

Date of Report: **June 29, 2012****BURNED-AREA REPORT**
(Reference FSH 2509.13)**PART I - TYPE OF REQUEST**

A. Type of Report

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

B. Type of Action

- ☒ 1. Initial Request (Best estimate of funds needed to complete eligible rehabilitation 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: **Springer Fire**

B. Fire Number: CO-PSF-000556

C. State: COD. County: ParkE. Region: 02F. Forest: Pike/San Isabel, Cimarron/ComancheG. District: South Park: Financial Code= P2GX57

H. Date Fire Started: June 17, 2012

I. Date Fire Contained: June 23, 2012J. Suppression Cost: \$3.1 million

K. Fire Suppression Damages Repaired with Suppression Funds

1. Fireline waterbarred (0 miles)
2. Fireline seeded (0 miles)
3. Other (identify) Adjacent road used for suppression activities wetted and graded.

As per unit line officers, BAER needs will focus on soil stabilization and prevention of mobilization to South Platte River.

L. Watershed:

HUC6 Number	HUC6 Name
101900010605	Elevenmile Canyon Composite

M. Total Acres Burned

NFS = 1,145 ac **[1,145 Total]**

N. Vegetation Types:

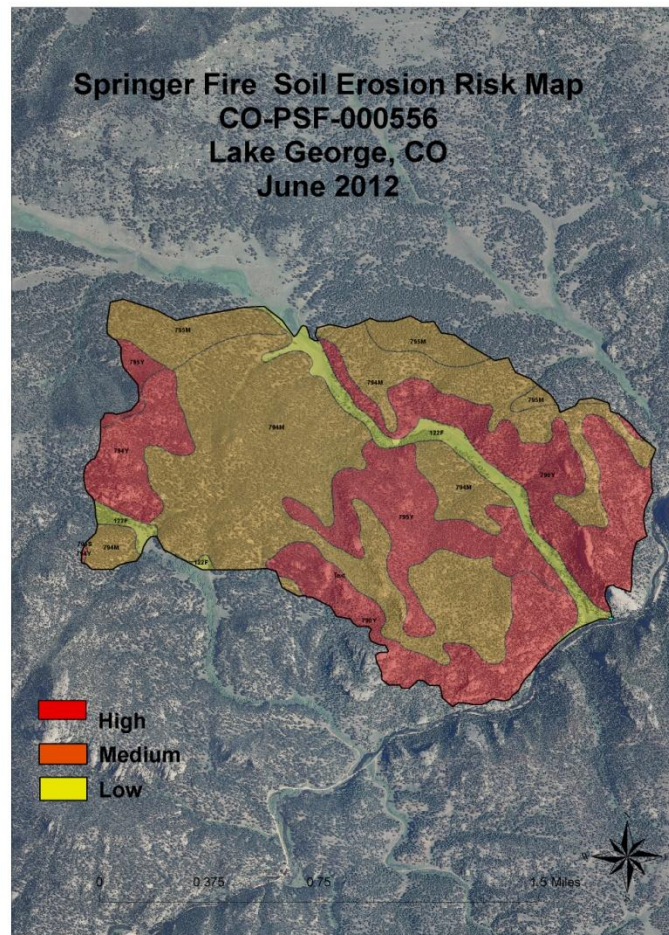
Vegetation Types	Acres within Perimeter
Ponderosa Pine	573 acres (50%)
Ponderosa Pine / Douglass Fir	515 acres (45%)
Herbaceous Riparian	57 acres (5%)

Ecosystem Types	Acres within Perimeter
Montane Forest	1145

O. Dominant Soils: The NRCS Major soil descriptions for the area include: Cumilic Haploborolls and Sphinx Pikes Peak weathered granite associations.

The following table lists acreage and erosion hazard characteristics associated with the Springer Fire site.

