



Forest
Service

San Juan National Forest

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File Code: 2520

Date: July 23, 2013

Route To:

Subject: West Fork and Windy Pass BAER

To: Regional Forester

Date of Report: 07/19/2013

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: West Fork Complex* | B. Fire Number: CO-SJF-0032 |
| C. State: Colorado | D. County: Mineral |
| E. Region: 2 | F. Forest: San Juan National Forest |
| G. District: Pagosa Ranger District | H. Fire Incident Job Code: P2EKU7 |
| I. Date Fire Started: 05 June 2013 | J. Date Fire Contained: N/A |



K. Suppression Cost: N/A (still in progress)

L. Fire Suppression Damages Repaired with Suppression Funds

1. **Fireline waterbarred (miles):** 1.0
2. **Fireline seeded (miles):** 0.0
3. **Other (identify):** 0.1 Dozer line rehabed.

* This report only addresses portions of the West Fork Complex occurring on the San Juan National Forest (West Fork and Windy Pass Fires). A separate 2500-8 will be prepared for portions occurring on the Rio Grande National Forest.

M. Watersheds: The Windy Pass and West Fork Fires occurred in the watersheds listed below. However, both fires burned very small portions of the Wolf Creek 6th level HUC (140801010203)

HUC 6 Number	HUC 6 Name	Fire
140801010104	The Clam Shell-East Fork San Juan River	Windy Pass
140801010201	Beaver Creek	West Fork
140801010202	Headwaters West Fork San Juan River	West Fork
140801010204	Burro Creek-West Fork San Juan River	West Fork

N. Total Acres Burned:

[18,947]

[23]

[0.0]

[0.0]

NFS

Private

Other Federal

State

O. Vegetation Types:

Local Type	Description	Acres		
		West Fork	Windy Pass	Total
TSF	Spruce-Fir Forest	12439	1173	13612
TMC-CM	Cool-Moist Mixed Conifer Forest	1955	100	2055
MT_SHR	Mountain Shrubland	1225	19	1244
ALP	Alpine	770	1	771
MT_GRA	Mountain Grassland	588	83	671
TMC-WD	Warm-Dry Mixed Conifer Forest	413	0	413
RIP	Riparian Vegetation	88	26	114
TAA-SW	Aspen Forest with < 100% hardwoods	33	16	48
NRS	Rock Bare Soil	24	0	24
TPP-PP	Ponderosa Pine Forest	15	0	15
WAT	Water	3	0	3
	Sum	17553	1417	18970

P. Dominant Soils: The dominant soils within the burned area are derived from extrusive igneous parent material, and tend to be loamy, with significant fractions of cobble or rubble. The soils tend to be well drained with moderate permeability, and very high runoff potential.

Q. Geologic Types: The area is dominated by extrusive igneous geology mostly of the middle and late Tertiary periods, dominant surface geology is shown in the table below.

USGS Code	Description	Acres		
		West Fork	Windy Pass	Total
Taf	Ash-Flow Tuff of Main Volcanic Sequence	10994	291	11284
Tial	Intra-ash Flow Andesitic Lavas	3115	0	3115
Tpl	Pre-ash flow Andesitic Lavas, Breccians, Tuffs, and Conglomerates	1247	1057	2304
Ql	Landslide Deposits, Talus	1182	70	1252
Tiql	Ultra-ash Flow Quartz Latitic Lavas	1016	0	1016
	Sum	17553	1417	18970

R. Miles of Stream Channels by Order or Class:

Stream Order	Length (miles)		
	West Fork	Windy Pass	Total
0	0.2	0.0	0.2
1	49.3	5.6	55.0
2	26.2	2.5	28.7
3	13.6	0.1	13.7
4	11.3	0.0	11.3
5	6.9	0.0	6.9
Sum	107.6	8.2	115.8

S. Transportation System

Trails: 19.3 miles **Roads:** 1.4 miles
(Calculated within the fire perimeter)

	Miles		
	West Fork	Windy Pass	Total
Trails	15.9	3.4	19.3
Roads	0.0	1.4	1.4

PART III - WATERSHED CONDITION

A. Burn Severity (acres):

4027 (**very low/unburned**)
4249 (**low**)
8143 (**moderate**)
2551 (**high**)

Soil Burn Severity	Acres		
	West Fork	Windy Pass	Total
Very Low/Unburned	3295	733	4027
Low	3852	397	4249
Moderate	7931	212	8143
High	2476	75	2551
Sum	17554	1416	18970

B. Water-Repellent Soil (acres): During the limited field investigation of soil burn severity, soil water repellancy was not observed, even in high soil burn severity areas.

