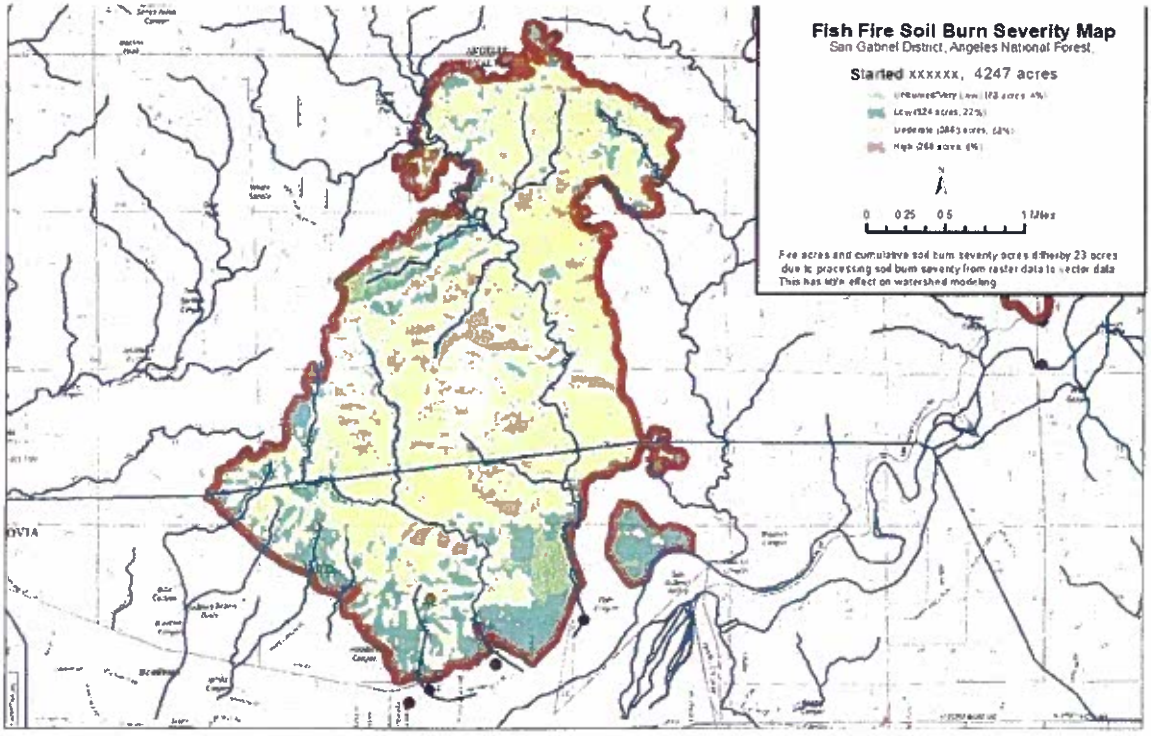
PART V - SUMMARY OF ANALYSIS

Background
The Fish Fire began on Monday, June 20, 2016, on private lands, but driven by steep terrain and low relative humidity the fire quickly spread onto land administered by the San Gabriel River Ranger District, Angeles National Forest. At its height, nearly 1,000 firefighters and support personnel were assigned to the fire, with a very steep ramp up of resources.

