USDA-FOREST SERVICE FS-2500-8 (6/06)

Date of Report: 7/24/2017

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[XX]1. Funding request for estimated emergency stabilization funds
[ ] 2. Accomplishment Report
[] 3. No Treatment Recommendation

B. Type of Action

[XX] 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: Flying R Fire

B. Fire Number: AZ-CNF-000517

C. State: AZ

D. County: Santa Cruz

E. Region: 03

F. Forest: Coronado NF

G. District: Sierra Vista

H. Fire Incident Job Code: P3K16A

I. Date Fire Started: 6/14/17

J. Date Fire Contained: 6/16/17

K. Suppression Cost: $500,000

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles):
2. Fireline seeded (miles):
3. Other (identify): Retardant Line, remnant slash, indirect line

M. Watershed Number: 150503010203 - Harshaw Creek 1,577.9 acres
150503010102 - Mowry Wash-Santa Cruz River 682.57 acres

N. Total Acres Burned: 2270
NFS Acres(2198) Other Federal ( ) State ( ) Private (62)

O. Vegetation Types: grassland, Madrean Encinal Woodland, and oak woodlands

P. Dominant Soils Vertic Paleustolls and Typic Argiustolls

Q. Geologic Types: Sedimentary; Breccia

R. Miles of Stream Channels by Order or Class: 7 NHD stream miles

S. Transportation System

Trails: 0 miles Roads: 13 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 304 (Unburned/Very Low) 1665 (low) 293 (moderate) 0 (high)

B. Water-Repellent Soil (acres): 0

C. Soil Erosion Hazard Rating (acres):
1188 (low) 1010 (moderate) 0 (high)

D. Erosion Potential: < 5 tons/acre

E. Sediment Potential: <10% increase cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 1-3

B. Design Chance of Success, (percent): NA

C. Equivalent Design Recurrence Interval, (years): 25

D. Design Storm Duration, (hours): 1

E. Design Storm Magnitude, (inches): 1.4

F. Design Flow, (cubic feet / second/ square mile): 687

G. Estimated Reduction in Infiltration, (percent): <5%

H. Adjusted Design Flow, (cfs per square mile): 799

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

The Flying R fire burned in grassland, Madrean Encinal woodland and oak woodlands on approximately 2200 acres of National Forest System land. Fire behavior was flashy with minimal residence time due to high winds. It is located in the Sierra Vista Ranger District and is 8 miles northwest of Patagonia and 20 miles west of Sierra Vista and encompasses the headwaters of Willow Spring Canyon. Elevation ranges from 5,000 to 5,400 feet within the burn area. Vegetation in this area is grassland in the low relief and elevated flats and Madrean woodland on moderate hillslopes and canyons.

Soil
The majority of the fire is composed of low burn severity. Grassland soils were subject to very flashy fire behavior . The herbaceous root crown is intact and unburnt with only canopy cover consumption. Effective vegetative ground cover in the grassland was charred and hydrophobicity is absent. Soils within canyons exhibited a thicker duff layer from the Madrean Encinal Woodland species. These soils have inherently developed variable degrees of hydrophobicity mostly within the low categoring. Moderate burn severity was generally restricted to these moderately steep and canyon sites. Moderate burn severity indicators included a mixture of white/black ash and differing degrees of tree canopy consumption but herbaceous root crowns were intact. Hydrophobicity within the moderate burn severity sites are highly variable but induced water repelency from the fire is doubtful. Vegetation is expected to respond quickly and overall soil loss increases are expected to be low.

Side tributary canyons draining to Willow Spring Canyon that were exposed to moderate burn severity may experience accelerated soil loss and delivery; and an increase of flows. However, these increases of sediment delivery and flows are expected to be atteneuated by the Willow Spring Canyon Drainage because of the deeper alluvium soils, high hydraulic conductivity within the drainage, and larger drainage size.

The Flying-R fire has occurred within its natural fire return interval and is expected to maintain and improve vegetation, soil, and wildlife habitat conditions within the fire adapted and dependent ecosystems.

Hydrology
Given the limited affects to canopy and soils, the increases in discharge are predicted to be minor. The Willow Springs catchment within the Harshaw Subwatershed had the most moderate severity burn in the oak and shrub areas.

Hydrologic modeled discharge results showed a 14% increase in post-fire flows over pre-fire flows based on a 25 year, 1 hour design storm. If a more intense storm event occurs prior to vegetation recovery, there will likely be moderate fire effects to flow with some potential to move debris through the channels. The uncertainty with Curve Numbers is a potential source of error in this model. The flow values are for comparison purposes only, it is the percent change which informs the magnitude of the risk.

Subwatershed	25 year 60 min storm		Post fire increase (% change) ((y2 - y1) / y1)*100	Post Fire Time of of Concentration (Tc, Hours)
	Pre-Fire (cfs)	Post Fire (cfs)		
Hashaw (HUC 6)	1065	1239	**14%**	0.723

Table 1. Pre-fire & post-fire flow results using 25 year return interval with 60 minute intensity storm event.