C. Soil Erosion Hazard Rating (acres): 9178 **(low)**
 1205 **(moderate)**
 8584 **(high)**

NRCS Classifications

Very Severe: 4900 ac

Severe: 3684 ac

Moderate: 1205 ac

Low: 5596

Slight: 3582 ac

D. Erosion Potential: 23.58 tons/acre (50 year, max hillslope, ErMIT Prediction)

E. Sediment Potential: 11,776 cubic yards / square mile (50 year, max hillslope, ErMIT Prediction)

PART IV - HYDROLOGIC DESIGN FACTORS

- A. Estimated Vegetative Recovery Period, (years):** 2-3 years
- B. Design Chance of Success, (percent):** Not Applicable
- C. Equivalent Design Recurrence Interval, (years):** 100
- D. Design Storm Duration, (hours):** 1
- E. Design Storm Magnitude, (inches):** 2
- F. Design Flow, (cubic feet / second/ square mile):** 54 (accounts for post fire conditions)
- G. Estimated Reduction in Infiltration, (percent):** Not Applicable
- H. Adjusted Design Flow, (cfs per square mile):** Not Applicable

PART V - SUMMARY OF ANALYSIS

- A. Describe Critical Values/Resources and Threats (narrative):**

Hydrologic Resources

Combined Windy Pass and West Fork Fires:

The total contributing area of watersheds above the confluence of the West and East Forks of the San Juan River is approximately 115,185 acres. The combined moderate and high burn severity areas of the West Fork and Windy Pass fires is 10,694 acres, or 9.3% of this contributing area. Based on this small percentage of impacted watershed, bridges, municipal supply intakes, and other values along the San Juan River (below the confluence of the East and West Forks) are unlikely to be lost or damaged.

Windy Pass Fire:

The Windy Pass fire (Figures 1 and 3) burned primarily within the drainage of an intermittent tributary to the perennial Treasure Creek, which is tributary to the East Fork of San Juan River. Given the topography and soil burn severity of the Windy Pass fire, and its limited spatial extent (6% of the 6th level HUC in which it occurred), impacts to hydrologic resources are expected to be minimal, and the probability of loss or damage to downstream values along the East Fork (bridges on FSR 667, East Fork Road) is determined to be unlikely.

The West Fork Fire:

The West Fork Fire occurred in three 6th level watersheds, totaling approximately 44,000 acres. Moderate and high soil burn severity totaled 10,407 acres (23.6% of the watershed). Values at risk on the West Fork of the San Juan River downstream of the West Fork Fire consist of 3 bridges, a campground, houses, and the municipal supply intake for the Pagosa Area Water and Sanitation District (PAWSD) (Figures 1 and 2).

PAWSD Municipal Supply Intake and Highway 160 Bridge: The location of the intake is approximately 7 miles downstream at the end of a long depositional environment. Given this physical arrangement, it is unlikely that physical damage will occur from post fire flooding or debris flow.

Boot Jack Ranch Bridge and Houses: The location of the bridge and houses is along a large depositional environment, several miles downstream from the burned area. Due to distance, gradient, and an accessible flood plain, post fire risk of flooding is not substantially altered from pre-fire conditions.

West Fork Bridge and Campground: The West Fork Bridge sits in a narrow area immediately below the fire. It is possible that post fire increases in discharge, combined with the delivery of woody debris could plug the bridge and result in overtopping the bridge/associated road way. This would result in substantial property damage to the bridge. The position of the West Fork Campground downstream of the bridge gives ready access to available flood plains (both in the vicinity of the campground and on the other side of the river), and substantially reduces the risk to life and property.

