Date of Report: 08/13/2012

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

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

B. Type of Action

[X] 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: Little Sand

B. Fire Number: CO-SJF-000133

C. State: Colorado

D. County: Archuleta, Hinsdale

E. Region: 2

F. Forest: San Juan National Forest

G. District: Pagosa Ranger District

H. Fire Incident Job Code: P2GVE7

I. Date Fire Started: 5/13/2012

J. Date Fire Contained: 8/6/2012

K. Suppression Cost: $7,621,652 as of 8/9/2012

L. Fire Suppression Damages Repaired with Suppression Funds
1. **Fireline waterbarred (miles)**: 1.5
2. **Fireline seeded (miles):** 3.0
3. **Other (identify):** 1.5, scattered slash, pulled berms back onto dozer line.

M. Watershed Number: The entire Little Sand Fire is contained within the Middle Piedra Watershed (5th Level HUC: 1408010202), 6th level subwatersheds are listed below.

Subwatershed Name	6th Level HUC
Little Sand Creek-Weminuche Creek	140801020202
Sand Creek	140801020203
First Fork Piedra River	140801020204
Box Canyon-Piedra River	140801020205

N. Total Acres Burned: 24,931

[24,850.3]	**NFS**
[80.6]	**Private**
[0.0]	**Other Federal**
[0.0]	**State**

O. Vegetation Types:

Local Vegetation/Cover Type	Percent
Cool-Moist Mixed Conifer	31.8%
Warm-dry Mixed Conifer	25.6%
Engelmann spruce - subalpine fir	22.7%
Ponderosa pine	11.3%
Aspen with Conifer	6.8%
Riparian	0.7%
Mountain Grassland	0.6%
Aspen	0.3%
Other	0.1%

P. Dominant Soils: Soils within the fire perimeter are roughly evenly divided between Alfisols and Mollisols (about 12,000 acres each), with approximately 300 acres of Inceptisols.

Q. Geologic Types: Sandstone formations (Hermosa, Dakota, Morrison, Entrada, Cutler and Wanakah) compose the majority of the Little Sand fire. Additionally, there are small areas of both metamorphic and igneous origin.

R. Miles of Stream Channels by Order or Class: Within the Little Sand fire perimeter there is a total of 91.2 miles of streams, the distribution of miles by stream order is shown in the table below.

Stream Order	Miles
7	1.4
5	1.5
4	9.5
3	9.0
2	21.0
1	48.4
0	0.4

S. Transportation System

Trails: 28.3 **miles** **Roads:** 18.1 **miles**
(Calculated within the fire perimeter)

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 15,922 **(low)** 3,820 **(moderate)** 1,477 **(high)**

B. Water-Repellent Soil (acres): Not measured

C. Soil Erosion Hazard Rating (acres): 3356 **(low)**
3073 **(moderate)**
15009 **(high)**

NRCS Classifications
Very Severe: 4348 ac
Severe: 10661 ac
Moderate: 3073 ac
Slight: 3356 ac
No Data: 3493

D. Erosion Potential: Not Applicable **tons/acre**

E. Sediment Potential: Not Applicable **cubic yards / square mile**

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): Not Applicable

D. Design Storm Duration, (hours): Not Applicable

E. Design Storm Magnitude, (inches): Not Applicable

F. Design Flow, (cubic feet / second/ square mile): Not Applicable

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:

The high burn severity patches of the Little Sand Fire tend to be isolated, relatively small in size, and surrounded by areas of low and moderate severity (See Figure 3). This factor, combined with the topography of the burned area and the physical arrangement of infastructure (homes, roads, etc.) has created a situation where there are no values at risk of post fire generated flooding or landslides. The burned area has already received substantial precipitation, and while there are localized areas of increased erosion and sedimentation, overall impacts to watershed resources have been minimal.

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 Little Sand Fire. These species include houndstongue, yellow toadflax, musk thistle, Canada thistle, oxeye daisy, and cheatgrass (See Figure 1).

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. Formal weed inventory has not been done in most of the fire area due to its remoteness. Lands adjacent to the fire have documented large 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.

The Little Sand Fire has created a favorable seedbed and environment for establishment and expansion of noxious weed and invasive species. Noxious weed and invasive species will establish quickly in areas that will take native vegetation much longer to establish, taking advantage of the readily available soil nutrients and soil moisture with little competition (See Figure 2).

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 and system and non-system trails are expected to continue to contribute to the spread of noxious weeds and invasive species.

B. Emergency Treatment Objectives (narrative): Noxious weed and invasive weed species are managed in and adjacent to the burned area so as not to influence recovery of native species and ecosystem function.

