Forest Service

San Juan National Forest

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File Code: 2520
Route To:

Date: December 20, 2012

Subject: Vallecito Fire BAER Report

To: Regional Forester

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: Vallecito Fire

B. Fire Number: CO-SJF-001038

C. State: Colorado

D. County: La Plata

E. Region: 2

F. Forest: San Juan National Forest

G. District: Columbine Ranger District

H. Fire Incident Job Code: P2G9US (0213)

I. Date Fire Started: 10/16/2012

J. Date Fire Contained: 12/13/2012

K. Suppression Cost: $850,000

L. Fire Suppression Damages Repaired with Suppression Funds

1. **Fireline waterbarred (miles)**: 0
2. **Fireline seeded (miles):** 0
3. **Other (identify):** 0

M. Watershed Number: A large majority (1192 acres, 88%) of the fire is contained within the Vallecito Reservoir 6th Level Watershed (HUC 6: 140801011205). The remaining 12% (168 acres) is located within the Red Creek-Los Pinos River 6th Level Watershed (HUC 6: 140801011401).

N. Total Acres Burned: 1,360

[1,360]	**NFS**
[0]	**Private**
[0]	**Other Federal**
[0]	**State**

O. Vegetation Types: The Vallecito Fire burned within the perimeter of the 2002 Missionary Ridge Fire. As a consequence it burned ground fuels and dead timber that was still in place from the previous fire.

Description	Acres
Aspen Forest	807
Mountain Grassland	305
Cool-Moist Mixed Conifer Forest	151
Aspen Forest with < 100% hardwoods	92
Mountain Shrubland	4

P. Dominant Soils: The majority of the soils in the burn area are alfisols.

Q. Geologic Types: A majority of the burned area is derived from sandstones, with a small fraction of igneous origin.

R. Miles of Stream Channels by Order or Class: Within the Vallecitofire perimeter there is a total of 11.5 miles of streams, the distribution of miles by stream order is shown in the table below.

Stream Order	Miles
3	0.3
2	3.1
1	8.1

S. Transportation System

Trails: 2.8 **miles** **Roads:** 0 **miles**

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 1,240 **(low or unburned)** 100 **(moderate)** 20 **(high)**

Description:
The Vallecito Fire burned within the perimeter of the 2002 Missionary Ridge Fire, and consequently consumed mostly ground fuels, both recent growth and standing/downed fuel left over from the 2002 fire. The fire created a very mosiaced burn pattern, with the vast majority being unburned or low severity, but interspersed with areas of moderate and high severity that corresponded to downed dead fuels from the 2002 fire. The fire received substantial snow input which precluded the use of BARC products and severly hampered field efforts at mapping soil burn severity. Observations made in snow free areas are assumed to applicable to the whole fire. Spring time post snowmelt observations will be completed verify the conlusions reached during this assessment. Visual estimates of soil burn severity were used to develop the estimated acreages above. The pictures below represent typical conditions observed on the fire.

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

C. Soil Erosion Hazard Rating (acres): 0 **(low)**
556 **(moderate)**
804 **(high)**

NRCS Classifications
Very Severe: 490 ac
Severe: 315 ac
Moderate: 556 ac
Slight: 0 ac

No Data: 0 ac

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 Vallecito Fire burned primarily in the Red Creek and Jack Creek drainages slightly to the west of the Vallecito Dam. Both drainages terminate in higway crossings and private residential properties. In the Jack Creek drainage approximately 35% of the watershed above the highway burned, while in the Red Creek Drainage approximately 13% was burned. In both drainages, the impacts to hydrologic function from the Vallecito Fire (runoff response and erosion/sedimentation) are unlikely to be significant. This determination is based primarily on the mosiac burn severity pattern, the remaining presence of substantial unburned downed trees from the 2002 fire, and the survival of much of the Aspen that has grown since 2002. These factors will serve to effectively mitigate hydrologic impacts by interupting overland flow and trapping sediment that is generated in the localized areas of moderate and high burn severity.

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 Vallecito Fire. These species include houndstongue (*Cynoglossum officinale*), yellow toadflax (*Linaria vulgaris*), musk thistle (*Carduus nutans*), bull thistle (*Cirsium vulgare*) and Canada thistle (*Cirsium arvense*).

Formal noxious weed inventory and treatment records were compiled from current Forest Service GIS data for the fire perimeter, dozer and hand lines (See Figure 1). Field reconnaissance of lands in and within close proximity to the burned area was conducted during and after the fire to determine the potential for noxious weed and invasive species establishment and expansion. Lands within the fire perimeter, within the dozer and hand

lines and 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.