Noxious Weeds:

Populations of noxious weeds and other invasive non-native species are known to occur adjacent to or within the burned area of the West Fork and Windy Pass Fires. The noxious weed and invasive species known to occur within or adjacent to the West Fork and Windy Pass Fires include yellow toadflax, musk thistle, Canada thistle, and oxeeye daisy.

Field reconnaissance of lands in and within close proximity to the burned area has been conducted before and during the burn to determine the potential for noxious weed and invasive species establishment and expansion. Established noxious weed populations within the burned area have been documented and mapped. In addition, lands adjacent to the fire have infestations of noxious

weed and invasive species which will serve as a seed source for expansion and establishment of new infestations within the burned area.

During suppression efforts, suppression crews, vehicles, and heavy equipment moved into and around the burned area from weed infested public, private, and state lands. Suppression crews, vehicles, and heavy equipment potentially spread noxious weed seed from outside the geographic area and from weed infested areas in and adjacent to the burned area. Dozer lines and hand lines created during suppression efforts are expected to further increase the potential for noxious and invasive weed infestations. National forest roads, system and non-system trails, and county roads are expected to continue to contribute the spread of noxious weeds and invasive species.

B. Emergency Treatment Objectives (narrative):

Hydrologic Resources:

Prevent plugging and/or wash out of the West Fork Bridge.

Noxious Weeds:

Noxious weed and invasive weed species are managed in and adjacent to the burned area as not to influence recovery of native species and ecosystem function.

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

Land N/A **Channel** N/A **Roads/Trails** 75% **Protection/Safety** N/A

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land			
Noxious Weed Detection	90	90	90
Noxious Weed Treatment	25	50	50
Roads/Trails	90	90	90
Protection/Safety	N/A	N/A	N/A

E. Cost of No-Action (Including Loss): Aprox. \$500,000 (potential West Fork Bridge replacement.)

F. Cost of Selected Alternative (Including Loss): \$94,282

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Ivan Geroy

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Phone: (970) 264-1534

FAX: (970) 264-1538

H. Treatment Narrative

Land Treatments:

Noxious Weed Detection:

Noxious weed and invasive species inventory is spotty within and around the burned area due to its remoteness, and lack of roads. Yellow toadflax, musk thistle, Canada thistle, and oxeye daisy, infestations are prevalent within and in close proximity to the fire perimeter. The extent of the problem is not well documented in a formal inventory making it difficult to formulate weed management strategies. A good weed inventory of the trail system and weed infested meadows is needed throughout and adjacent to most of the burned areas to formulate appropriate Integrated Weed Management strategies and treatment objectives as not to influence recovery of native species and ecosystem function.

The treatment will consist of contracting or hiring a seasonal workforce to conduct noxious weed inventory along areas of the Treasure Mountain (FS Trail #565). Where noxious weed and invasive species have previously been inventoried and treated in and around the burned area, continued inventory and treatment would be emphasized. An inventory of the West Fork San Juan River (FS Trail 561) is also needed but will likely not occur due to anticipated hazardous conditions. This work would include inventory of potential weed infested meadows within close proximity of these trails. In addition, dozer line, hand line, spike camps, staging areas, and helispots would be inventoried.

Four hundred and sixty seven (467) acres have been identified as needing inventory or re-inventory.

Noxious Weed Treatment:

As previously stated where noxious weed and invasive species have previously been inventoried and treated in and around the burned area, continued inventory, and treatment would be emphasized. These areas are roaded and can be accessed via motorized equipment. These occur to the south and south east of the West Fork Fire and include the West Fork Road Area (FS Road # 648 and FS Road #648B) and areas near Bruce Spruce Lodge. Areas near Windy Pass Fire are both to the north and south of the fire perimeter and include the East Fork Road (FS Road # 667) Area, the Falls Creek Road (FS Road #039 and FS Road # 039 L) Area, and the Wolf Creek Road (FS Road #725) Area. Past treatment has been predominately with herbicides. Without emphasis, retreatment of weed infested areas could be several years in coming, and noxious weeds will find favorable seedbeds and environments for establishment and expansion within the burned area.

The treatment would include release of biological controls targeting yellow toadflax. *Mecinus janthinus* is a stem boring weevil that has shown good promise for control of both yellow and Dalmatian toadflax. This beetle is capable of killing a large portion of the above-ground plant by

boring into and killing the stems where the larvae live and feed.

