

Date of Report: June 16, 2010

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:** Gum Branch Fire**B. Fire Number:** NC-NCF-100066**C. State:** North Carolina**D. County:** Craven**E. Region:** 08**F. Forest:** Croatan National Forest**G. District:** Croatan Ranger District**H. Fire Incident Job Code:** P8FCT0**I. Date Fire Started:** April 20, 2010**J. Date Fire Contained:** June 16, 2010**K. Suppression Cost:** approximately \$50,000**L. Fire Suppression Damages Repaired with Suppression Funds**

1. Fireline waterbarred (miles): 0
2. Fireline seeded (miles): 0
3. Other (identify): Approximately 0.06 miles of dozerline was rehabilitated by pulling displaced soil and woody debris back onto the line. The remaining ~0.35 miles is recommended to be pulled in also. Waterbarring and seeding of the fireline did not occur, nor is it recommended since erosion potential is very low because of gentle slopes and ample soil coverage from leaf fall.

M. Watershed Number: 03020204050, part of the Lower Neuse River Sub-basin**N. Total Acres Burned:** 813

NFS Acres(X) Other Federal () State () Private ()

O. Vegetation Types: Approximately 47 percent of the burned area is located in loblolly pine plantations that have been thinned within the past 5 to 10 years. The remaining area is occupied by white oak – black oak

yellow pine, bottomland hardwood, loblolly pine mixed hardwoods, and sweetgum forest types. The understory is composed of shrub species such as gall berry, ink berry, and fetterbush.

P. Dominant Soils: The following soils occur in the burned area:

- Goldsboro loamy fine sand, 0 to 2 percent slope (26%) - Soils are moderately well drained on uplands near drainageways;
- Autryville loamy sand, 0 to 6 percent slope (24%) - Soils are well drained on gently undulating ridges on uplands near large drainageways such as the Neuse River;
- Norfolk loamy fine sand, 0 to 2 percent slope (17%) - Soils are well drained on uplands near drainageways;
- Rains fine sandy loam (9%) - Soils are nearly level and poorly drained on broad flats and in depressions on uplands;
- Suffolk loamy sand, 10 to 30 percent slope (8%) - Soils are well drained on side slopes along large drainageways on uplands. *Surface runoff is rapid because of steepness of slope, and the soil is very susceptible to erosion;*
- Norfolk loamy fine sand, 2 to 6 percent slope (8%) – Soils are well drained on low ridges and side slopes near drainageways on uplands. *Erosion hazard is moderate when not protected by plant cover,*
- Lafitte muck, frequently flooded (4%) – Soils are near level and very poorly drained on marsh flats adjacent to the Neuse River;
- Masontown mucky fine sandy loam and Muckalee sandy loam, frequently flooded (4%) – Soils are near level and very poorly drained and poorly drained on floodplains; and
- Lenoir silt loam (1%) – Soils are near level and somewhat poorly drained on flats and in depressions on uplands.

Q. Geologic Types: The Coastal Plain is a wedge of mostly marine sedimentary rocks that gradually thickens to the east. The most common sediment types are sand of varying grain sizes and clay, although a significant amount of limestone occurs in the southern part of the Coastal Plain. The Duplin Formation occurs in the burn area. This formation consists of shelly, medium- to coarse-grained sand, sandy marl, and limestone, bluish gray; mainly in areas south of Neuse River.

R. Miles of Stream Channels by Order or Class: Two miles (1.7 miles of first and 0.3 miles second order) of blue line streams (estimated from the topographic map) and approximately 2.0 miles of tidal influenced shoreline are present in the assessment area. The first and second order streams are perennial with low gradient channels and natural wetlands in the valley bottom. Shorelines occur along Hancock Creek and its tributary Cahoque Creek.

