

USDA-FOREST SERVICE

FS-2500-8 (6/06)

Initial Request

Date of Report: May 19, 2017

BURNED-AREA REPORT

(Reference FSH 2509.13)



PART I - TYPE OF REQUEST

A. Type of Report

- ☒ 1. Funding request for estimated emergency stabilization funds
- ☐ 2. Accomplishment Report
- ☐ 3. No Treatment Recommendation

B. Type of Action

- ☒ 1. Initial Request (Best estimate of funds needed to complete eligible stabilization measures)
- ☐ 2. Interim Report #____
 - ☐ Updating the initial funding request based on more accurate site data or design analysis
 - ☐ Status of accomplishments to date
- ☐ 3. Final Report (Following completion of work)

PART II - BURNED-AREA DESCRIPTION

- A. Fire Name: Sawmill Fire
- B. Fire Number: AZ-A3S-002926
- C. State: AZ
- D. County: Pima
- E. Region: 03
- F. Forest: Coronado National Forest
- G. District: Nogales RD
- H. Fire Incident Job Code: PNKZU4
- I. Date Fire Started: April 23, 2017
- J. Date Fire Contained: May 3, 2017
- K. Suppression Cost: \$8.2 million
- L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 1 mile of hand line,
 2. Fireline seeded (miles): None
 3. Other (identify): None
- M. Watershed Number:
- N. Total Acres Burned: 46,991
NFS Acres (14,951) Other Jurisdictions (32,040)
- O. Vegetation Types: Madrean Encinal Woodland, Desert Grassland, Juniper Woodland, Riparian Cottonwood/Willow Scrub.
- P. Dominant Soils:
- Q. Geologic Types:
- R. Miles of Stream Channels by Order or Class:
- S. Transportation System
- Trails: 0 miles Roads: 44 miles

PART III - WATERSHED CONDITION

- A. Burn Severity (acres): 8,009 (17%) (unburned/very low), 38,528 (82%) (low), 720 (1%) (moderate),
0 (high)
- B. Water-Repellent Soil (acres): (% 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: tons/acre Erosion potential before fire:

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):
- C. Equivalent Design Recurrence Interval, (years):
- D. Design Storm Duration, (hours):
- 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):