Weed treatment would be contracted or completed using Forest Service crews to inventory and treat the noxious weeds and invasive species identified and mapped through the inventory. Two hundred and eighteen (218) acres would be treated.

Channel Treatments: None

Roads and Trail Treatments:

Risk of plugging/washout of the West Fork Bridge will be mitigated by the construction of a spillway on the road immediately to the west of the bridge to allow ponded water to pass should the bridge become plugged with trees or debris. Bridge footings will also be armored to withstand increased flows. Five days' worth of funds has been requested to pay for the use of an excavator to remove debris from the bridge should it become clogged (anticipating multiple events).

Protection/Safety Treatments: None

I. Monitoring Narrative

Noxious Weed Monitoring:

BAER noxious weed treatment and inventory work will be monitored during implementation by project inspectors or Crew Supervisors to insure that specifications are met. Implementation of project treatments will be monitored to insure that it is completed in a satisfactory and timely manner.

Noxious weed infestations will be monitored in and around the burned area to insure that herbicide and bio-control is being effective in reducing potential establishment and expansion in and around the burned area. Upon completion of all treatments future noxious weed inventories will be compared to the BAER inventory to see if treatments are effective. Recovery of native species and ecosystem function will be monitored by the Interdisciplinary team.

Roads and Trail Monitoring:

Monitoring of the West Fork Bridge will consist of in person visits following runoff events (rain or snow) to visually observe the status of debris.

Part VI – Emergency Stabilization Treatments and Source of Funds

Interim #

			NFS Lands				Other Lands			All
		Unit	# of		Other		Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	BAER \$	\$	units	\$	Units	\$	\$
A. Land Treatments										
Noxious weed inventory	Acre	30.00	467	\$14,010	\$0		\$0		\$0	\$14,010
Noxious weed treatment	Acre	200.00	218	\$43,600	\$0		\$0		\$0	\$43,600
Bio-Control releases	Each	56.00	20	\$1,120	\$0		\$0		\$0	\$1,120
Contracting Officer GS-11	Days	380.00	10	\$3,800						\$3,800
Inspector/Crew supervisor GS-9	Days	290.00	20	\$5,800						\$5,800
Contracting Admin GS-11	Days	380.00	20	\$7,600	\$0		\$0		\$0	\$7,600
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Land Treatments</i>				\$75,930	\$0		\$0		\$0	\$75,930
B. Channel Treatments										
				\$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 Channel Treat.</i>				\$0	\$0		\$0		\$0	\$0
C. Road and Trails										
West Fork Debris Removal										
Excavator	hr	223.26	40	\$ 8,930.24	\$0		\$0		\$0	\$8,930
Laboror	hr	28.28	40	\$ 1,131.24	\$0		\$0		\$0	\$1,131
Supervisor	hr	53.76	40	\$ 2,150.28	\$0		\$0		\$0	\$2,150
West Fork Armored Spill										
Excavator	hr	223.26	8	\$ 1,786.05	\$0					
Backhoe	hr	95.00	8	\$ 759.97	\$0					
Laboror	hr	28.28	8	\$ 226.25	\$0					
Supervisor	hr	53.76	8	\$ 430.06	\$0					
3" minus ABC	ton	11.36	16.7	\$ 189.76	\$0					
Asphalt Disposal	ls	110.00	1	\$ 110.00	\$0					
12 CY Dump truck	hr	110.00	3	\$ 330.00	\$0					
Arch. Clear/Report	Days	350.00	4	\$ 1,400.00	\$0					
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Road & Trails</i>				\$17,444	\$0		\$0		\$0	\$12,212
D. Protection/Safety										
				\$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 Structures</i>				\$0	\$0		\$0		\$0	\$0
E. BAER Evaluation										
				---	\$5,500		\$0		\$0	\$5,500
<i>Insert new items above this line!</i>				---	\$0		\$0		\$0	\$0
<i>Subtotal Evaluation</i>				---	\$5,500		\$0		\$0	\$5,500
F. Monitoring										
West Fork Debris Monitor	hr	32	20	\$640	\$0		\$0		\$0	\$640
<i>Insert new items above this line!</i>				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Monitoring</i>				\$640	\$0		\$0		\$0	\$640
G. Totals										
				\$94,014	\$5,500		\$0		\$0	\$94,282
Previously approved										
Total for this request				\$94,014						

