

USDA-FOREST SERVICE

FS-2500-8

Date of Report: **June 23, 2011****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 DESCRIPTIONA. Fire Name: WildcatB. Fire Number: AZ-CNF-011046C. State: AZD. County: Santa CruzE. Region: 3F. Forest: Coronado National ForestG. District: Nogalas Ranger DistrictH. Fire Incident Job Code: 0305 P3F3HCI. Date Fire Started: 5-6-2011J. Date Fire Contained: 5-9-2011K. Suppression Cost: \$330,000

L. Fire Suppression Damages Repaired with Suppression Funds

1. Fireline waterbarred (miles): unknown
2. Fireline seeded (miles): None
3. Other (identify): None

M. Watershed Number: HUC 6 – Harshaw Creek #150503010203N. Total Acres Burned: Total 398 NFS Acres (390) Other Federal – BLM (0) State (0) Private (8)

O. Vegetation Types: The prominent vegetation type within the fire perimeter consisted of broadleaf evergreen woodlands and chaparral communities; to a lesser extent included desert grasslands and riparian vegetation occurring in the major drainages.

P. Dominant Soils:

Soil Series	Slope (%)	Rock Outcrop (%)	Surface Soil Texture	Rock Fragments (%)	Erosion Hazard Rating	K-Factor	Hydrologic Group	Acres
FrF - Faraway-rock outcrop complex, 30 to 60 percent slopes	60	45	Very cobbly, fine sandy loam	24	H	0.10	D	330.9
FrE - Faraway-Rock outcrop complex, 10 to 30 percent slopes	30	35	Very cobbly, fine sandy loam	24	L	0.10	D	57.5

Q. Geologic Types: Alluvium is primarily derived from mix of igneous and sedimentary rock.

R. Miles of Stream Channels by Order or Class: Perennial = 0, Intermittent = 2 miles

S. Transportation System

Trails: 0 miles

Roads: 2 miles

PART III - WATERSHED CONDITION

A. Burn Severity by total and FS (acres):

Soil Burn Severity (Acres)	Acres	Percent
High	0	0%
Moderate	34.8	8.7%
Low	288.6	72.5%
Unburned	74.6	18.8%
Total	398	

B. Hydrophobic Soils: 40 acres. Hydrophobic conditions were inconsistent and are expected to exist in approximately 10% of the fire area or less.

C. Soil Erosion Hazard Rating (acres):

Low	67.1
Moderate	0
High	330.9

D. Erosion Potential: The erosion hazard rating system used predicts that very few areas will have an increase above natural erosion levels as a result of the fire.

E. Sediment Potential:

Summary of Sediment Yield to HUC 6 Watersheds and other pourpoint watersheds
2 year runoff event

Watershed	Area (Mile ²)	Pre Fire Sediment (yd ³ /mile ²)	Post Fire Sediment (yd ³ /mile ²)	Sediment Increase (x Pre Fire)
1. Harshaw Creek	33.1	433	458	8

Watersheds may include multiple fires. See specialist report.

F. Debris Flow Potential: Slopes are gentle for the most part, especially near structures etc that were identified during the BAER survey. Increased risk for debris flows in low. Increased flows from the burned areas may cause increased risk for flooding in the historic town of Harshaw.

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years):	understory forbs and grasses 2-3 years overstory oak woodland 7 – 10 years
B. Design Chance of Success, (percent):	<u>90</u>
C. Equivalent Design Recurrence Interval, (years):	<u>5</u>
D. Design Storm Duration, (hours):	<u>0.5</u>
E. Design Storm Magnitude, (inches):	<u>1.39</u>
F. Design Flow, (cubic feet / second/ square mile):	<u>110</u>
G. Estimated Reduction in Infiltration, (percent):	<u>0</u>
H. Adjusted Design Flow, (cfs per square mile):	<u>114</u>

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

The Wildcat Fire started on May 6, 2011 and is approximately 398 acres in size. The fire includes burned areas within Hermosa Canyon and Harshaw Creek drainages. The Wildcat Fire burned moderately steep areas 10 miles south of Sonoita AZ. The watersheds are characterized by moderately steep rock armored slopes. A residence next to Harshaw Creek was identified that may be at risk to flooding/debris flows from the burned area. Recommendations for this site include an early warning system. Low water crossings on the road system may experience increased flow and/or bed load. Recommend signing all roads accessing the burned area warning of increased hazard during storm events. Recommend notifying NRCS to for final risk assessment on private land.