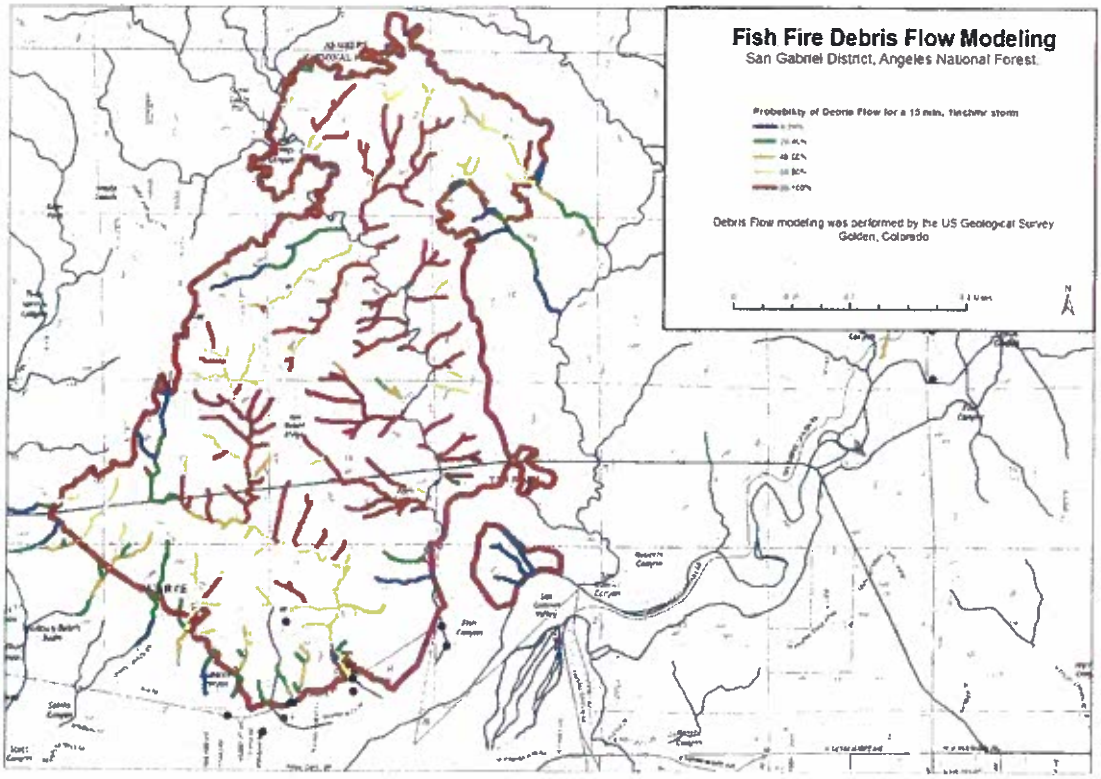
Approximately 70% of the burn area burned at a high and moderate soil burn severity (see soil burn severity map below). The rest of the fire was either low or very low soil burn severity. It is very important to understand the difference between *fire intensity* and *burn severity* as discussed by fire behavior, fuels, or vegetation specialists, and *soil burn severity* as defined for watershed condition evaluation in BAER analyses. Fire intensity or burn severity as defined by fire, fuels, or vegetation specialists may consider such parameters as flame height, rate of spread, fuel loading, thermal potential, canopy consumption, tree mortality, etc. For BAER analysis, we are not mapping simply vegetation mortality or above-ground effects of the fire, but soil burn severity. Soil burn severity considers additional surface and below-ground factors that relate to soil hydrologic function, runoff and erosion potential, and vegetative recovery.

In addition to having a high percentage of high and moderate soil burn severity, the fire burned on steep slopes that have inherently high soil erosion hazards. The fire effects are expected to increase the high erosion hazard due to loss of vegetation canopy, effective ground cover, and formation of water repellent soil layers at varying depths. The burned, steep drainages have the ability to generate sudden releases of storm runoff at high velocities. The ensuing runoff from storm events can also erode and mobilize sediments and debris stored at the base of the slopes and in channel bottoms, leading to major deposition of sediment along the lower reaches and possibly into the San Gabriel Wash (see debris flow modeling map below).

Fish Fire Soil Burn Severity Map:



Fish Fire Debris Flow Modeling Map:



A. Describe Critical Values/Resources and Threats:

The risk matrix below, Exhibit 2 of Interim Directive No.: **2520-2010-1**, was used to evaluate the Risk Level for each value identified during the 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**

Values at Risk and Risk Matrix Table[1]