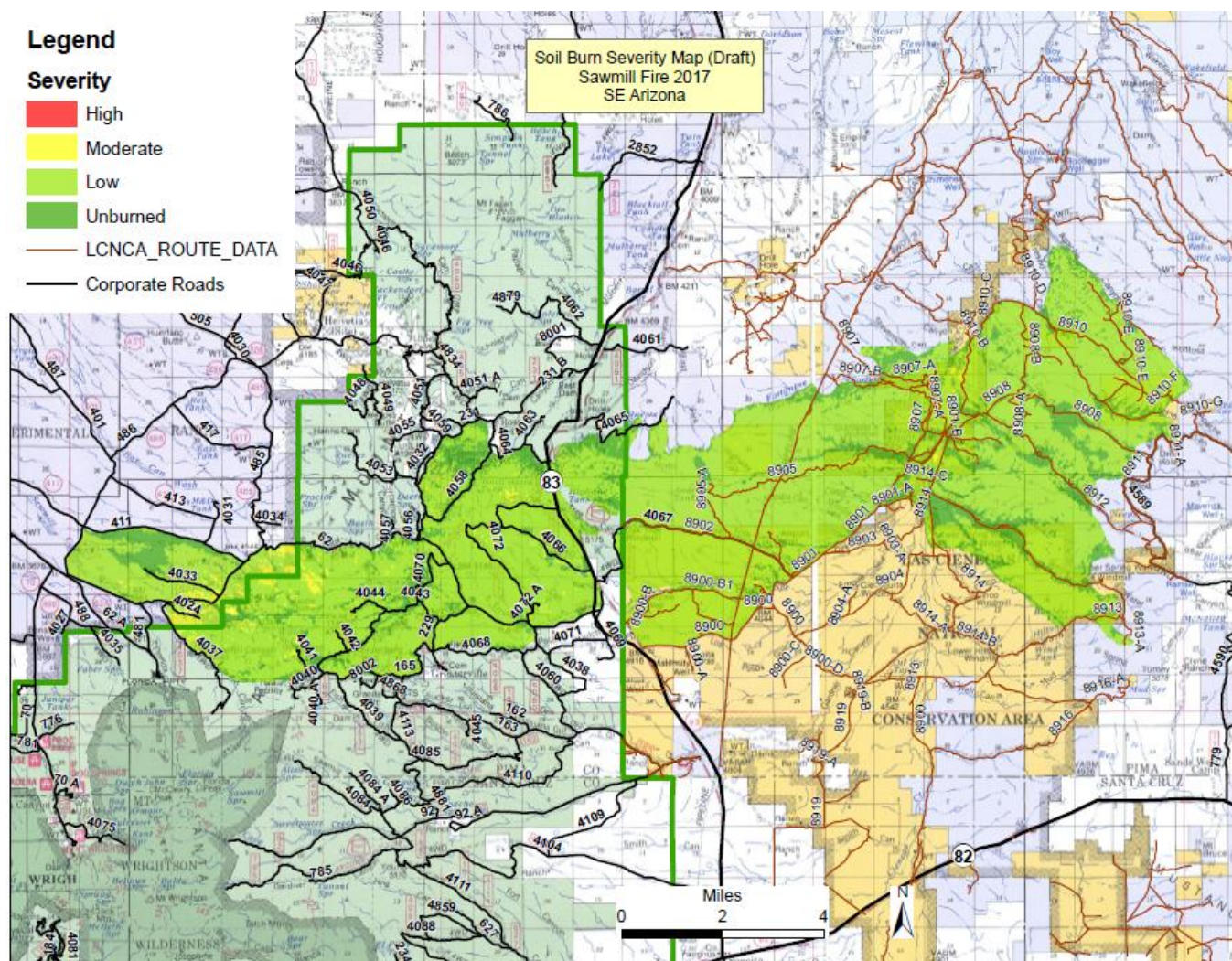
PART V - SUMMARY OF ANALYSIS

Background

The Sawmill Fire started on Sunday April 23rd, 2017 at approximately 11:00 a.m. and burned on lands under the jurisdiction of the Coronado National Forest, Arizona Department of Forestry and Fire Management, Bureau of Land Management and private property. Gusty winds and dissected terrain contributed to the growth of the fire, which burned in tall grass, riparian woodland, mesquite/oak brush, oak woodland, and pinyon-juniper fuel types. There are 46,991 total acres within the fire perimeter, of which 14,951 acres of U.S. Forest Service land were burned. The strategy for the incident was full suppression.

While the overall scale of the fire is large in areal extent, the effects of this fire are generally within the natural range of variability for most of the vegetation types within the burned area, particularly given the frequency of wildfires in the general vicinity of the Sawmill fire. Of the 14,951 acres of NFS land in the Sawmill Fire, there were 3,922 acres (26 percent) that burned at very low soil burn severity or remained unburned, 10,705 acres (72 percent) that burned at low soil burn severity, and 326 acres (2 percent) that burned at moderate soil burn severity. There was no high soil burn severity verified within the burned area.

Sawmill Fire Soil Burn Severity 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

Risk Type	Value at Risk	Potential Threats	Ownership	Probability of Damage	Magnitude of Conseq	Risk	Forest Service Treatment Method
Natural Resources	Vegetation Recovery	Invasive plants	USFS	likely	major	very high	weed detection/rapid response
Natural Resources	Chiricahua leopard frog	Sedimentation of stock ponds	USFS	unlikely	major	intermediate	none

Threats to Life and Property:

None identified at this time

Threats to Ecosystem Stability/Soil Productivity:

On CNF lands 98% of the burn was mapped as having very low to low soil burn severity. Soils with low burn severity have retained surface structure and at least 25 percent of the original surface organic matter, primarily in the form of partially burned grass crowns, leaves and twigs. Surface organic layers are not completely consumed and are generally still recognizable to species of origin. Soil aggregate stability is not changed from its unburned condition, and fine roots are unchanged because the intensity and duration of heat below the soil surface was not high enough to consume or char any underlying organic matter. The ground surface, including any exposed mineral soil, is generally brown or black (lightly charred), and the canopy and understory vegetation is primarily intact. Fine roots of grasses and forbs remain viable and these plants are expected to recover rapidly when adequate moisture has returned to the soil through monsoon precipitation.

Moderate burn severity shows evidence of longer term soil heating; indicators include surficial char, deeper ash cover, slight damage to soil structure and porosity, and friable fine roots.

Probability of Damage or Loss: Unlikely. This determination is due to the low burn severity and mosaic nature of the burn.

Magnitude of Consequence: Minor. This determination is due to the low probability of soil erosion.

Risk Level: Very Low

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 has the potential to establish large and persistent weed populations. 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.

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 burn area 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 roadsides.

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

Threats to Wildlife Resources

Chiricahua leopard frog: An emergency was not found to exist for the frog as a result of the Sawmill fire. Stock ponds where the frogs have been located did not appear to be at risk from siltation/erosion due to the fire.