Soil Name	MUID	Area (Acres)	Total Acres	Percent of Total Acres	EROS_HAZ
Cumilic Haploborolls	122F	9.587			1
	122F	52.444	62.031	6%	1
Sphinx Family	790Y	159.994			3
Sphinx Family	790Y	112.295	272.289	24%	3
Sphinx Family	794M	102.646			2
Sphinx Family	794M	363.684			2
Sphinx Family	794M	35.050			2
Sphinx Family	794M	14.464	515.843	46%	2
Sphinx Family	794Y	63.029			3
Sphinx Family	794Y	0.532	63.561	6%	3
Legault Family	795M	30.408			2
Legault Family	795M	46.612	77.021	7%	2
Legault Family	795S	0.003	0.003	0%	2
Legault Family	795Y	11.485			3
Legault Family	795Y	118.790	130.275	12%	3
Water	W	0.008	0.008	0%	
Total Acres			1121.030		
Total Acres High			466.125		
Total Acres Medium			515.846		
Total Acres Low			62.031		



P. Geologic Types: The main rock type in the area is igneous Pikes Peak Granite. It is pink to reddish, medium grained to coarse grained biotite or hornblend-biotite granite. Outcrops and exposures of Paleozoic rocks are evident. Holocene and Pleistocene deposits are in the valleys throughout the survey area. Fan alluvium, valley alluvium, and colluvium are throughout the area.

Q. Miles of Stream Channels by Order or Class: There are 9.8 miles of ephemeral and 1.6 miles of perennial streams (Messenger Gulch) within the fire perimeter. Adjacent to the fire perimeter to the SE lies 1.3 miles of the South Platte River. Should runoff from the fire reach the South Platte River, nearly 100% of it would be transported through Messenger and Springer Gulches.

R. Transportation System

Trails: 5 miles Roads: 2.3 miles

All trails are unauthorized user created.

Roads come from MVUM.

PART III - WATERSHED CONDITION

A. Burn Severity (acres): XXX (low) XXX (moderate) XXX (high)

Burn severity was delineated using Burned Area Reflectance Classification (BARC), ground and aerial reconnaissance. The general vegetation mapping and associated soil types provided a good general indicator of where increased threats for post-wildfire erosion and associated impacts to values at risk would likely occur.

Soil burn severity mapping was based on mapping criteria outlined in the Field Guide for Mapping Post Fire Soil Burn Severity. Burn severity at the Springer Fire ranged from low to high. Soil color varied brown with gray patches.

In the low soil burn severity area patches of fescue, muhly, needle and thread, and Kentucky bluegrass were burned slightly, grass structure remained, and roots were unharmed. Shrubs (primarily Mountain Mahogany) were partially consumed and most leaves remained on the branches. Canopy cover (Douglas fir and Ponderosa Pine) received some heat however, many needles remained green and brown needles attached. Very fine and medium to coarse roots remained intact.