Risk Type	Value at Risk	Potential Threats	Owner ship	Probability of Damage	Magnitude of Conseq	Risk	Forest Service Treatment Method
Life/ Property	Van Tassel Rd. (1N36)	Rock fall, debris flow, flooding	SCE/ City of Duarte	very likely	major	very high	coordination with SCE/City of Duarte
Life/ Property	Van Tassel Rd. (1N36A)	Rock fall, headcutting	USFS	likely	minor	low	none
Life/ Property	Fish Canyon Rd. low water crossing	debris flow, flooding	County	very likely	major	very high	coordination with NRCS/LA County
Life/ Property	Fish Canyon Falls Trail (10W13)	Rock fall, debris flow, flooding	USFS & City of Duarte	very likely	major	very high	closure and signage
Life/ Property	Unauthorized Trail between Stone Cabin Flat (1N29) & Silverfish (2N28) rds	Rock fall, debris flow, hazard trees	USFS	very likely	major	very high	signage
Life/ Property	Royal Oaks Ranch	Rock fall, debris flow, flooding	Pvt	very likely	major	very high	coordination with NRCS/NOAA/LA County
Life/ Property	Brookridge Road Residences	Rock fall, debris flow, flooding	Pvt	possible	major	high	coordination with NRCS/NOAA/LA County
Life/ Property	Marselino Horse Ranch	Rock fall, debris flow, flooding	Pvt	very likely	major	very high	coordination with NRCS/NOAA
Life/ Property	Greenbank Road Residences	debris flow, flooding	Pvt	likely	major	very high	coordination with NRCS/NOAA/LA County
Life/ Property	Melcanyon Road Residences	debris flow, flooding	Pvt	very likely	major	very high	coordination with NRCS/NOAA/LA County
Life/ Property	Valleyview Elementary School	debris flow, flooding	City/Cou nty	possible	major	high	coordination with NRCS/NOAA/LA County
Life/ Property	Debris Basins south of fire in City of Duarte	debris flow, flooding	LA County	TBD by LA County	TBD by LA County	TBD by LA County	coordination with LA County
Life/ Property	Van Tassel Canyon Levee	debris flow, flooding, compromised structure	LA County	very likely	major	very high	coordination with NRCS/ LA County

Life/ Property	Vulcan Mine	Rock fall, debris flow, flooding	Pvt	possible	major	high	coordination with Vulcan/NRCS
Life/ Property	Unauthorized Encampments in San Gabriel Wash	debris flow, flooding	ACOE/ County	likely	major	very high	coordination with LA County/ACOE
Natural Resources	Vegetation Recovery	Invasive plants	USFS	likely	major	very high	weed detection/rapid response
Natural Resources	Soil productivity/ ecosystem recovery	Erosion and unauthorized OHV	USFS	likely	moderate	high	OHV barriers
Natural Resources	Water Quality	Debris/ sediment	USFS	likely	minor	intermediate	coordination with NRCS/ LA County
Natural Resources	SW Willow Flycatcher	debris flows, flooding, habitat loss	ACOE/ County/ USFWS	possible	moderate	intermediate	coordination with USFWS/ACOE

Note: Only values at risk greater than intermediate will be addressed below. County and private property requires interagency coordination.

Threats to Life and Property

The combined factors of severely burned watersheds directly above private property, large volumes of loose, stored sediment in channels and on the steep slopes, moderate and high soil burn severity with water repellency, and the location of property in the floodplain directly below those watersheds indicate a high risk to life and property creating an emergency situation. Hikers, mountain bikers, and equestrians are also at risk from rock fall, hazard trees, debris flows and washouts while traveling along the Fish Canyon Falls Trail, Silverfish Trail and roads within the burn area. Similarly, motor vehiclists and other travelers are also at a high risk from debris flows, rock fall, and flooding along Forest Service, County, City and private roads.

Royal Oaks Ranch, Marselino Horse Ranch, Melcanyon Road Residences and Greenbank Road Residences

Probability of Damage or Loss: Very Likely and Likely (for Greenbank). The hydrologic post fire response, debris flow potential and rock fall hazard are all expected to be quite significant for these areas.

Magnitude of Consequence: Major. There could be substantial damage to property and loss of life or injury as a result of the post fire watershed response in these areas.

Risk Level: Very High. The BAER team recommends these land owners work directly with the NRCS, LA County and the City of Duarte to develop evacuation plans and potential point treatment to directly protect life and property. The BAER team has contacted NOAA with the pertinent information to issue burn area storm warnings.

Brookridge Road Residences and Valley View Elementary School

Probability of Damage or Loss: Possible. Given the predicted hydrologic post fire response and debris flow potential it is possible the Van Tassel Canyon levee/berm structure could be compromised, which would impact the Brookridge Road residences. Modeling also shows that it is possible that flooding and debris flows could impact the Valley View School property.