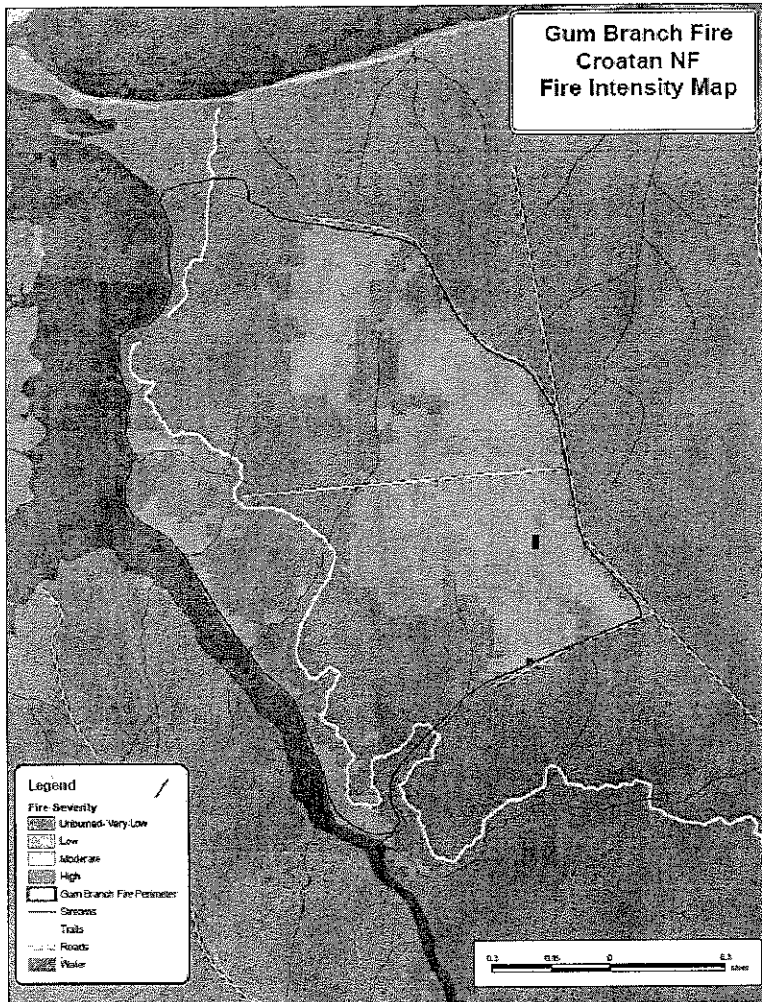
S. Transportation System

Trails: 3.0 miles

Roads: 2.84 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): ~713 (low) ~100 (moderate) 0 (high) (based on field review)



Burn severity was initially determined with a Burned Area Reflectance Classification (BARC) map generated by satellite captured near and mid infrared light bands analyzed by the USFS Remote Sensing Application Center (RSAC – Jess Clark). A field review was conducted of the mapped high burn severity sites and the steep terrain found in Suffolk soil type. Exposed mineral soil was observed over a small portion of the burned area, particularly along the shorelines of Hancock and Cahogue Creeks in the Suffolk soil. Areas identified by the BARC map were largely pre-existing openings. In these areas, fire residence time was not long enough to completely consume the forest duff. Therefore, these sites are more typical of a “low to moderate” burn severity. However, tree mortality may have occurred in several areas, evidenced by brown leaves dominating the canopy. Also, there were higher burn severities adjacent to the shoreline where small areas of the forest duff layer were consumed exposing bare mineral soil. The Burn Severity map shown above was not modified from the original RSAC image.

B. Water-Repellent Soil (acres): not found

C. Soil Erosion Hazard Rating (acres):
812.5 (low) 0 (moderate) 0.54 (high)

D. Erosion Potential: 0.05 tons/acre (Very low potential overall due to high infiltration rates and low slope)

E. Sediment Potential: 0.8 cubic yards / square mile (assuming a Sediment delivery ratio of 5 percent)

PART IV - HYDROLOGIC DESIGN FACTORS

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

B. Design Chance of Success, (percent): 90

C. Equivalent Design Recurrence Interval, (years): 2

D. Design Storm Duration, (hours): 24

E. Design Storm Magnitude, (inches): 4.28

F. Design Flow, (cubic feet / second/ square mile): 83.3 (assuming surface runoff occurring after 1" of rainfall on 0.54 acres of high soil erosion hazard)

G. Estimated Reduction in Infiltration, (percent): 10

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

91.6

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

Soil & Water: There is a high potential for erosion and loss of site productivity within the high soil erosion hazard area. This area of approximately 0.54 acres falls along the shoreline of both Hancock and Cahoogue Creeks. The soil type in this area is Suffolk loamy sand, 10 to 30 percent slopes, where surface runoff is potentially rapid because of steepness of slope, and the soil is very susceptible to erosion. Without timely revegetation/stabilization of the area, heavy sediment loading into adjacent stream channels is likely.

B. Emergency Treatment Objectives:

The primary objective of land treatments within the burned-area is to protect site productivity by lowering the erosion hazard following the fire. Treatments are designed to provide effective ground cover for reducing surface erosion potential and to increase infiltration rates; to control overland runoff, thereby reducing erosion; and to protect water quality by reducing surface erosion.

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

Land 90 % Channel N/A % Roads/Trails N/A % Protection/Safety N/A %

D. Probability of Treatment Success:

	Years after Treatment		
	1	3	5
Land	98	100	-
Channel			
Roads/Trails			
Protection/Safety			

E. Cost of No-Action (Including Loss): \$1,080 (includes loss of site productivity)

F. Cost of Selected Alternative (Including Loss): \$6,522 (cost of Treatment & Monitoring)

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"/> Forestry	<input checked="" type="checkbox"/> Wildlife	<input checked="" type="checkbox"/> Fire Mgmt.	<input type="checkbox"/> Engineering
<input type="checkbox"/> Contracting	<input checked="" type="checkbox"/> Ecology	<input checked="" type="checkbox"/> Botany	<input type="checkbox"/> Archaeology
<input type="checkbox"/> Fisheries	<input type="checkbox"/> Research	<input type="checkbox"/> Landscape Arch	<input checked="" type="checkbox"/> GIS

Team Leader: Brady Dodd

Email: bdodd@fs.fed.us

Phone: (828) 257-4214

FAX: (828) 257-4874

Team members/support included Gary Kauffman, Rachelle Powell, Will Dienst, and David Nelson.