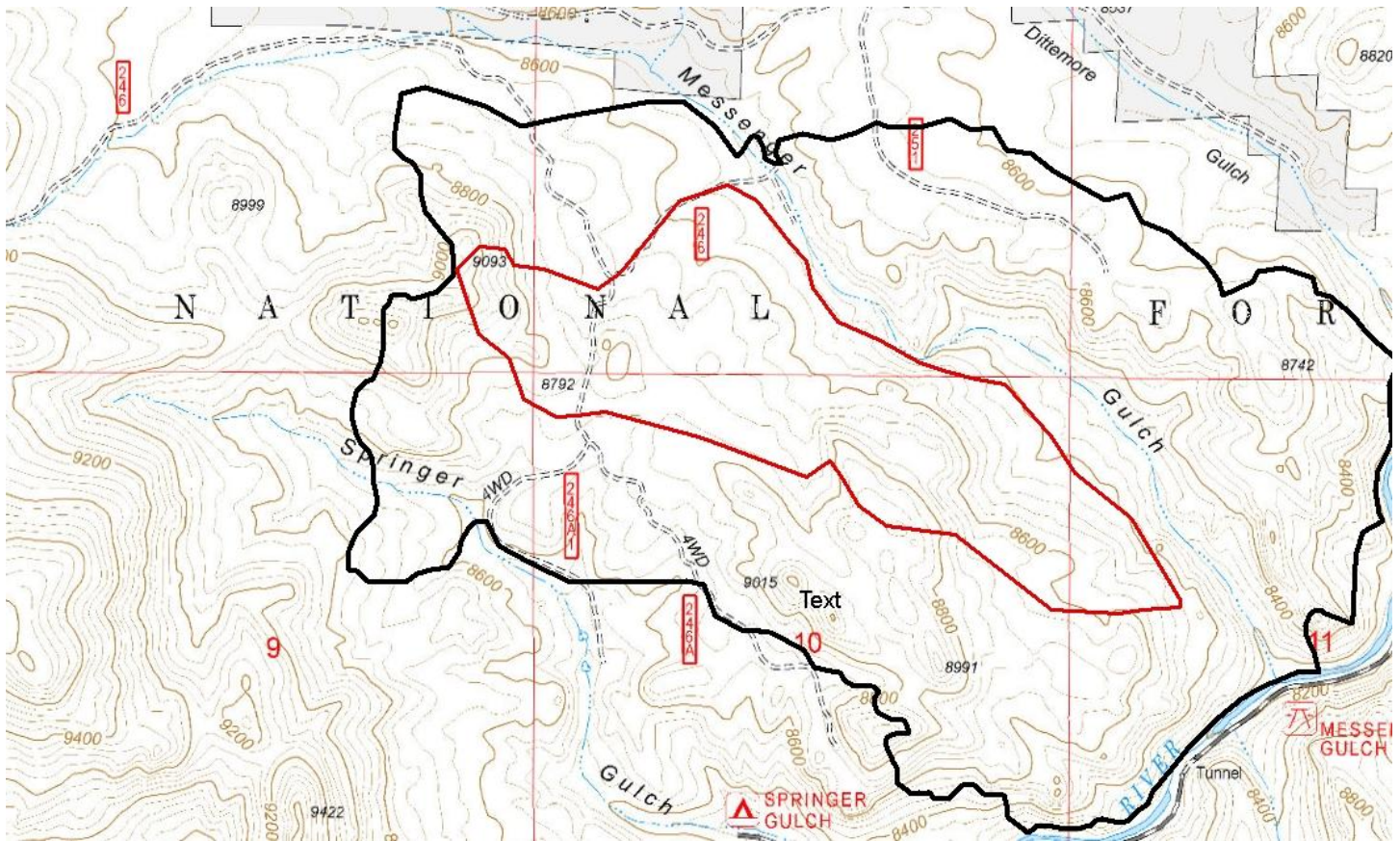
In the moderate soil burn severity area the ground cover was consumed and fine roots remained intact while medium to coarse roots varied. Shrub leaves were burned and shrubs remained standing with many stems still flexible. Canopy cover had some green needles but mostly brown with needles attached. Soil color was brown and gray.

In the high soil burn severity area, all light and heavy ground fuels were consumed. Fine and medium grass roots were not apparent near soil surface. Many trees remained standing without needles. Soil color was gray due to ash deposits. High burn severity areas is estimated at 260 of the 1140 fire acres (see Springer Fire Burn Severity Map below).

Observation of surrounding unburned or slightly burned areas showed the ground cover mostly consisted of kinickinick, annuals, grasses, litter, and shrub patches. Litter layer in uplands was shallow less than 1.5 inches.



Soil texture varied throughout the fire. Near hill toes, slopes greater than 22% or so, and rocky outcrops, soil was mostly medium to coarse. Soil texture varied in ephemeral channels from fine to coarse, based, on active or stable channel characteristics. In slopes less than 22% or so, a very fine layer of soil (less than 5 mm in thickness) covered a fine layer (5mm to several feet). The very fine layer was non-cemented, and fine layer was weakly cemented.



Springer Fire Burn Severity Map – (high burn severity outlined in red, fire perimeter in black)

B. Water-Repellent Soil (acres): Less than 250 acres estimated. Based on soil texture and severity, water-repellent soils likely developed in medium to high intensity burn areas. Very thin, moderately strong water repellent layers were generally found at the soil surface and close to the base of burned shrubs and trees. Based on the observation that the extent water repellency is spatially associated with the shrubs, the pattern of water repellency across the landscape is likely to be uniform in high intensity burn areas and spotty in moderate to low intensity burn areas.

C. Soil Erosion Hazard Rating (acres):
NFS lands 340 (low) 520 (moderate) 260 (high)

Use of the Erosion Risk Management Tool (ERMIiT) Preburn conditions pre burn sediment yield was calculated 0-3 tons per acre (tpa). Postburn sediment yield is increased up to 5.5 tpa in low burn severity soils and 14 tpa in high burn severity soils.