After the 2002 Missionary Ridge Fire, the entire fire area, particularly the Vallecito Lake area, saw a major increase in noxious weeds specifically musk thistle, Canada thistle and houndstongue. The fire created a favorable seedbed and environment for establishment and expansion of noxious weed and invasive species that the agency has been combatting since 2002. The Vallecito fire burned within the perimeter of the Missionary Ridge fire providing for another disturbance in soils, vegetation and seed bed which will make it more likely for another increase in non-native vegetation establishment and prevalence. Noxious weeds 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.

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 (See Figure 1). 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 1,360 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 $21,760 per year. Over 5 years the potential loss would equate to $108,800. This does not include the high cost of treatment which has occurred in this landscape during the years after the Missionary Ridge fire (2003 – present).

F. Cost of Selected Alternative (Including Loss): The cost of the selected alternative would be $14,320 (See Table 1). With a 50% probability of success in recovery of native species and ecosystem function over a five year period, loss would be reduced to $54,400.

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Ivan Geroy

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H. Treatment Narrative:

<u>Land Treatments</u>:

Noxious Weed Detection: Previous noxious weed and invasive species inventory has been completed for approximately one-third of the burned area and the surrounding area. Houndstongue, musk thistle, bull thistle and Canada thistle infestations are prevalent within and in direct proximity to the fire perimeter and recreational trails in the area. Yellow toadflax has been inventoried in areas near the burn perimeter. Noxious weed management strategies and an integrative approach have been employed in the area with success. Having a second fire in an existing burned area that already has a wide-spread noxious weed infestation will present challenges in the future and may compromise the degree of success of past treatments here. An inventory of the Vallecito fire area, control lines and staging areas is necessary to formulate a new, appropriate Integrated Weed Management strategy and treatment objectives so as not to influence recovery of native species and ecosystem function.

The inventory strategy would call for inventory of all control lines and staging areas, including helispots that do not have a previous inventory completed. The inventory will also focus on meadows and forest openings within close proximity to the control lines, trails and staging areas. Within the burned area, inventory will focus upon the meadows and forest openings that are important forage sources for wildlife and permitted domestic livestock. These areas are primary range within two active cattle allotments, the Jack Creek and Vallecito allotments. Areas where inventories already exist will not be re-sampled but will remain in the plan for treatment.

Most of this inventory would be conducted via horseback, foot travel or ATV.

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. Most of these areas can be accessed via ATV and the rest will be accessed via horseback or foot. Treatment conducted via horseback or foot is much more costly than by ATV. Therefore, areas accessible by ATV will be emphasized as treatment priorities. These are also the areas more heavily used by recreationalists and, therefore, as most risk of continued disturbance and future spread of noxious weeds.

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, volunteer crews and contracting may be used to complete this treatment. Fifty one (51) acres of inventory exists within the burn area. An additional 34.9 acres of inventoried noxious weed infestation exists within a 100-yard extent around the control lines outside of the burned area. We propose to let a contract for approximately 150 acres of additional inventory in the burned area and 75 acres of treatment of previously inventoried and newly detected noxious weed infestations for the rest of the burn area.

The treatment may also 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.

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 agency 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. Where Forest Service crews are utilized to inventory and treat areas, an agency crew lead will conduct quality assurance.

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	5	$1,500	$0		$0		$0	$1,500
Noxious weed treatment contract	Day	700	15	$10,500	$0		$0		$0	$10,500
Bio-Control	Each	30	5	$150	$0		$0		$0	$150
Contracting Officer GS-11	Days	360	2	$720						$720
GS-9	Days	290	5	$1,450						$1,450
							$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$14,320	$0		$0		$0	$14,320
B. Channel Treatments										
				$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
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$0	$0		$0		$0	$0
D. Protection/Safety										
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$0	$0		$0		$0	$0
E. BAER Evaluation										
				$2,100	$0		$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				$2,100	$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				$16,420	$0		**$0**		**$0**	**$14,320**
Previously approved										
Total for this request				**$16,420**						

PART VII - APPROVALS

1. */s/ Mark W. Stiles* 12/20/2012
   Forest Supervisor (signature) Date

2. _____ _____
   Regional Forester (signature) Date

Figure1:

Vallecito Fire Extent and Noxious Weeds Inventory