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

Land 0**%** **Channel** 0**%** **Roads/Trails** 0**%** **Protection/Safety** 0**%**

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	N/A	N/A	N/A
Protection/Safety	N/A	N/A	N/A

E. Cost of No-Action (Including Loss): Qualitative cost of no action would include degredation of ecosystem function as current noxious weed infestations will expand and new infestations will establish, out competing native species. Forage for livestock and willdilfe, wildlife habitat, and recreational values will be decreased. Quantitatively, assuming 21,219 acres of the fire burned at low to high intensity where a receptive seed bed would be present and setting the value of a functional native ecosystem at $16/acre potential loss would be $339,504 per year. Over 5 years the potential loss would equate to $1,697,520.

F. Cost of Selected Alternative (Including Loss): The cost of the selected alternative would be $77,750. With a 50% probability of success in recovery of native species and ecosystem function over a five year period, loss would be reduced to $848,760.

G. Skills Represented on Burned-Area Survey Team:

[X]	**Hydrology**	**[X]**	**Soils**	**[X]**	**Geology**	**[X]**	**Range**
[X]	**Forestry**	**[X]**	**Wildlife**	**[X]**	**Fire Mgmt.**	**[ ]**	**Engineering**
[ ]	**Contracting**	**[X]**	**Ecology**	**[ ]**	**Botany**	**[X]**	**Archaeology**
[X]	**Fisheries**	**[ ]**	**Research**	**[ ]**	**Landscape Arch**	**[X]**	**GIS**

Team Leader: Becca Smith

Email: rsmith@fs.fed.us **Phone**: (970) 264-1521 **FAX**: (970) 264-1538

H. Treatment Narrative:

<u>Land Treatments</u>:

Noxious Weed Detection:

Noxious weed and invasive species inventory is conspicuously absent within and around the burned area due to its remoteness, lack of roads, and management of the Piedra Area for its wilderness character. Houndstongue, yellow toadflax, musk thistle, Canada thistle, oxeye daisy, and cheatgrass infestations are prevalent within and near 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 area to formulate appropriate Integrated Weed Management strategies and treatment objectives so as not to influence recovery of native species and ecosystem function.

The treatment will consist of contracting noxious weed inventory along areas of the Piedra River Trail (NFST #596), Coldwater Stock Trail (NFST #598), Weminuche Creek Trail (NFST #595), Little Sand Creek Trail (NFST #591), Piedra Stock Trail (NFST #598), Sand Creek Trail (NFST #593), and North Ridge Trail (FS Trail #594). The contract would also call for inventory of potential weed infested meadows within close proximity of these trails. In addition, dozer and hand line would be inventoried (See Figure 4).

Most of this inventory would be conducted via horse back or by foot due to the lack of roads and management direction for the Piedra Area. Approximately 760 acres would be inventoried.

Noxious Weed Treatment:
Where noxious weed and invasive species have previously been inventoried and treated in and around the burned area, continued treatment would be emphasized. These areas are roaded and can be accessed via motorized equipment. These occur north and east of the burned area and include the Trail Ridge, Mosca Road, and Weminuche Creek areas. 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. A combination of Forest Service crews and contracting will be used to complete this treatment. The upper portion of the Weminuche Creek drainage infested with musk thistle, Canada thistle, and yellow toadflax would be treated with herbicide under a back country weed treatment contract.

The treatment would include release of biological controls targeting musk thistle and yellow toadflax. *Trichosirocalus horridus* feeds in the crowns of musk thistle, killing the apical meristem and reducing the flowering potential of the plant. *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. Insects would be released outside the Piedra Area along the Piedra River, along Weminuche Creek, and on the Mosca Road.

A back country weed treatment contract would be let to treat the noxious weeds and invasive species identified and mapped through the inventory. Approximately 250 acres would be treated.

Channel Treatments: None

Roads and Trail Treatments: None

Protection/Safety Treatments: None

I. Monitoring Narrative:

BAER noxious weed treatment and inventory contracts will be monitored during implementation by project inspectors to insure that specifications are met. Implementation of project treatments will be monitored to insure that they are 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.