Probability of Damage or Loss: Unlikely. This determination is due to the low burn severity and low threat of sedimentation of frog habitat.

Magnitude of Consequence: Major. This determination is due to the rarity of the species and the impact negative alteration of their habitat would have on population viability.

Risk Level: Intermediate

Threats to Cultural Resources

Values at risk assessment ongoing.

B. Emergency Treatment Objectives:

- Provide for Public Safety– Ensure communication of potential post fire values at risk has occurred: Burned Area Map, Report, and shapefiles have been shared with the National Weather Service and Local County Government including Flood Control District.
- Noxious Weeds - Reduce the potential for impaired vegetative recovery and introduction/spread of noxious weeds by conducting detection surveys/rapid response.
- Limit loss of soil productivity –Objective is to decrease rates of runoff water and erosion by conducting invasive species removal.

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:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input type="checkbox"/> Geology	<input checked="" type="checkbox"/> Range	<input checked="" type="checkbox"/> Recreation
<input type="checkbox"/> Forestry	<input checked="" type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input checked="" type="checkbox"/> Engineering	<input type="checkbox"/> Lands
<input type="checkbox"/> Contracting	<input type="checkbox"/> Ecology	<input checked="" type="checkbox"/> Botany	<input checked="" type="checkbox"/> Archaeology	<input type="checkbox"/> Hazmat
<input type="checkbox"/> Fisheries	<input type="checkbox"/> Research	<input checked="" type="checkbox"/> Landscape Arch	<input checked="" type="checkbox"/> GIS	

Team Leader: Salek Shafiqullah: Coronado National Forest

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BAER Team

Salek Shafiqullah (Team Lead, Hydrology)
 Christian Carter (Wildlife)
 Walt Keyes (Engineering)
 Mike Natharius (Soils)
 Rob Ballard (Soils)
 David Watson (Soils)
 Kit MacDonald (Soils)

Katie VinZant (Assistant Team Lead, Botany)
 James Heitholt and Sean Lockwood (Range)
 Debbie Kriegle (Landscape Architect)
 Dave Mehalic (Archeology)
 Angela Barclay (Wildlife)
 Terry Austin (GIS)
 John Titre (Recreation)

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 Sawmill Incident and the fire itself have resulted in new or the expansion of existing noxious weed infestations. With 44 miles of road, 1 mile of handline and 5 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. Monitoring for annual and perennial invasive species that establish with summer rains should be accomplished during mid-late summer and early fall of 2017. For species that establish with winter rains, monitoring should occur during the late spring and early summer of 2018. Completion of surveys in riparian areas, 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

FISCAL YEAR	UNIT	UNIT COST	# OF UNITS	COST
2017	GS-12 Invasive Spp Coordinator	\$400/Day	2	\$2,310
	GS-11 Range Staff/COR	\$330/Day	5	\$1,650
	Summer 2017 IDIQ Rate Road Survey	\$100/Mile	44	\$4,400
	Summer 2017 IDIQ Rate Riparian and Handline Survey	\$350/Mile	6	\$2,100
	Summer 2017 IDIQ Rate by Acre Basis	\$200/Acre	1	\$200
2018	Spring 2018 IDIQ Rate Road Survey	\$125/Mile	44	\$5,500
	Spring 2018 IDIQ Rate Riparian or Handline Survey	\$375/Mile	6	\$2,250
	Spring 2018 IDIQ Rate by Acre Basis	\$225/Acre	1	\$225
TOTAL				\$18,635

Road and Trail Treatments: none

Protection/Safety Treatments:none

Part VI – Emergency Stabilization Treatments and Source of Funds

Initial

Click red icons for notes.	NFS Lands					Other Lands				Money Left Total \$
Line Items	Units	Unit Cost	# of Units	BAER \$	Spent \$	# of Units	Fed \$	# of Units	Non Fed \$	
A. Land Treatments										
NX Weed Det. Surv.	Ea	\$18635	1.0	\$18,635	\$0		\$0		\$0	\$0
Subtotal Land Treatments				\$18,635	\$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										
					\$0		\$0		\$0	\$0
					\$0		\$0		\$0	\$0
E. BAER Evaluation										
Assessment Team	Person/ Day	\$400	--30-	\$12,000		---	\$0	---	\$0	\$0
	---	---	---	12,000	\$0	---	\$0	---	\$0	\$0

<i>Subtotal Evaluation</i>	---		---	\$0	---	\$0	\$0
F. Monitoring							
<i>Subtotal Monitoring</i>	0	\$0		\$0		\$0	\$0
G. Totals	\$30,635	\$0		\$0		\$0	\$0
Previously approved			Comments:				
Total for this request	\$18,635						