Within the watershed in 1986 a storm produce 2.77 inches in 3.38 hours. No post fire rain has occurred yet. Field observations on June 22 by BAER team hydrologist and soil scientist and resource advisor, noted that in high intensity burn area ground cover was 15-20 rockoutcrop, less than 5 percent in medium and low burn intensity area. Historic surface erosion due to authorized and unauthorized motorized use was evident and anticipated to be greatly exasperated due to the fire.

Potential for soil erosion and high sediment yield and transort in unvegetated ephemeral channels is high. The topography of the area consists of steep rocky slopes to terraces and eventually to wide valley bottom. Mean basin slope is 22.6% and the slope range is 3-85%. Kinetic runoff energy should be intercepted first by the rocky slopes, then by terraces, and eventually dissapated in the healthy riparian reaches (sse Springer Fire Proposed BAER Map below). Runoff Wind erosion potential is low.

D. Erosion Potential: 5.5 - 14 tpa tons/acre

E. Sediment Potential: cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

- A. Estimated Vegetative Recovery Period, (years): 10
- B. Design Chance of Success, (percent): 80
- C. Equivalent Design Recurrence Interval, (years): 10
- 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

- A. Describe Watershed Emergency:

The BAER Team utilized the Critical Values and Risk Assessment Tables in the BAER Manual (Interim Directive 2520-2010-1) to help determine Values at Risk (VAR) and complete the risk assesment.

Human Life and Safety

Warning Signs: To protect life and safety of recreational users, the BAER Team identified a need for installation of signs to warn of increased risk of flooding potential, and hazard tree falling. This treatment is needed at 4 access points to the burn area and along the 1.3 miles of the South Platte River.

Property

Roads: FSR 246, FSR 246a and FSR 246a1 are expected to receive and drain elevated and more frequent flood flows due to vegetation loss. These roads will likely be downcut and damaged. The insufficient drainage on these roads will be overwhelmed and the hillslopes adjacent to the roads will be affected.

Natural Resources

Water/Fisheries: During the development of this BAER plan no observable rainfall event has occurred. The BAER Team did not identify post wildfire impacts on any beneficial uses of water in the South Platte and Messenger Gulch perennial flowing streams. The South Platte River is a critical part of the Denver municipal water supply. The South Platte River was listed as a 303(d) sediment impaired system in 1998. Active in stream restoration for the benefit of fisheries and sediment transport occurred in the South Platte River throughout Elvenmile Canyon. Storm monitoring of the South Platte River will determine if there are impacts to these improvements. Messenger Gulch is a tributary to the South Platte River that burned severely. Several headwater drainages in the severe burn intensity area are expected to erode and deliver sediment into Messenger Gulch. Messenger Gulch is anticipated to deliver sediment and debris from the burned area into the South Platte River. Straw mulching will reduce the potential for this sediment delivery. At least one existing headcut is expected to receive elevated flood flows and therefore active restoration is necessary.

Soil Productivity: BAER team assessment concluded natural recovery and monitoring would be the most effective and practical hillslope treatment option in the moderate to low burn severity areas. Monitoring of a burned area conditions, recovery of native vegetation, and recovery of soil stabilization is also recommended in

these areas to inform any future assessments to determine future BAER treatment needs. Any future assessments would include reconsideration of natural recovery, mechanical soil treatments, seeding and/or other erosion control methods.

In the high burn severity areas, mitigation is proposed to stabilize soils, improve runoff infiltration, and reduce impact to existing road infrastructure.

Sensitive Species (Wildlife): Needs work Steve Olsen is working with Sheila Lamb when possible and using the TNC database. Short narrative will be completed by Thursday.. Initial look show no plants or terrestrials but some habitat.

Sensitive Species (Plants): Although narrowleaf moonwort has not been found in the Elevenmile Canyon area, it is known to occur in the Pikes Peak-Rampart Range in the montane climate zone. Sites with habitat characteristics similar to known sites are present within the Elevenmile watershed. The same soil types are present, as are aspen woodlands adjacent to riparian areas. As such, conditions for the occurrence of narrowleaf moonwort are in the Springer burn area.