Part VI – Emergency Stabilization Treatments and Source of Funds **Interim #**

			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										
Noxious weed inventory contract	Day	300	20	$6,000	$0		$0		$0	$6,000
Noxious weed treatment contract	Day	900	65	$58,500	$0		$0		$0	$58,500
Project weed treatment	Acres	75	10	$750						$750
Bio-Control Purchase	Each	30	20	$600	$0		$0		$0	$600
Contracting Officer GS-11	Days	360	5	$1,800						$1,800
Bio-control releases, contract inspections GS-9	Days	290	10	$2,900						$2,900
Implementation Leader, Contract Admin GS-11	Days	360	20	$7,200	$0		$0		$0	$7,200
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$77,750	$0		$0		$0	$77,750
B. Channel Treatments										
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treat.				$0	$0		$0		$0	$0
C. Road and Trails										
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$0	$0		$0		$0	$0
D. Protection/Safety										
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$0	$0		$0		$0	$0
E. BAER Evaluation				$15,000						
				---			$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				$77,750	$0		**$0**		**$0**	**$77,750**
Previously approved										
Total for this request				**$77,750**						

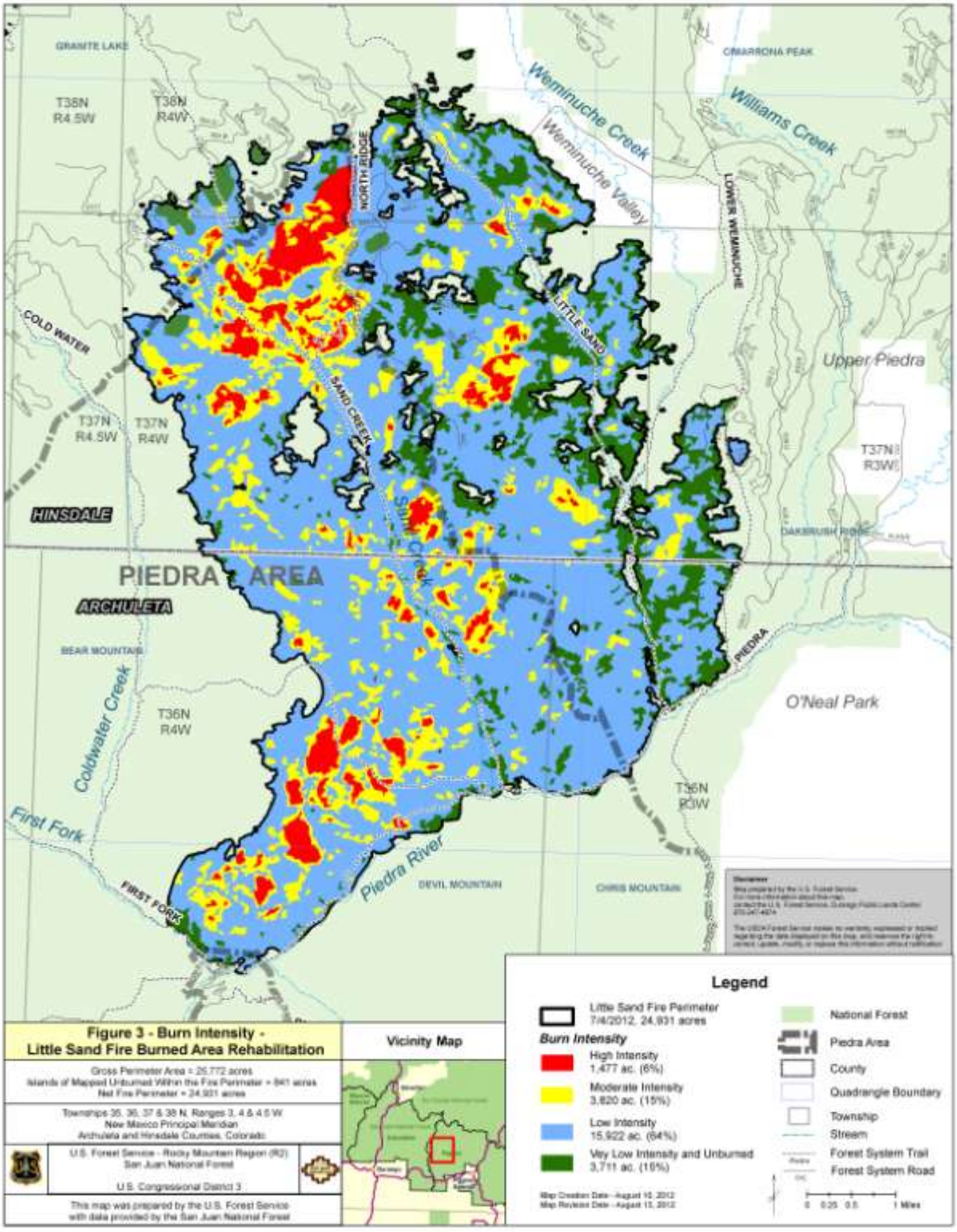
PART VII - APPROVALS

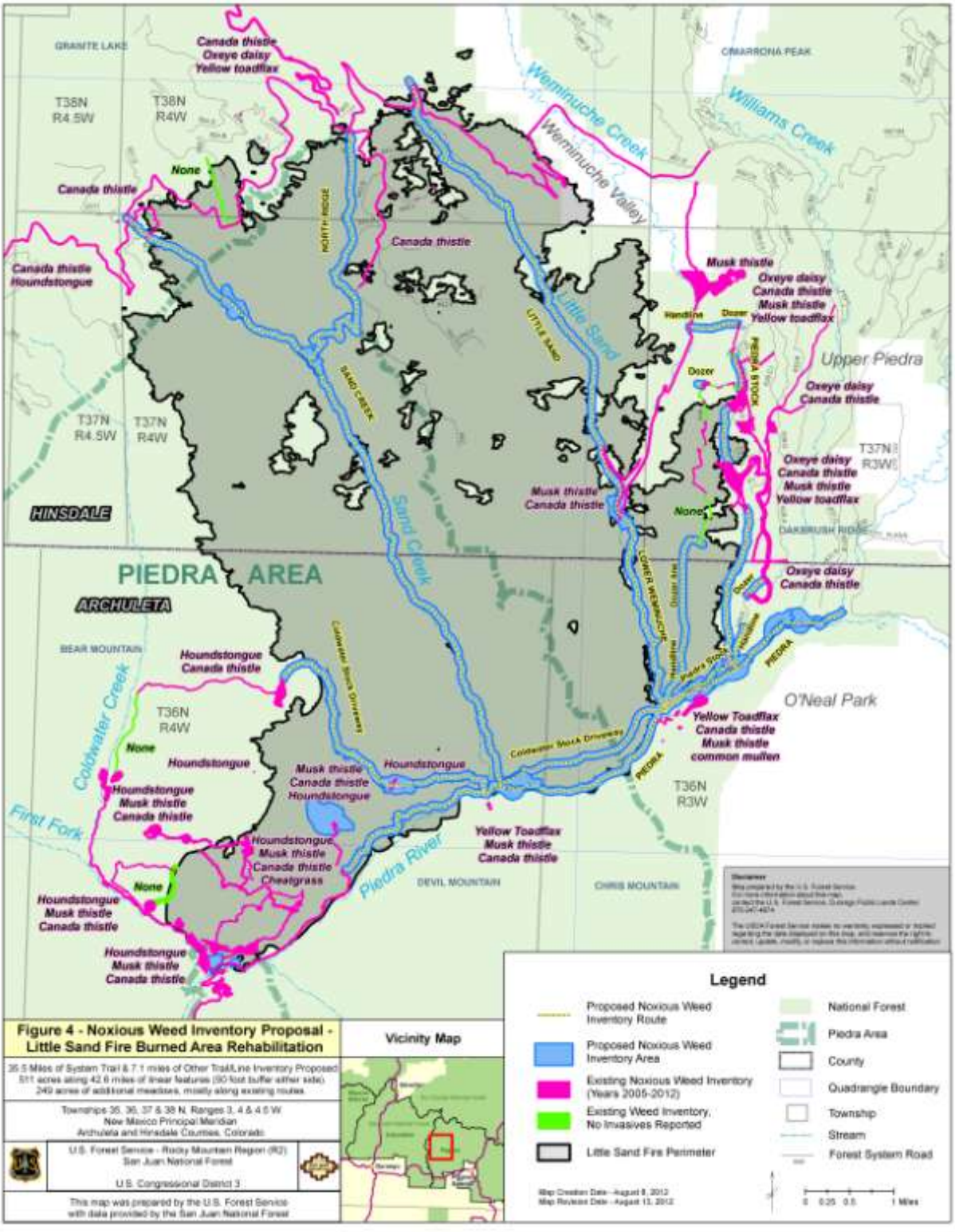
1. */s/ Mark W. Stiles* 8/13/12
   Forest Supervisor (signature) Date