Magnitude of Consequence: Major. There could be substantial damage to property and loss of life or injury as a result of the post fire watershed response in these areas.

Risk Level: High. The BAER team recommends these land owners work directly with the NRCS, LA County and the City of Duarte to develop evacuation plans and potential point treatment to directly protect life and property. The BAER team has contacted NOAA with the pertinent information to issue burn area storm warnings.

Van Tassel Canyon Levee

Probability of Damage or Loss: Very Likely. Given the predicted hydrologic post fire response and debris flow potential it is possible the Van Tassel Canyon levee/berm structure could be compromised, especially given that the berm is already experiencing undercutting at the base and rilling on the top of the structure.

Magnitude of Consequence: Major. There could be substantial damage to property and loss of life or injury as a result of the post fire watershed response and subsequent failure of the levee.

Risk Level: Very High. The BAER team has contacted LA County regarding this risk.

Vulcan Mine

Probability of damage or loss: Possible. Given the predicted hydrologic post fire response and debris flow potential it is possible that structures or equipment in the floodplain of Fish Canyon may be damaged.

Magnitude of consequences: Major. There could be substantial damage to property and loss of life or injury as a result of the post fire watershed response in these areas.

Risk Level: Very High. The BAER team recommends the land owner work directly with the NRCS and LA County to develop evacuation plans and potential point treatment to directly protect life and property. The BAER team has contacted NOAA with the pertinent information to issue burn area storm warnings and met with Vulcan to discuss possible risks.

Unauthorized Encampments in San Gabriel Wash

Probability of damage or loss: Likely. Given the predicted hydrologic post fire response it is likely that encampments in the wash area may experience flooding and increased sedimentation.

Magnitude of consequences: Major. There could be substantial damage to property and loss of life or injury as a result of the post fire watershed response in these areas.

Risk Level: Very High. The BAER team recommends coordination between Army Corp of Engineers and LA County to inform encampment dwellers of potential risks post fire and to develop evacuation plans.

Van Tassell and Fish Canyon Roads

Probability of damage or loss: Very likely. As a result of the burned watersheds it was determined that it's very likely that several drainage features at road crossings will be inadequate to handle post burn increased water flows and additional movement of sediment down slope and into these drainage features, causing water/debris/sediment to divert over and down the roadways. This could lead to road washouts and compromising of the roadbed.

Magnitude of consequences: Major. This is considered a high risk to life and safety of the public, permittees and personnel accessing some areas of the burn by the roads. There is a risk of flash flooding, movement of sediment down slope, rock and tree fall, and road prism wash outs.

Risk Level: Very High. The BAER team recommends coordination with SCE, City of Duarte and LA County to discuss potential flooding and debris flow impacts to these roads.

Fish Canyon Falls and Silverfish Trails

Probability of Damage or Loss: Very Likely. This determination is due to increased rock fall, sedimentation, hazard trees, erosion rates and debris flow potential already occurring post fire on the very steep slopes above the trails.

Magnitude of Consequence: Major. Though it is very unlikely hikers will be out along the trails during rain events and the closure of the area will be implemented, if someone is on either of the trails there is a chance they could experience significant harm or mortality.

Risk Level: Very High. The BAER team recommends closure and hazard signage for these trails.

Threats to Ecosystem Stability/Soil Productivity

Within the fire perimeter, Moderate soil burn intensity dominated the landscape at 68 percent. Twenty two percent of the area burned with Low soil burn intensity, 6 percent burned High and 4 percent of the fire burned did not burn or burned at Very Low Severity. Post-fire field surveys indicate that over 90 percent of vegetation cover was consumed during the fire regardless with burn intensities of moderate and high (Figure 1).

On average, there is 30 to 50 percent effective soil cover consisting of surficial gravel, large rock fragments and charred litter. There is high potential of increased surface erosion resulting from the fire

The slopes are steep, averaging 68%, and have been stripped of the vegetation, much of the soil that is predicted to erode is and continues to dry ravel and load the channels with thick deposits of surface soil. This soil is quickly available for transport during critical precipitation events.