Likewise, yellow lady's-slipper is not known in the Elevenmile Canyon Watershed. Conditions similar to those of known population in the Pikes Peak-Rampart Range can be found in the burn area, so may provide appropriate habitat, although this area is generally drier than most yellow lady's-slipper sites.

The proposed activities in the Springer burn area are unlikely to impact either of the two species habitats. Conditions for the moonwort are likely to improve over time due to the lack of recent disturbance on the slopes of the area. Aerial spreading of mulch would do little to change the potential habitat in the area, but may accelerate the establishment of appropriate fungi and humus in the soil. Spreading mulch over 60 acres of marginal or unlikely yellow lady's-slipper habitat would not impact the species.

Native Vegetation Recovery:

Increase in Invasive Plant 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 and rehabilitation has the potential to establish large and persistent weed populations. In addition, it is highly likely that existent weed infestations will increase in the burn area, due to their accelerated growth and reproduction and a release from competition with natives. 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. The Springer Gulch Fire removed the vegetative barriers that previously limited the amount of cross country travel in the burn area. Increased use of this area by horseback riders, mountain bikers, hikers, and guided vehicle tours may facilitate the spread of invasive weeds. These uses may also contribute to increased density and distribution of invasive weeds. An increase in invasive weeds can contribute to type conversion and overall reduction in the density and distribution of native plants. There are existing Canada Thistle weed populations, however, the extent is unknown.

Cultural Resources: Historical and archaeological resources within the burned area include one identified site. No threat to this site is expected and no treatment is necessary at this time.

B. Emergency Treatment Objectives:

- Install warning signs to reduce threats to life/safety of recreational users by preventing access into hazardous areas and to accelerate natural recovery by preventing travel on unauthorized roads and trails
- The objective of natural recovery of native vegetation treatment is to achieve recovery of soil stability and this is highly dependent on weather conditions affecting vegetation regrowth. Monitor burned area conditions for recovery of native vegetation and soil stabilization to determine future BAER treatment needs.

- The objective of aerial mulching is to stabilize soil resources in the upper 1/3, severely burned portion of the watershed and to protect a functioning riparian filter system in the lower 2/3 of the Messenger Gulch Watershed.
- The objective of treating existing headcuts is to prevent further downcutting, sediment transport and sediment deposition into a functioning riparian area.
- Reduce the potential for impaired vegetative recovery and introduction/spread of noxious weeds.
- Monitor the vegetation recovery through quantitative data analysis, GIS mapping, and photo points to make informed decisions on recovery of native vegetation and introduction/spread of noxious weeds over the next three years following the fire.
- Reduce threat to USFS road investments.

C. Probability of Completing Treatment Prior to First Major Damage-Producing Storm:

Land 100 % Channel % Roads 100 % Other %

D. Probability of Treatment Success:

Years after Treatment			
	1	3	5
Land	NA	NA	NA
Channel	NA	NA	NA
Roads	NA	NA	NA
Other			

E. Cost of No-Action (Including Loss): xxxxx

F. Cost of Selected Alternative (Including Loss): xxx

G. Skills Represented on Burned-Area Survey Team:

☒ Hydrology ☒ Soils ☐ Geology ☒ Range
☐ Forestry ☐ Wildlife ☒ Fire Mgmt. ☒ Roads/Minerals
☐ Contracting ☐ Ecology ☐ Botany ☐ Archaeology
☒ Recreation ☐ Research ☐ Landscape Arch ☒ GIS
☒ Paleontology

Team Leader: Dana Butler / Steve Sanchez

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stevenasanchez@fs.fed.us 719-553-1518