2. _____ _____
   Regional Forester (signature) Date

Figure 1: Yellow toadflax near perimeter of Little Sand Fire

Figure 2: Little Sand Fire burning through Canada thistle


GRANITE LAKE
CIMARRONA PEAK
T38N R4.5W
T38N R4W
Weminuche Creek
Weminuche Valley
Williams Creek
NORTH RIDGE
LOWER WEMINUCHE
LITTLE SAND
COLD WATER
SAND CREEK
Upper Piedra
T37N R4.5W
T37N R4W
T37N R3W
HINSDALE
PIEDRA AREA
ARCHULETA
BEAR MOUNTAIN
PIEDRA
O'Neal Park
Coldwater Creek
T36N R4W
T36N R3W
First Fork
Piedra River
DEVIL MOUNTAIN
CHRIS MOUNTAIN
FIRST FORK
Figure 3 - Burn Intensity -
Little Sand Fire Burned Area Rehabilitation
Gross Perimeter Area = 25,772 acres
Islands of Mapped Unburned Within the Fire Perimeter = 841 acres
Net Fire Perimeter = 24,931 acres
Townships 35, 36, 37 & 38 N. Ranges 3, 4 & 4.5 W
New Mexico Principal Meridian
Archuleta and Hinsdale Counties, Colorado
U.S. Forest Service - Rocky Mountain Region (R2)
San Juan National Forest
U.S. Congressional District 3
This map was prepared by the U.S. Forest Service
with data provided by the San Juan National Forest
Vicinity Map
Legend
Little Sand Fire Perimeter
7/4/2012, 24,931 acres
Burn Intensity
High Intensity
1,477 ac. (6%)
Moderate Intensity
3,820 ac. (15%)
Low Intensity
15,922 ac. (64%)
Very Low Intensity and Unburned
3,711 ac. (15%)
National Forest
Piedra Area
County
Quadrangle Boundary
Township
Stream
Forest System Trail
Forest System Road
0 0.25 0.5 1 Miles


GRANITE LAKE
CIMARRONA PEAK
Weminuche Creek
Williams Creek
Weminuche Valley
T38N R4.5W
T38N R4W
Canada thistle
Oxeye daisy
Yellow toadflax
None
Canada thistle
Canada thistle
Houndstongue
NORTH RIDGE
Canada thistle
Musk thistle
Oxeye daisy
Canada thistle
Musk thistle
Yellow toadflax
Handline
Dozer
Little Sand
LITTLE SAND
Dozer
PIEDRA STOCK
Upper Piedra
Oxeye daisy
Canada thistle
T37N R4.5W
T37N R4W
SAND CREEK
T37N R3W
Oxeye daisy
Canada thistle
Musk thistle
Yellow toadflax
HINSDALE
Musk thistle
Canada thistle
None
Sand Creek
OAKBRUSH RIDGE
PIEDRA AREA
ARCHULETA
Oxeye daisy
Canada thistle
LOWER WEMINUCHE
Handline
Dozer
PIEDRA
BEAR MOUNTAIN
Houndstongue
Canada thistle
Coldwater Stock Driveway
Coldwater Creek
T36N R4W
None
Houndstongue
Houndstongue
Musk thistle
Canada thistle
Houndstongue
Houndstongue
Musk thistle
Canada thistle
Coldwater Stock Driveway
PIEDRA
O'Neal Park
Yellow Toadflax
Canada thistle
Musk thistle
common mullen
T36N R3W
First Fork
Piedra River
Houndstongue
Musk thistle
Canada thistle
Cheatgrass
Yellow Toadflax
Musk thistle
Canada thistle
None
DEVIL MOUNTAIN
CHRIS MOUNTAIN
Houndstongue
Musk thistle
Canada thistle
Houndstongue
Musk thistle
Canada thistle
Figure 4 - Noxious Weed Inventory Proposal - Little Sand Fire Burned Area Rehabilitation
35.5 Miles of System Trail & 7.1 miles of Other Trail/Line Inventory Proposed
511 acres along 42.6 miles of linear features (50 foot buffer either side)
249 acres of additional meadows, mostly along existing routes
Townships 35, 36, 37 & 38 N. Ranges 3, 4 & 4.5 W
New Mexico Principal Meridian
Archuleta and Hinsdale Counties, Colorado
U.S. Forest Service - Rocky Mountain Region (R2)
San Juan National Forest
U.S. Congressional District 3
This map was prepared by the U.S. Forest Service
with data provided by the San Juan National Forest
Vicinity Map
Legend
Proposed Noxious Weed Inventory Route
Proposed Noxious Weed Inventory Area
Existing Noxious Weed Inventory (Years 2005-2012)
Existing Weed Inventory, No Invasives Reported
Little Sand Fire Perimeter
National Forest
Piedra Area
County
Quadrangle Boundary
Township
Stream
Forest System Road
Map Created Date - August 8, 2012
Map Revised Date - August 13, 2012
0 0.25 0.5 1 Miles