Water repellency is very strong in this fire. Water drop tests show that it is commonly taking 3-5 minutes for water to infiltrate. Although water repellency is natural, the combination of soil cover removal, drought, and fire effects increases peak flows and subsequently the risk of damaging floods and debris flows.

According to the US Geological Survey debris flow modeling, there is a High risk of debris flows occurring (15min, 1"/hr storm) throughout the fire area. Areas of particular concern are within the Las Lomas neighborhood, including the Royal Oak (previously Encanto) horse ranch, which are situated at the base of Van Tassel Canyon. For many of the canyons that terminate at the neighborhood, there is a 40-80% chance of a debris flow occurring with the design storm. The horse ranch is at particular risk with a 60-80% chance of a debris flow occurring. Field observations concur with the risk assessment. In Van Tassel Canyon there is evidence of previous large debris flow embankments above the low water crossing of road 1N36. Below the road, however, the channel was cleared of all evidence of debris flows. A berm constructed of what appears to be unconsolidated gravel complicates the risk. This berm prevents access to the natural alluvial fan where Tannencrest Drive, Brookridge Road, and associated roads are situated. The berm has also recently experienced undercutting from previous pre-fire flows. Because the berm is at an acute angle to normal flow, there is a risk that this berm could fail, increasing flooding hazard to these areas.

Fish Canyon was not rated for debris flow potential. Discussing this issue with Dennis Staley of the USGS, the contributing drainage of this canyon is too large for the model parameters. It is important to point out that the drainage has a very low gradient of 1-3 percent for over 3 miles; according to Dennis Staley, debris flow material begins to lose energy and drop out of flow at approximately 7%. This would make the mouth of Fish Canyon primarily a flooding hazard from the main stem of Fish Creek and a debris flow hazard from side canyons upstream and including Fern Canyon. Nearly all side drainages are at an 80-100% risk of debris flows in the mid to north part of the fire posing substantial risk to cross country adventure seekers.

Probability of Damage or Loss: Likely. This determination is due to the change in watershed response causing sheet and rill erosion of topsoil. There is also a potential for unauthorized off-highway vehicle use within the dozer lines leading to the burn that could be highly detrimental to vegetation recovery, encouraging noxious weed invasion.

Magnitude of Consequence: Moderate. This determination is due to the change in watershed response causing erosion of topsoil in a fire-adapted ecosystem.

Risk Level: High. The BAER team recommends installation of OHV barriers to encourage vegetation recovery, limit weed invasion and protect soil structure. Because of the steep slopes, other treatments to reduce erosion risks are neither economically feasible nor effective. It was also determined that increased hydrophobicity and channel loading of sediment will increase the risk for other evaluated VARs downstream of the fire area.

Threats to Vegetation Recovery

Increase in Noxious Weed Populations: An emergency exists with respect to vegetative recovery as a result of the threat of post-fire weed introduction and spread. The unknowing introduction and dispersal of invasive weeds into areas disturbed by fire suppression and rehabilitation has the potential to establish large and persistent weed populations. In addition, it is highly likely that existent weed infestations along fuelbreaks will increase in the burn area due to their accelerated growth and reproduction and a release from competition with natives. These weed populations could affect the structure and habitat function of native plant communities within the burn area. It is expected that most native vegetation would recover if weed invasions are minimized. Approximately 11 miles of dozer line were also constructed outside and within the burn perimeter. In addition to causing an increase in weed invasion, the disturbances caused by dozer lines are expected to create accelerated erosion and soil compaction that may also inhibit the recovery of native plant populations.

Probability of Damage or Loss: Very Likely. This determination is due to the change in watershed response causing sheet and rill erosion of topsoil. There is also a potential for unauthorized off-highway vehicle use within the burn area and dozer lines that will be highly detrimental to vegetation recovery and encourage noxious weed invasion.

Magnitude of Consequence: Major. This determination is due to the high potential for vegetation type conversion to non-native annual grasslands across the burn area, most especially along dozer lines.

Risk Level: Very High. The BAER team recommends early detection and rapid response weed surveys to locate and treat high priority infestations.