The climate is arid overall and precipitation in the fire area is moderate, averaging 19.5 inches per year. Rainfall occurs mostly during the summer months with the monsoons when the potential for intense and localized rainfall can occur. Vegetation consists of woodland forest with an overstory dominated by Oak and Mesquite and also desert grasses. The fire burn severity was mostly low overall with a few areas of moderate and unburned severity.

Summary of Watershed Response

Hydrologic Response: The Wildcat Fire has been analyzed by watersheds or pour points at different locations in or downstream of the fire area. Watersheds are various sizes and shapes and are dependent on the analysis of the desired outlet or pour point above a value at risk or area of concern. None of these watersheds are expected to have significant increases in post fire water or sediment yield. This is due to the fact that most of the fire had a low burn severity with small pockets of moderate. Larger rain events do have the potential to increase the risk of flooding and sedimentation, though these risks are present with or without the effects of the Wildcat fire.

Hydrologic design factors used to analyze the effects of the Wildcat fire considered the vegetative recovery period estimated to be 3-5 years; treatment chance of success as 90%. Storm recurrence interval of 5 years and 30 minutes using NOAA Atlas 14 for 5-year-30-minute precipitation yielded a design storm magnitude of 1.39 inches of rainfall. Estimated reduction in infiltration was based on the percentage of hydrophobic soil in the burn area which was assessed at 0%. Pre-fire design flow was estimated at 110 cubic feet per second per square mile and post fire design flow was estimated at 114 cubic feet per second per square mile.

Erosion Response: Burn severity is primarily low and moderate. Erosional pavement consisting of gravel is armoring the surface from erosional processes. Erosion from fire is expected to be low.

Geologic Response: Fire area located on a geologically stable alluvium.

Values at Risk

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 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

Life: A residence next to Harshaw Creek was identified that may be at risk to flooding/debris flows from the burned area. Recommendations for this site include an early warning system. Low water crossings on the road system may experience increased flow and/or bed load. Recommend signing all road accessing the burned area warning of increased hazard during storm events. Recommend notifying NRCS to for final risk assessment on private land.

Risk Assessment –

Probability of Damage or Loss: Possible

Magnitude of Consequence: Moderate

Risk Level: Intermediate

Property: Based on the estimated watershed response, the BAER Assessment team determined that at least one residence next to Hershaw Creek on private property is at increased risk as a result of the Wildcat Fire. .

Risk Assessment - Private Property

Probability of Damage or Loss: Possible

Magnitude of Consequence: Moderate. This determination is due to the minimal change in watershed response. This determination was made based on the minimal change in expected watershed response.

Risk Level: Intermediate

Risk Assessment – Forest Roads - Forest Roads within the fire area have several low water crossings that may receive some deposition that would need to be cleaned off after storm events but are considered low to moderate risk depending on storm intensity and duration

Probability of Damage or Loss: Possible

Magnitude of Consequence: Minor

Risk Level: Low.

Water Quality and Quantity: No values at risk. The most noticeable effects of post fire effects on water quality would be increased sediment and ash from the burned area into drainages and waterbodies in and downstream of the fire area. During storm events this will increase turbidity and contribute to pool filling. Due to the low burn severity, water quality and quantity is not expected to be significantly affected as a result of the Wildcat Fire (see Hydrology Specialist Report, BAER Assessment Project File).

Threats to Soil Productivity: No values at risk. There is no emergency to soil productivity due to soil type, fire-adapted ecosystem and lack of productive timber stands.

Threats to Cultural Resources: No values at risk.

Threats to Wildlife: The wildlife concerns for the Wildcat Fire are loss of vegetative cover and foraging habitat.

Risk Assessment - Wildlife

Probability of Damage or Loss: Unlikely

Magnitude of Consequence: Moderate

Risk Level: Low

Threats to Botany: There are no threatened or endangered plants in the fire area. There is no designated critical habitat for plants in the fire area.

Native Vegetation Recovery: Ecosystem stability of native plant communities in the Coronado NF is at risk. There is a high possibility of damage to the native plant community from noxious weed invasion. If new infestations are established the magnitude of the consequences would be moderate-to-major. The fire created conditions conducive to the spread of the noxious weeds known to be within or near the fire area. The invasion of exotic vegetation, especially grasses and annual forbs as a result of fires reduces or displaces native plant species, thus impacting native vegetative recovery. Suppression activities have likely vectored noxious weed seed from one or more locations. Vehicles and equipment were not washed prior to entering fire area.

B. Emergency Treatment Objectives

Objectives of treatment are to protect life and property by signing roads and stream access areas to warn forest users of potential threats during storm events and to notify NRCS to evaluate the Hershaw Creek area. Noxious weed detection surveys are also recommended.