PART VII - APPROVALS

1. /s/ Mark W. Stiles 7/23/2013
Forest Supervisor (signature) Date

2. _____
Regional Forester (signature) Date

Figure 1: Overview of the West Fork and Windy Pass Fires

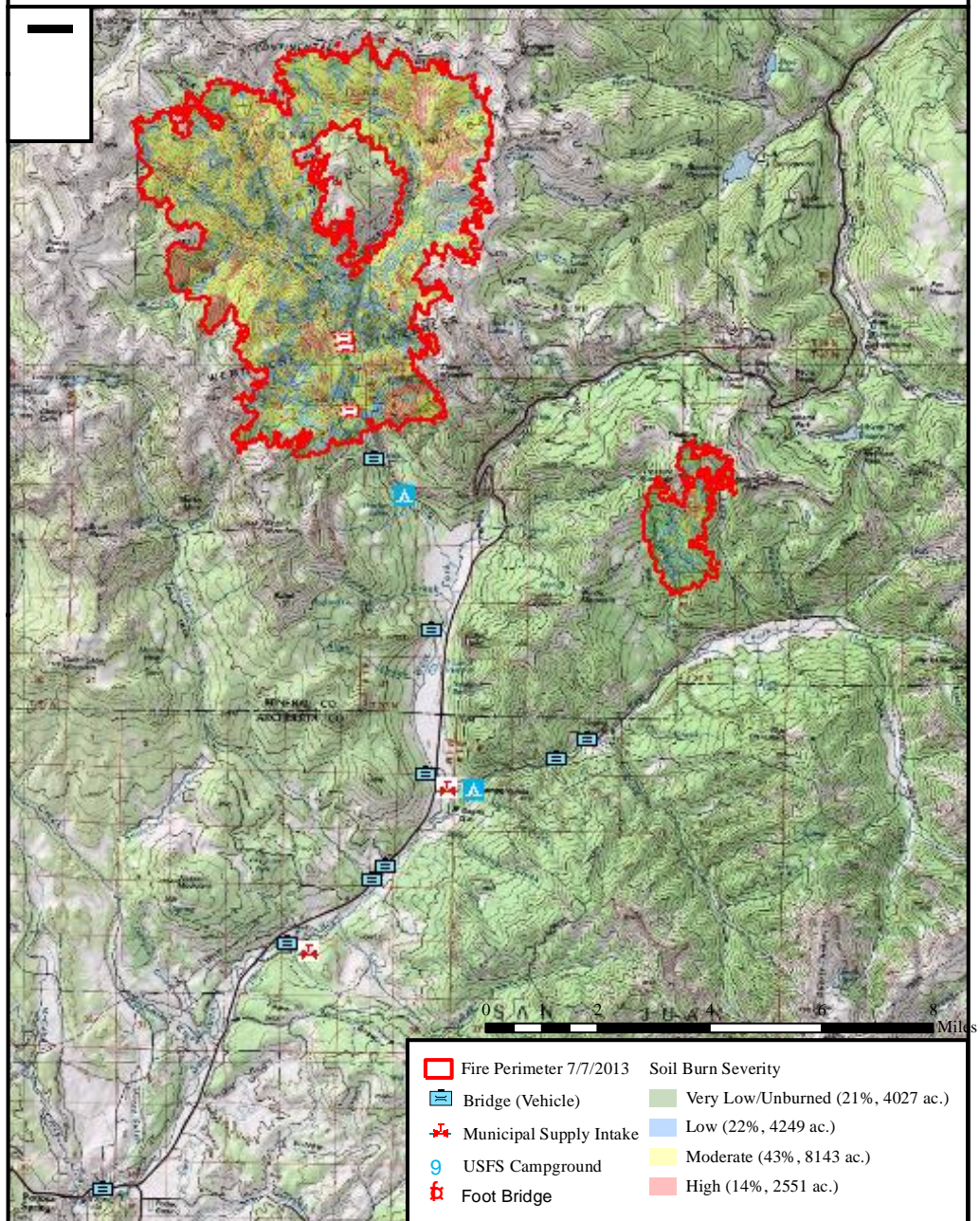


Figure 2: Soil Burn Severity, West Fork Fire

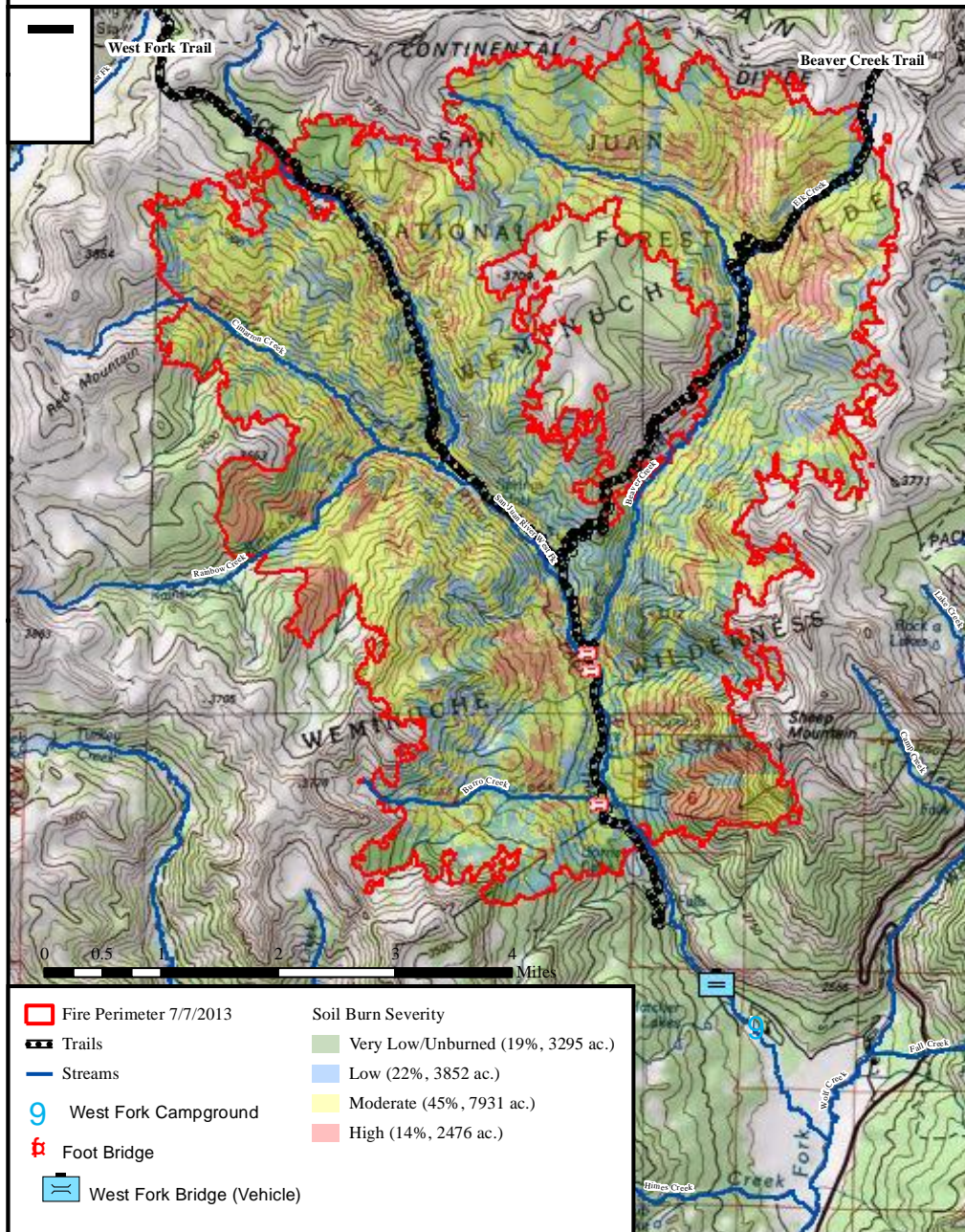