Threats to Cultural Resources

None

B. Emergency Treatment Objectives:

• Provide for Public Safety– Ensure communication of potential post fire values at risk has occurred. Reduce threat to life and safety by closing hazardous areas and roads until watershed stabilization has occurred and/or the threats/hazards have been removed. Re-evaluate the burned area before lifting the closures. Further reduce threat to life and safety by installing and maintaining educational/safety signing in hazardous areas and roads until watershed stabilization has occurred and/or the threats/hazards have been removed.

• Limit Damage to Property- Private residences/businesses and roads within and downstream of the burn area are at greater risk from flash flooding and sedimentation after the fire. The treatment objective is to increase the awareness of the private property owners, Natural Resource Conservation Service (NRCS), LA County, and other agencies of the potentially hazardous conditions resulting from the fire.

• Noxious Weeds - Reduce the potential for impaired vegetative recovery and introduction/spread of noxious weeds by conducting detection surveys/rapid response and preventing unauthorized OHV.

• Road and Trail Treatments – Objective is to improve road drainage to protect the road system. Reduce erosion from the road surface and sediment delivery to stream channels. Reduce the threat to life and safety for road and trail users by implementing closures and installing hazard signs.

• Limit loss of soil productivity –Objective is to decrease rates of runoff water and erosion by conducting invasive species removal, area closure, and OHV barrier installation.

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

Land **90** % Channel **0**% Roads/Trails **90** % Protection/Safety **90** %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	90%	80%	N/A
Channel	N/A	N/A	N/A
Roads/Trails	90%	75%	70%
Protection/Safety	90%	80%	75%

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

F. Cost of Selected Alternative (Including Loss):

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Katie VinZant: Angeles National Forest

Email: kvinzant@fs.fed.us Phone: (626) 383-1626 FAX: (626) 574-5207

Core Team
Eric Nicita (Soils/GIS)
Kelsha Anderson (Hydrologist)
Nathan Sill (Wildlife)
Mark Russell (Engineering trainee)
Dave Peebles (Archaeologist)
Katie VinZant (Botany)
Cliff Johnson (Engineering)

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:

Noxious Weed Detection and Rapid Response

Weed detection surveys and rapid response eradication treatments are to determine whether ground disturbing activities related to the Fish Incident and the fire itself have resulted in new or the expansion of existing noxious weed infestations. With 11 miles of dozerline, 3 mile of handline, 3 miles of trail, 19 miles of riparian corridors in the fire it is expected that new and expanding weed infestations will proliferate in and along these vectors if left unchecked, eventually leading to vegetation type conversion. Surveys and rapid response eradication treatments will begin in 2017 during the flowering periods of weed species. Because of differences in flowering times for all potential species, two visits will be required during the growing season. If timing is such that all the target species are detectable/treatable in one visit, the actual costs would be lower than displayed below. Completion of surveys in riparian areas, dozer lines, roads, staging areas, safety zones, and known invasive plant populations would be the first priority. The second survey priorities would be along handlines and drop points. Surveys of the general habitats in the burned area would be the lowest priority. Detailed weed detection survey guidelines are attached in Appendix A.

Weed Detection and Rapid Response Cost

Item	Unit	Unit Cost	# of Units	Cost
1 GS-11 botanist	Days	$400	2	$800
4 GS-7 weed technicians	Days	$225	15	$13,500
Supplies	Each	$1,000	1	$1,000
Vehicle gas mileage	Miles	$0.55	1500	$825
Vehicle Lease	Month	$600	0.75	$400
			Total Cost	**$16,525**

Road and Trail Treatments: covered under Protection/Safety Treatments

Protection/Safety Treatments:

Interagency Coordination
Interagency coordination started during the fire and continued throughout the BAER Assessment and is a critical component to the BAER process. Continuing this coordination by providing the BAER Assessment Report, specialist reports and attending meetings is anticipated.

Interagency Team Cost

Item	Unit	Unit Cost	# of Units	Cost
BAER Coordinator/Hydrologist	Days	$400	6	$2,400
Special Uses Administrator	Days	$450	1	$450
Vehicle mileage	Miles	$0.55	500	$275
			Total Cost	**$3,125**

Barriers for Unauthorized Off Road Vehicle Use and Protection Monitoring
Unauthorized access is a threat to the burned watershed due to the dozerlines created for the fire. The ANF is the most urban Forest in the nation with one of the highest use levels. The challenge for the ANF is managing the high number of users who gain unauthorized access to the Forest by driving/riding/entering through or around a locked gate or closure sign. This type of unmanaged use can cause damage to natural resources. In order to manage OHV potential access onto dozerlines and the burned area, the BAER team requests funding to purchase and install no-dig barriers, which have been proven to be effective and cost efficient barriers on the ANF in past fires.