The Flying R fire is expected to maintain and improve vegetation, soil, and wildlife habitat conditions within the fire adapted and dependent ecosystems.

No critical values were identified as being at risk from post fire flooding.

Wildlife
The Flying R Fire perimeter is within the known distribution of the Sonora tiger salamander (STS), and in the designated critical habitat of the jaguar, Mexican spotted owl (MSO) and Northern Mexican Gartersnake (NMGS). The STS have existed in three stock tanks that were within the Flying R Fire perimeter. The jaguar designated critical habitat takes up Approximately 1,179 acres in the northwest portion of the Flying R Fire perimeter. The MSO designated critical habitat encompasses approximately 1,084 acres in the west half of the Flying R Fire perimeter. The NMGS designated critical habitat encompasses approximately 683 acres in the south third of the Flying R Fire perimeter. There are no other documented T&E species or critical habitat.

Fauna
During the field survey of the Flying R Fire there were no threatened or endangered plant species known within the perimeter of the fire. No risk to threatened or endangered plant species.

Invasive species concern is the east side of the Flying R Fire of FR 214 near Antelope tank. This area consists of a grassland mainly consisting of the species Eragrostis lehmanniana and Solanum elaeagnifolium. Eragrostis lehmannia typically establishes better than native species after a disturbance and fire increases the germinability of the seed bank (Sumrall, 1991). Solanum elaeagnifolium is a drought tolerant, deep rooted plant that grows in most soil types and establishes well in disturbed areas. Due to the low severity of the fire the probability of expansion of these two species is minimal. Low risk for expansion of existing invasive species.

Critical Values Identified
Critical Values identified (FSM 2523.1 Exhibit 01) during the BAER assessment are: Human life and safety. The BAER team evaluated the risk to that critical value using the BAER Risk Assessment (FSM 23235.1 Exhibit 02).

Human Life and Safety: The access points into the burned area pose a potential risk to human life and safety due to the possibility of post-fire hazards, regardless of burn severity. The probability of damage or loss is possible and the magnitude of consequence is major which rates the risk as High.

Infrastucture: No risk
Natural Resources: No risk
Cultural Resources: No risk
Critical Habitat: No risk

B. Emergency Treatment Objectives:

Provide for Public Safety– Place hazard warning signs at key trail and road access points entering burned area.

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

Land __-__ Channel __-__ Roads/Trails __-__ Protection/Safety __**90%-**__

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land			
Channel			
Roads/Trails			
Protection/Safety	90%	na	na

E. Cost of No-Action (Including Loss): $200,000

F. Cost of Selected Alternative (Including Loss): $150,000

G. Skills Represented on Burned-Area Survey Team:

[X] Hydrology [X] Soils [ ] Geology [X] Range

[ ] Forestry [X] Wildlife [ ] Fire Mgmt. [ ] Engineering
[ ] Contracting [X] Ecology [X] Botany [X] Archaeology
[x] Fisheries [ ] Research [ ] Landscape Arch [X] GIS

Team Leader: Salek Shafiqullah
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H. **Treatment Narrative:**

Warning signs informing the public of potential hazard trees, unstable soils, flooding, and debris flows is recommended at FSR 58 at Willow Springs Canyon and at the junction of FSR 5525 with FSR 214.

The purpose of these signs is to advise the recreating public about hazards related to the burned area.

Warning Sign Cost

Unit	Unit Cost	# of Units	Cost
Trail Warning Sign	$150	2	$300
Implementation Crew	$350 per day	1	$350
Total			$650