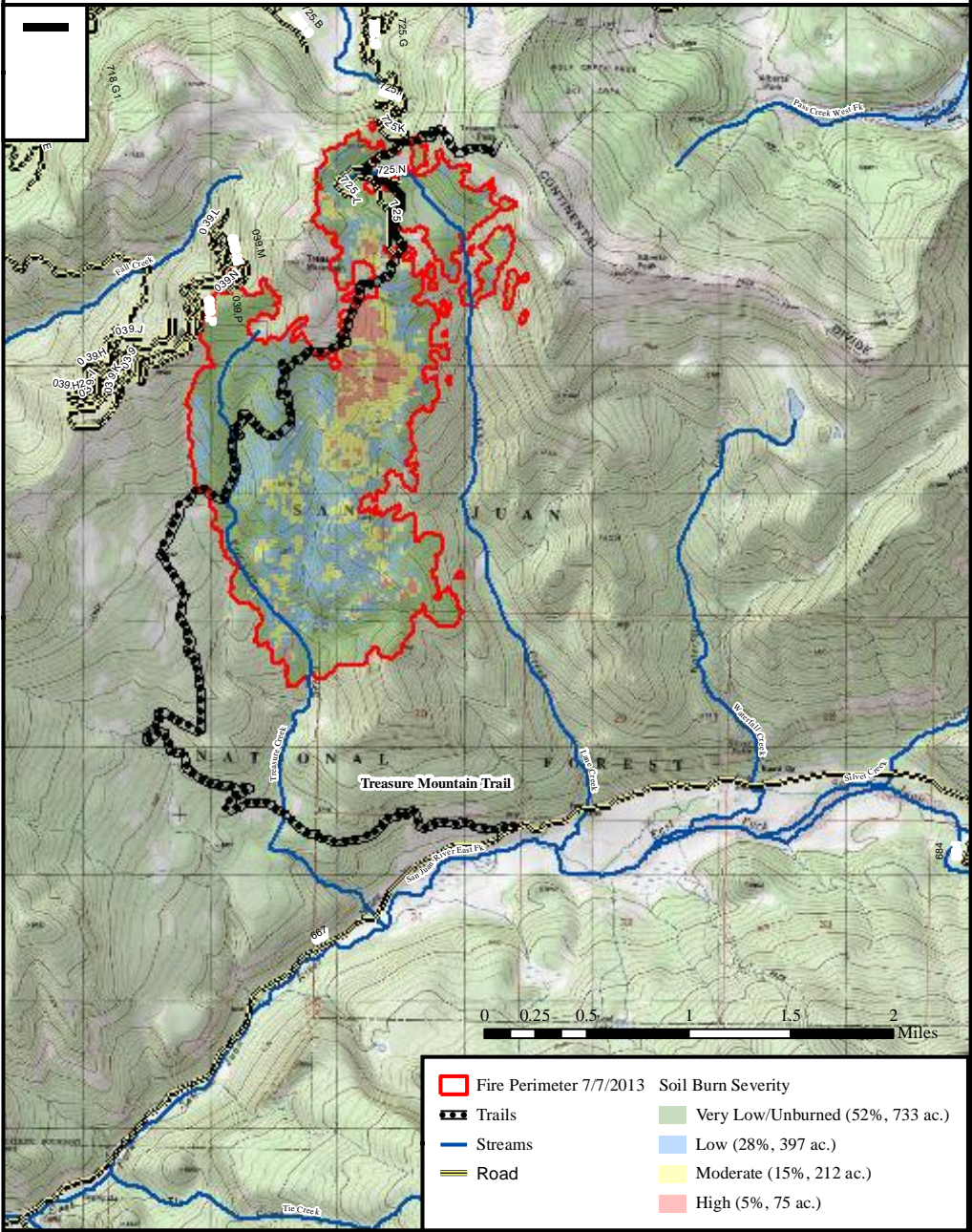


Figure 3: Soil Burn Severity, Windy Pass Fire



/s/Mark W. Stiles
MARK W. STILES
Forest Supervisor

cc: Tommy John
Kevin Khung