Through past BAER experience, the ANF has determined that signage, barriers and other hard closures that are installed to discourage soil disturbance and assist in allowing natural vegetative recovery are not effective by themselves. Patrolling within and adjacent to the burn area is needed to enforce the closure and deter unauthorized access, vandalism, and damage to National Forest System lands. The following treatment is needed.

OHV Barrier Installation and Cost

Item	Unit	Unit Cost	# of Units	Cost
No-digs barrier materials	Each	$36.25	110	$3,988
Installation Supplies	Each	$100	1	$100
Labor (4 GS 5 Techs)	Days	$800	8	$6,400
GS-5 OHV - FPO	Day	$225	30	$6,750
Mileage	Miles	$0.55	400	$220
			Total Cost	**$17,458**

Human Life and Resource Protection (Fire Area and Trails Closure/Warning Signs)
To ensure safety for Forest visitors and protection to Forest resources during the recovery period, fire area closure and warning signs will be placed at trailheads and road locations adjacent and within the fire perimeter. Given the typical amount of vandalism on the ANF, it is likely signs will need to be checked and replaced periodically.

Forest Infrastructure: To protect life and property associated with the public use of the hiking trails and roads within and downslope/downstream of the Fish Fire, the BAER Assessment Team recommends the temporary closure of the burn area to all recreational users. The closures will be accomplished by various means such as

placement of signs and informing the public at strategic locations of access points outside and within the fire perimeter which will effectively close off the burn area.

Closure and Hazard Signage (Trails, Roads, and Recreation Areas)

Item	Unit	Unit Cost	# of Units	Cost
GS-11 Recreation Officer	Day	$360	1	$360
2 GS-5 Recreation Technicians/ FPO	Days	$440	4	$1760
Trails closure signs (12"x 18") Hi density plastic.	Each	$6	50	$300
Area closure signs (14" x 20")	Each	$33	10	$330
Posts and hardware	Each	$18	50	$900
Vehicle mileage	Miles	$.55	400	$220
Vehicle FOR	Month	$350	0.5	$175
Total Cost				**$4,045**

Part VI – Emergency Stabilization Treatments and Source of Funds **Initial**

Click red icons for notes.	NFS Lands					Other Lands				Money Left
Line Items	**Units**	**Unit Cost**	**# of Units**	**BAER $**	**Spent $**	**# of Units**	**Fed $**	**# of Units**	**Non Fed $**	**Total $**
A. Land Treatments										
NX Weed Det. Surv.	Ea	16,525	1.0	$16,525	$0		$0		$0	$0
Subtotal Land Treatments				$16,525	$0		$0		$0	$0
B. Channel Treatments – none										
				$0	$0		$0		$0	$0
Subtotal Channel Treatments				$0	$0		$0		$0	$0
C. Road and Trails-none										
Subtotal Road & Trails				$0	$0		$0		$0	$0
D. Protection/Safety										
Interagency Coordination	ea	$3,125	1	$3,125	$0		$0		$0	$0
Closure & Hazard Signage	ea	$4,045	1	$4,045	$0		$0		$0	$0
OHV Barriers	ea	$10,708	1	$10,708	$0		$0		$0	$0
Subtotal Protection				$17,523	$0		$0		$0	$0
E. BAER Evaluation										
Assessment Team	0520	H5BAER	---	---	$17,000	---	$0	---	$0	$0
	---	---	---	---	$0	---	$0	---	$0	$0

Subtotal Evaluation	---	$17,000	---	$0	---	$0	$0
F. Monitoring							
Subtotal Monitoring	0	$0		$0		$0	$0
G. Totals	**$34,048**	**$0**		**$0**		**$0**	**$0**
Previously approved			Comments:				
Total for this request	**$34,048**						