H. Treatment Narrative:

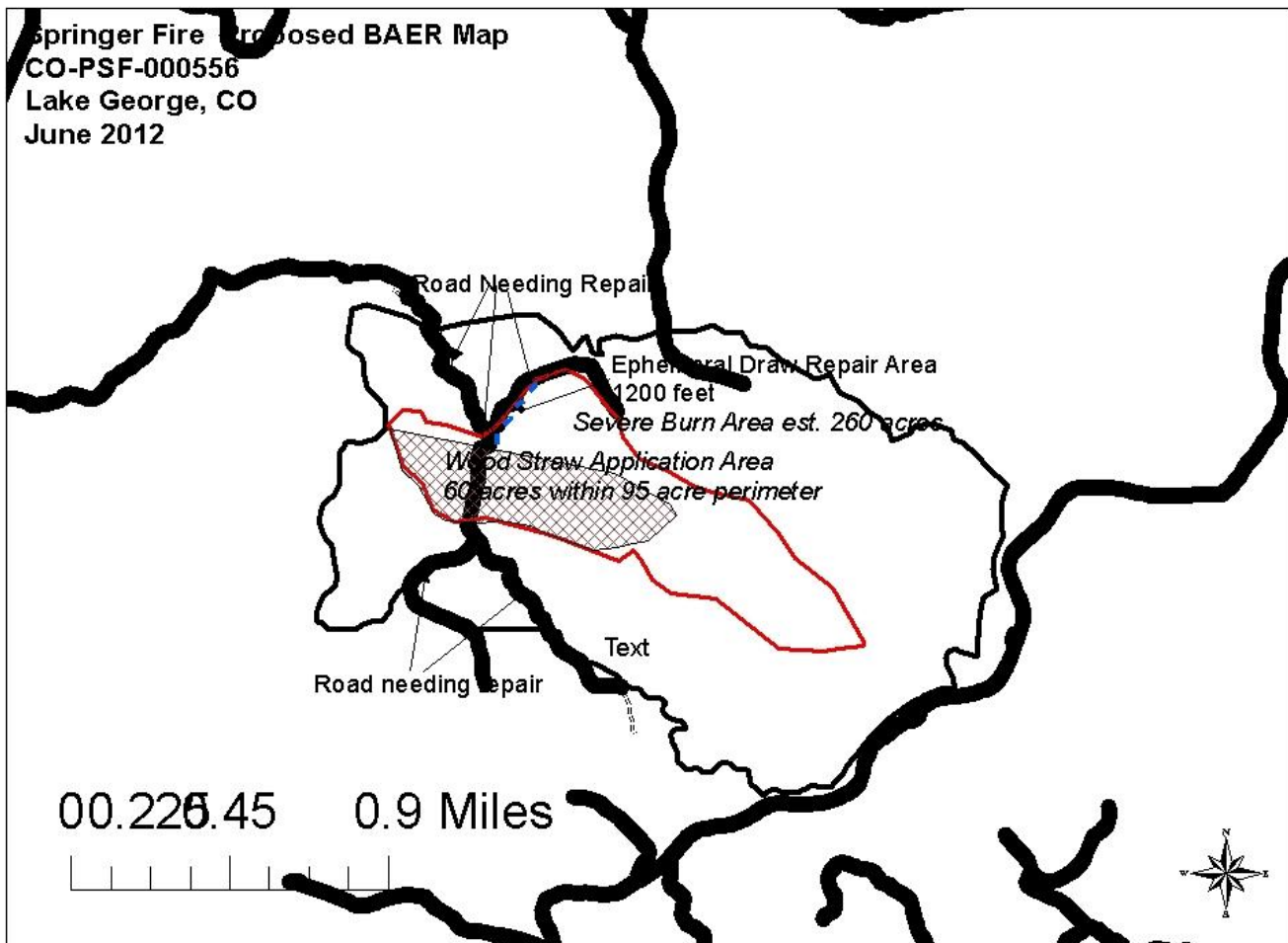
Land Treatments:

Hillslope Stabilization:

Aerial mulching is recommended to maintain slope stability and reduce soil erosion and sediment transport into South Platte river system

Estimated Cost:

Aerial Mulch Application (\$800/acre X 60 acres)	\$ 48,000
1-GS-12 Specialist (\$400/day x 2 days)	\$ 800
Vehicle Mileage (320 miles x .55/mile)	\$ 176
Total:	\$ 48,176



Noxious Weed Detection Survey:

Surveys will begin in 2012 during the flowering periods of weed species. Because of differences in flowering times for all potential species, two visits may be required during the growing season. Completion of surveys in riparian areas, roads, trails, disklines, hand lines and known invasive and sensitive plant populations would be the first priority. Surveys of the general habitats in the burned area would be the lowest priority. Canada Thistle is known to be present.