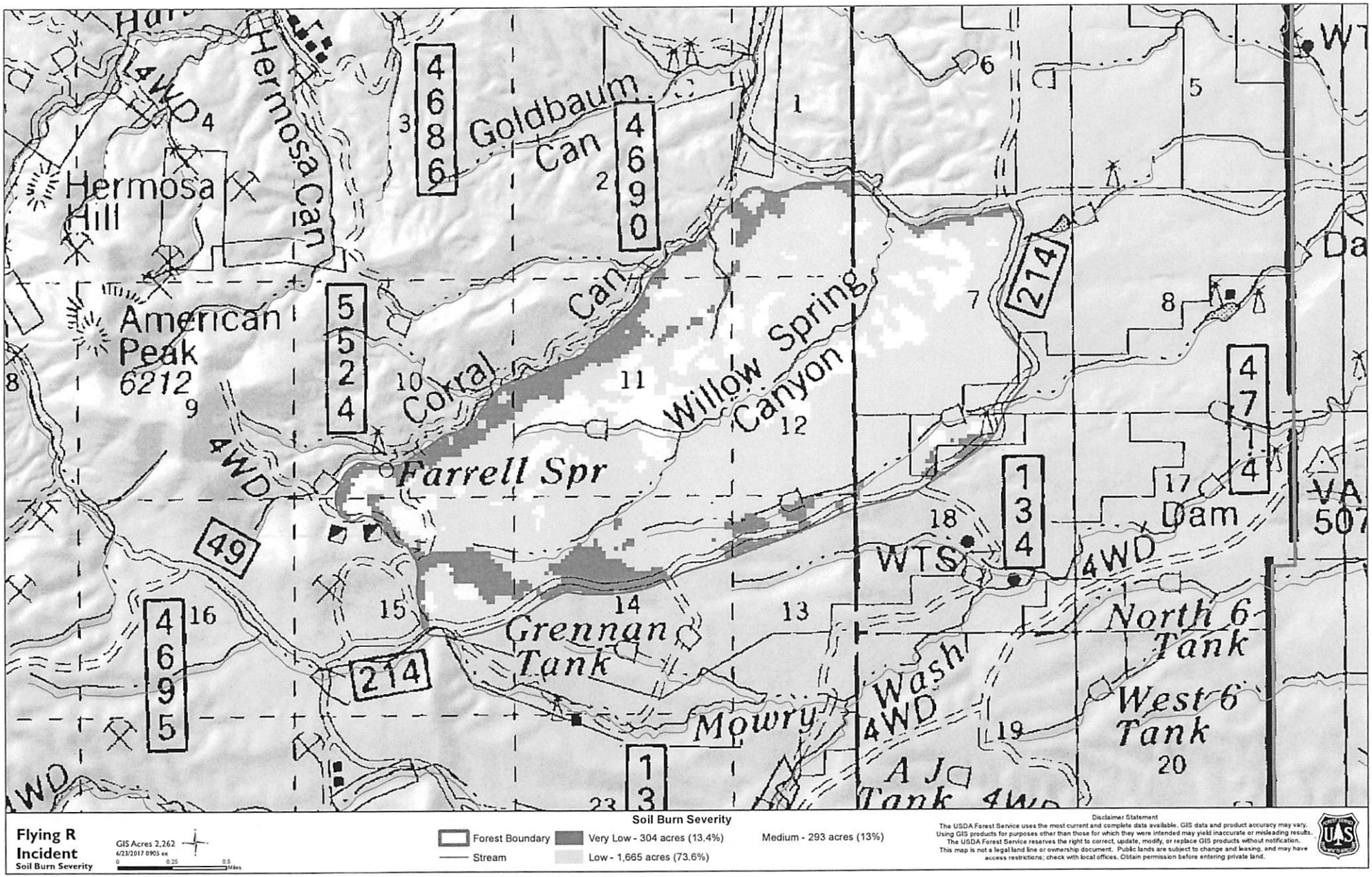
Part VI – Emergency Stabilization Treatments and Source of Funds **Next page**

			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
				$0	$0			$0		$0	$0
Subtotal Land Treatments				$0	$0			$0		$0	$0
B. Channel Treatments											
				$0	$0			$0		$0	$0
				$0	$0			$0		$0	$0
				$0	$0			$0		$0	$0
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Channel Treat.				$0	$0			$0		$0	$0
C. Road and Trails											
				$0	$0			$0		$0	$0
				$0	$0			$0		$0	$0
				$0	$0			$0		$0	$0
				$0							
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Road & Trails				$0	$0			$0		$0	$0
D. Protection/Safety											
Hazard signs	Lump	660	1	$660	$0			$0		$0	$660
				$0	$0			$0		$0	$0
				$0							
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Structures				$660	$0			$0		$0	$660
E. BAER Evaluation											
	$12K			—	$0			$0		$0	$0
Insert new items above this line!				—	$0			$0		$0	$0
Subtotal Evaluation				—	$0			$0		$0	$0
F. Monitoring											
				$0	$0			$0		$0	$0
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Monitoring				$0	$0			$0		$0	$0
G. Totals				$660	$0			$0		$0	$660
Previously approved											

PART VII - APPROVALS

1. Kevin L. Larsen — Forest Supervisor (signature) — 7/27/17 — Date

2. _____ — Regional Forester (signature) — _____ — Date


Hermosa Hill
American Peak 6212
Hermosa Can
Goldbaum Can
Corral Can
Willow Spring Canyon
Farrell Spr
Grennan Tank
Mowry
WTS
Dam
North 6 Tank
West 6 Tank
Wash
A J Tank
4WD
49
214
4686
4690
5524
4695
1334
4714
1313
Soil Burn Severity
Forest Boundary
Stream
Very Low - 304 acres (13.4%)
Low - 1,665 acres (73.6%)
Medium - 293 acres (13%)
Flying R Incident
Soil Burn Severity
GIS Acres 2,262
6/23/2017 0905 ee
Miles
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