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

Land NA % Channel NA % Roads/Trails 90 % Protection/Safety 90 %

D. Probability of Treatment Success

	1	3	5
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Land	n/a	n/a	n/a
Channel	n/a	n/a	n/a
Roads/Trails	80%	n/a	n/a
Protection/Safety	80%	n/a	n/a

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

F. Cost of Selected Alternative (Including Loss): N/A

G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input type="checkbox"/> Geology	<input type="checkbox"/> Range	<input checked="" type="checkbox"/> Public Information
<input type="checkbox"/> Forestry	<input checked="" type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input checked="" type="checkbox"/> Engineering	<input checked="" type="checkbox"/> BAER coordinator
<input type="checkbox"/> Contracting	<input type="checkbox"/> Ecology	<input checked="" type="checkbox"/> Botany	<input type="checkbox"/> Archaeology	<input type="checkbox"/> NRCS
<input type="checkbox"/> Fisheries	<input type="checkbox"/> Research	<input type="checkbox"/> Landscape Arch	<input checked="" type="checkbox"/> GIS	<input checked="" type="checkbox"/> Logistics

Team Leader: Randy Westmoreland

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Phone: 530-306-0349 FAX: _____

Core Team Members:

- Eric Nicita – Soil Scientist
- Curtis Kvamme – Soil Scientist (T)
- Mary Moore – Hydrologist
- Jennifer Bridgewater – Hydrologist
- Jim Schmidt – GIS
- Jason Dierberg – GIS (T)
- Tom Goheen - Logistics
- Marcie Baumbach – Wildlife
- Mike Friend - Botany
- Tim Merten – Roads Engineer
- Rebeca Franco - Information
- Bob Ramirez – Information
- Dave Young - BAER Coordinator

H. Treatment Narrative

The proposed treatments on National Forest System lands are to add to the existing signage to make forest users aware of the risk on road and near stream use areas during storm events

Land Treatments

Noxious weed detection surveys are recommended. Common invasives to the area are present around the periphery of the fire, but are not currently present in much of the fire area; suppression activities have the potential to have spread invasive seeds to new areas. Reference the specialist report for species of concern and the recommended detection survey plan.

Channel Treatments

None recommended.

Road and Trail Treatments

None recommended

Protection and Safety

Increase and maintain existing flood warning signage on road crossings and drainage access areas.

Road Treatment

Item	Unit	Unit Cost	# of Units	Cost
Sign installation & maintenance	Each	\$300	10	\$3,000
Total Request				\$3,000

I. Monitoring Narrative

None recommended

Recommendations: Notify NRCS to evaluate the residence for potential risks of near stream structures

This report is an initial funding request based on a rapid assessment. If additional treatment needs are identified through more site specific on the ground investigation in cooperation with interested agencies, and noxious weed detection surveys, interim requests for additional funding will be filed. These funding requests will identify the purpose for each treatment, and specific treatment specifications, locations, and number of each treatment.

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										
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Land Treatments</i>				\$0	\$0		\$0		\$0	\$0
B. Channel Treatments										
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Channel Treat.</i>				\$0	\$0		\$0		\$0	\$0
C. Road and Trails										
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Road & Trails</i>				\$0	\$0		\$0		\$0	\$0
D. Protection/Safety										
Warning signs		300	10	\$3,000	\$0		\$0		\$0	\$3,000
				\$0	\$0		\$0		\$0	\$0
				\$0	\$0		\$0		\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Structures</i>				\$3,000	\$0		\$0		\$0	\$3,000
E. BAER Evaluation										
				---			\$0		\$0	\$0
<i>Insert new items above this line!</i>				---	\$1,160		\$0		\$0	\$1,160
<i>Subtotal Evaluation</i>				---	\$1,160		\$0		\$0	\$1,160
F. Monitoring										
Noxious weed detection surveys		1236	1	\$1,236	\$0		\$0		\$0	\$1,236
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Monitoring</i>				\$1,236	\$0		\$0		\$0	\$1,236
G. Totals				\$4,236	\$1,160		\$0		\$0	\$5,396
Previously approved										
Total for this request				\$4,236						

PART VII - APPROVALS

1. /s/ Jim Upchurch
Forest Supervisor (signature)

7/25/2011
Date

2. /s/ C.L. Newman, Jr
Regional Forester (signature)

7/29/2011
Date

Value at Risk Tool calculations were not performed due to lack of VARs and treatments.