Weed detection surveys to determine whether ground disturbing activities related to the Springer Gulch Fire Incident and the fire itself have resulted in the expansion of noxious weeds is requested for the first year.

Estimated Cost:	
1-GS-11 Specialist (\$400/day x 2 days)	\$ 800
Vehicle Mileage (320 miles x .55/mile)	\$ 176
<hr/>	
Total:	\$ 976

Channel Treatments:

Headcut stabilizatoin work is proposed in Messenger Gulch. This work will be completed by a work crew from the Coalition for the Upper South Platte. This crew will also assist with the aerial mulching to ensure proper distribution of aerial mulch. This is a 4 person crew that includes sawyers.

Estimated Cost:

1-CUSP Field Crew (\$1000/day x 3 days)	\$ 3000
Total:	\$ 3000

Protection and Safety:

Hazard and Advisory Signs:

This treatment is preventative. Signs will be placed at access points scattered throughout the burn area at 4 access points and throughout the Elevenmile Canyon. The signs will encourage visitors to stay on main roads/trails to facilitate native plant recovery, decrease noxious/invasive weed vectors and protect soil productivity and warn them of the possible flash flood dangers within the burn area. Signs will be durable in nature and made of wood and carsonite.

Recreation/Public Safety Signs

Sign Installation	Unit	Unit Cost	# of Units	Total
GS-5	Day	\$120.00	4	\$480
			Total	\$480
Materials and Supplies	Unit	Unit Cost	# of Units	Total
Signs	each	\$ 17.00	20	\$340
Labels	each	\$ 3.00	20	\$ 60
Public Safety Signs with posts	each	\$ 30.00	10	\$ 300
			Total	\$ 700

Roads: FDR 246, 246a and 246a1

Roads in the severely burned areas are expected to receive elevated and more frequent flood flows. These roads need to be maintained with improved drainage systems to drain roads without causing erosion.

Road Maintenance – Level II Roads (\$1100/mi X 1.8 Miles)	\$1,980
Mobilization	\$400
Total:	\$2,380

I. Monitoring Narrative:

BAER Effectiveness/Storm Patrol Monitoring

Monitoring will consist of photo point data collection of BAER land treatments post storm events.

Estimated Cost:

GS-12 (\$400/day x 2 days) - Soils	\$ 800
GS-11 (\$380/day X 2 days)- Hydro	\$ 760
Vehicle Mileage (320 miles x .55/mile)	\$ 176
TOTAL:	\$ 1,736

PART VI – TREATMENT COSTS

			NFS Lands	
		Unit	# of	WFSU
Line Items	Units	Cost	Units	SULT \$
A. Land Treatments				
Noxious Weeds				
Labor - Monitoring				\$800
Vehicle/Supplies				\$176
Hillslope Stabilization - Aerial Mulching				
Labor				\$800
Contract - 60 Acres				\$48,000
Vehicle/Supplies				\$176
<i>Subtotal Land Treatments</i>				\$49,952
B. Channel Treatments				
Labor				\$3,000
<i>Subtotal Channel Treat.</i>				\$3,000
C. Road and Trails				
Equipment w/ Operator				\$2,380
<i>Subtotal Road & Trails</i>				\$2,380
D. Structures				
<i>Subtotal Structures</i>				\$0
E. Protection and Safety Treatments				
Hazard and Advisory Signs				
Labor				\$480
Vehicle/Supplies - Carsonite Markers				\$700
<i>Subtotal Structures</i>				\$1,180
F. BAER Evaluation				
Charged to	P code			\$800
(excluded from total at bottom)				\$0
<i>Subtotal Evaluation</i>				\$800
G. Monitoring				
Storm Patrol				
Labor				\$1,560
Vehicle/Supplies				\$176
<i>Subtotal Monitoring</i>				\$1,736
H. Totals				\$59,048

PART VII - APPROVALS

/s/ John F. Peterson
(for) Forest Supervisor (signature)

Date: **June 29, 2012**

/s/Brian Ferebee (for)
Regional Forester (signature)

Date **7/17/2012**