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:

1. Sow seed of *Elymus virginicus* (Virginia wild rye), at a rate of 8 lbs/acre, and *Chamaecrista fasciculata* (partridge pea), at a rate of 1 lb/acre, on bare slopes along the shoreline of Hancock and Cahoogue Creeks. These species are native to the area and would grow well in the Suffolk soil to provide a rapid cover to protect the slope from erosion. Also fertilize the area with 10-20-10 (NPK) at a rate of 10 pounds/1,000 square feet (0.23 acres) to aid rapid growth.
2. Add pine straw mulch to provide immediate protection of the soil surface and to increase the success of revegetation. Mulch reduces moisture loss from a site and helps to moderate surface temperatures while seeded species are becoming established. Apply pine straw mulch at a rate of 1 bale/1,000 square feet of area. At this rate about 25 bales of pine straw would be needed to accomplish the treatment.

It is recommended that material be brought to the sites by boat for the sake of efficiency.

Channel Treatments: none

Roads and Trail Treatments: none

Protection/Safety Treatments: none

I. Monitoring Narrative:

(Describe the monitoring needs, what treatments will be monitored, how they will be monitored, and when monitoring will occur. A detailed monitoring plan must be submitted to the Regional BAER coordinator.)

The Monitoring Plan, submitted separately, addresses the following:

- Success of seeded vegetation and site recovery over time of the shoreline areas along Hancock and Cahoogue Creeks in the Suffolk soil type. This will also document conditions (erosion, etc.) in the event of treatment failure.
- The sites will be monitored using photo points established prior to the proposed treatment.
- Monitoring will occur following major storms for the first year.

Part VI – Emergency Stabilization Treatments and Source of Funds

Interim #

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										
Seed: Partridge pea	lbs	\$16	1	\$16	\$0		\$0		\$0	\$16
Seed: Virginia wild rye	lbs	\$8	5	\$40	\$0		\$0		\$0	\$40
Fertilizer: 10-20-10	lbs	\$0.6	235	\$141	\$0		\$0		\$0	\$141
Pine Straw Mulch	bale	\$5	25	\$125	\$0		\$0		\$0	\$125
Labor (Force Account)	days	\$350	4	\$1,400	\$0		\$0		\$0	\$1,400
Vehicle (gas, etc.)	each	\$300	1	\$300	\$0		\$0		\$0	\$300
Insert new items above this line!										
Subtotal Land Treatments				\$2,022	\$0		\$0		\$0	\$2,022
B. Channel Treatments										
				\$0	\$0		\$0		\$0	\$0
Insert new items above this line!										
Subtotal Channel Treat.				\$0	\$0		\$0		\$0	\$0
C. Road and Trails										
				\$0	\$0		\$0		\$0	\$0
Insert new items above this line!										
Subtotal Road & Trails				\$0	\$0		\$0		\$0	\$0
D. Protection/Safety										
				\$0	\$0		\$0		\$0	\$0
Insert new items above this line!										
Subtotal Structures				\$0	\$0		\$0		\$0	\$0
E. BAER Evaluation										
Team Leader/Hydro	hour	\$50	16	\$800	\$0		\$0		\$0	\$800
Overtime	hour	\$75	31	\$2,325	\$0		\$0		\$0	\$2,325
Forester	hour	\$37	8	\$296	\$0		\$0		\$0	\$296
Overtime	hour	\$56	8	\$448	\$0		\$0		\$0	\$448
Botanist	hour	\$53	8	\$424	\$0		\$0		\$0	\$424
Travel Costs	each	\$125	3	\$375	\$0		\$0		\$0	\$375
Vehicle (gas, etc.)	miles	\$0.4	500	\$200	\$0		\$0		\$0	\$200
Insert new items above this line!										
Subtotal Evaluation				\$4,868	\$0		\$0		\$0	\$4,868
F. Monitoring										
Hydrologist	hour	\$50	40	\$2,000	\$0		\$0		\$0	\$2,000
District personnel	days	\$350	4	\$1,400	\$0		\$0		\$0	\$1,400
Travel Costs	each	\$350	2	\$700	\$0		\$0		\$0	\$700
Vehicle (gas, etc.)	miles	\$0.4	1000	\$400	\$0		\$0		\$0	\$400
Insert new items above this line!										
Subtotal Monitoring				\$4,500	\$0		\$0		\$0	\$4,500
G. Totals										
Previously approved				\$11,390	\$0		\$0		\$0	\$11,390
Total for this request				\$11,390	\$0		\$0		\$0	\$11,390

* estimated costs as of May 18, 2010

PART VII - APPROVALS

1. Mona J. Awallach
for Forest Supervisor (signature)

6/17/10
Date

2. _____
Regional Forester (signature)

Date