PART VII - APPROVALS

1. _____
Forest Supervisor (signature) _____
Date

2. _____
Regional Forester (signature) _____
Date

Appendix A

Invasive Weed Monitoring Plan

Fire Name: Sawmill Fire
Month and Year: May 2017
Prepared by: Katie VinZant, Coronado NF

Background

Forest Service policy mandates the Forest to minimize the establishment of non-native invasive species to prevent short and long-term degradation of burned areas. The combination of denuded soil and disturbance creates conditions highly favorable to invasion by weeds. Invasive weeds hinder the recovery of habitat, especially in arid and riparian ecosystems, by aggressive colonization. Non-native invasive weeds degrade the value of native plant communities for wildlife habitat and watershed function. Once established, non-native species can persist and spread, permanently altering habitat function and ecosystem stability.

Many non-native plants are found in Arizona wildlands, and some are included on the Federal and AZ State Noxious Weed Lists (see Appendix A). Invasive weed detection surveys are proposed for the first year following the Sawmill Fire to determine the fire's impact within the burned area on the spread of existing weed populations, and the introduction of new weed populations resulting from the fire and from activities associated with fire suppression. However, monitoring for at least three years post-fire is necessary due to the highly variable timing and amounts typical of precipitation in southeast Arizona and the episodic establishment of invasive species.

Management Concerns

Fire fighting vehicles and equipment are common vectors that spread non-native invasive weeds. Although Forest Service policy requires washing of all equipment mobilizing onto wildfires to prevent the introduction of weeds into the burned area during suppression activities, it was not conducted during initial attack on this incident.

Crews and equipment working on the fire were brought in from other areas known to have non-native invasive weed problems. In addition, invasive weeds are known to exist along roadsides and on private property near the fire area and within the area of the Incident Command Post. In part because vehicles and equipment were not washed prior to entering fire area, and because vehicles and equipment originated in areas with serious weed infestations, there is a high likelihood that suppression activities on the Sawmill Fire have vectored weed seed from one or more locations both local and regional. Invasive weed seeds may have been introduced to roadsides, staging areas, drop points, and hand lines within the fire area.

Much of the burned area does not have known invasive weed infestations. If new infestations are established, the magnitude of the consequences could be significant and long-term as weed invasions interfere with habitat recovery and ecosystem health. In particular, weeds hinder the recovery of burned habitat, especially in arid and riparian ecosystems, by aggressive colonization and reduction of water quality and quantity.

Survey Objectives

The objective of post-fire weed surveys is to determine if the fire and associated ground disturbing activities have promoted the establishment and spread of weeds and what eradication efforts are necessary. Early detection dramatically increases the likelihood of successful treatment.

Survey Locations

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

Proposed Treatment Areas	
Handlines	1 mile
Riparian Corridors	5 miles
Roads	44 miles

Survey Design and Methodology

Southeast Arizona typically has a bimodal precipitation regime, with approximately 40 percent of rain falling during the winter and the other 60 percent during the summer monsoon. Monitoring for annual and perennial invasive species that establish with summer rains should be accomplished during mid-late summer and early fall of 2017. For species that establish with winter rains, monitoring should occur during the late spring and early summer of 2018.

Completion of surveys along/in roads, 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 Coronado NF, "Invasive Weeds" list.

Surveying will include documentation, mapping and hand pulling/herbiciding small, localized weed occurrences at the time of inspection (funding to treat larger infestations will be requested in a supplemental BAER report). New weed occurrences will be pulled to root depth, placed in sealed plastic bags, and properly disposed or sprayed with appropriate and approved herbicides.

Reporting

Weed survey parameters include survey areas, species, locations, population size, invasive potential (see Appendix B and C).

Documentation of weed infestations will include:

- Record GPS coordinates for both negative and positive inspection results
- Map perimeters of infestations
- Establish photo points
- Complete Weed Monitoring and Treatment Form (Appendix B)
- Complete Weed Occurrence Form (Appendix C)
- Incorporate data into local GIS spatial database
- Enter data into National Resource Information System (NRIS) database
- Enter data into FACTS database
- Monitor and evaluate success of treatment in subsequent years

Costs: Weed Monitoring Surveys for One Year = \$18,635

Funding for weed surveys to determine whether the Sawmill Fire and/or ground disturbing activities related to the fire have resulted in the establishment or expansion of invasive weeds are requested for the first year following the fire. Estimated costs are based on the assumption that two visits would be necessary because of the differences in flowering times.

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