PART VII - APPROVALS

1. for Forest Supervisor (signature) — Date: 7/14/16

2. Regional Forester (signature) — Date: 8/4/2016

Appendix A

NOXIOUS WEED DETECTION SURVEY PLAN

Fire Name: Fish Fire Month/Year: July 2016
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A. Background

Forest Service policy mandates the Forest to minimize the establishment of non-native invasive species to prevent unacceptable degradation of the burned area. It is necessary to conduct noxious weed detection surveys to evaluate the potential for spread from both existing populations and from the activities associated with fire suppression. Therefore, noxious and invasive weed detection surveys are proposed for the first year following the fires to verify the suspected infestations and determine the fires' potential impact on weed populations within the burned area. Wild oats (*Avena* spp.), ripgut brome (*Bromus diandrus*), red brome (*Bromus madritensis*), cheatgrass (*Bromus tectorum*), tocalote (*Centaurea melitensis*), shortpod mustard (*Hirschfeldia incana*), tree tobacco (*Nicotania glauca*), castor bean (*Riccinus communis*) and Spanish broom (*Spartium junceum*) are known to occur within the burn area and along access routes adjacent to the burn. Many plant dispersal vectors such as Forest roads, high winds, and waterways occur within the fire area. Even though a weed washing station was utilized after five days of suppression activities, seed could have been transported into the burn on suppression vehicles and equipment that arrived on the fire before the washing station was established. Fire is known to enhance the establishment of all weed species present.

B. Management Concerns

Noxious weed invasions interfere with habitat recovery and ecosystem health within burned areas and fire suppression sites. In particular, noxious weeds hinder the recovery of habitat, especially in arid and riparian ecosystems, by aggressive colonization and reduction of water quality and quantity.

C. Objectives

To determine if the fire and associated ground disturbing activities have promoted the establishment and spread of noxious weeds to the extent that eradication efforts are necessary. Early detection dramatically increases the likelihood of successful treatment. If weeds are detected, a supplemental request for BAER funds will be made for eradication.

D. Parameters

Noxious weed presence, location, density, population size, and persistence.

E. Locations

In and along roads, dozerlines, handlines, drop points, safety zones, riparian areas, and adjacent to known invasive plant populations.

F. Weed Detection Survey Design and Methodology

Surveys will begin in 2017 during the flowering periods of weed species. Because of differences in flowering times for all potential species, two visits will be required during the growing season. Completion of surveys in roads, dozerlines, riparian areas, staging areas, safety zones, and known invasive plant populations will be the first priority. The second survey priorities will be along hand lines, and drop points. Surveys of the general habitats in the burned area will be the lowest priority. All locations of weed species will be mapped, using the Angeles NF, "Invasive Weeds" list.

Surveying will include documentation and hand pulling/herbiciding new weed occurrences at the time of inspection. New weed occurrences will be pulled to root depth, placed in sealed plastic bags, and properly disposed or sprayed with the appropriate and approved herbicide.

Documentation of new infestations will include:

- Mapping perimeter of new infestations
- Filling out Weed Element Occurrence Form (Appendix A)
- Treatment method required

- Incorporating data into local GIS spatial database
- Entering data into National Resource Information System (NRIS) database
- Entering data into FACTS database
- Evaluating success of treatment in subsequent inspections

G. Reporting

If weed introduction and spread has occurred to the point that funding provided in the detection cost is not sufficient, an interim BAER report will be completed to request eradication funding. Reporting costs are included in figures below.

H. Costs: Weed Detection Surveys for One Year =$16,525.00

Weed detection surveys to determine whether ground disturbing activities related to the Fish Fire have resulted in the expansion of noxious weeds is requested for the first year. Estimated costs are based on the assumption that two visits would be necessary because of the differences in flowering times. If timing is such that all the target species are detectable in one visit, the actual costs would be lower than displayed below.

Estimated Cost:	
1 GS-11 botanist ($400/day x 2 days)	$ 800
4 GS-7 weed technicians ($225/day x 15 days)	$ 13,500
Supplies	$ 1,000
Vehicle Lease ($600/month)	$ 400
Vehicle mileage (1500 miles @0.55/mile)	$ 825
TOTAL	**$ 16,525**

I. Follow-up Actions

Design and implement follow-up treatments as needed. Plan for integrated weed management and NEPA analysis using non-BAER funding.