Date of Report: September 12, 2011

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: Norton Point

B. Fire Number: WY-SNF- 000200

C. State: Wyoming

D. County: Fremont

E. Region: 2

F. Forest: Shoshone

G. District: Wind River

H. Fire Incident Job Code: P2F8C4

I. Date Fire Started: 07/22/2011

J. Date Fire Contained: not yet contained

K. Suppression Cost ~$1,925,000 on 9/27/2011

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): Handline – 1 mile
2. Fireline rehabilitated (miles): 1.0 mile
3. Other (identify): 0

M. Watershed Numbers:
Bear Creek: 100800010408
Caldwell Creek: 100800010404
Middle Wiggins Fork: 100800010403
Upper Wiggins Fork: 100800010401
Frontier Creek: 100800010402

N. Total Acres Burned: 23,577 total acres
NFS Acres(24,000) Other Federal 0 State 0 Private 0

O. Vegetation Types:
Misc alpine types; Whitebark Pine / Idaho fescue; Whitebark Pine / Grouse whortleberry; Subalpine fire / Grouse whortleberry; Subalpine fir / Heart leafed arnica; Subalpine fir / common juniper; Douglas fir/ common juniper; Limber pine / King fescue; Aspen CT's; Misc riparian CT's; and Mountain Big Sage / Idaho fescue.

P. Dominant Soils: Typic Cyrolls, Typic Cryochrepts, Eutric Dystrocryrepts, Typic Dystrocryrepts, Eutric Humicryepts, and Rock outcrop.

Q. Geologic types: Andesitic Volcanics of the Wiggin's Formation (Absaroka Volcanics); glacial moraine; landslide deposits

R. Miles of Stream Channels by Order or Class:

Stream miles by order within Norton Point Fire Perimeter.

Stream Order	Length (Miles)
1	116
2	59
3	35
4	21
5	12
6	10
Grand Total	254

S. Transportation System

Trails: 32 miles Roads: 0 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 7,336 (unburned); 3,405 (low); 10,898 (moderate); 1,938 (high)

B. Water-Repellent Soil (acres): 12,836 acres)

C. Soil Erosion Hazard Rating (acres):
3,303 (low) 9,340 (moderate) 10,934 (high)

D. Erosion Potential: .11 tons/acre (estimate)

E. Sediment Potential: 24.1 tons / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

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

B. Design Chance of Success, (percent): 80

C. Equivalent Design Recurrence Interval, (years): 5

D. Design Storm Duration, (hours): 1 hour

E. Design Storm Magnitude, (inches): 0.92 inches

F. Design Flow, (cubic feet / second/ square mile): 10.5 cfs/mi^2

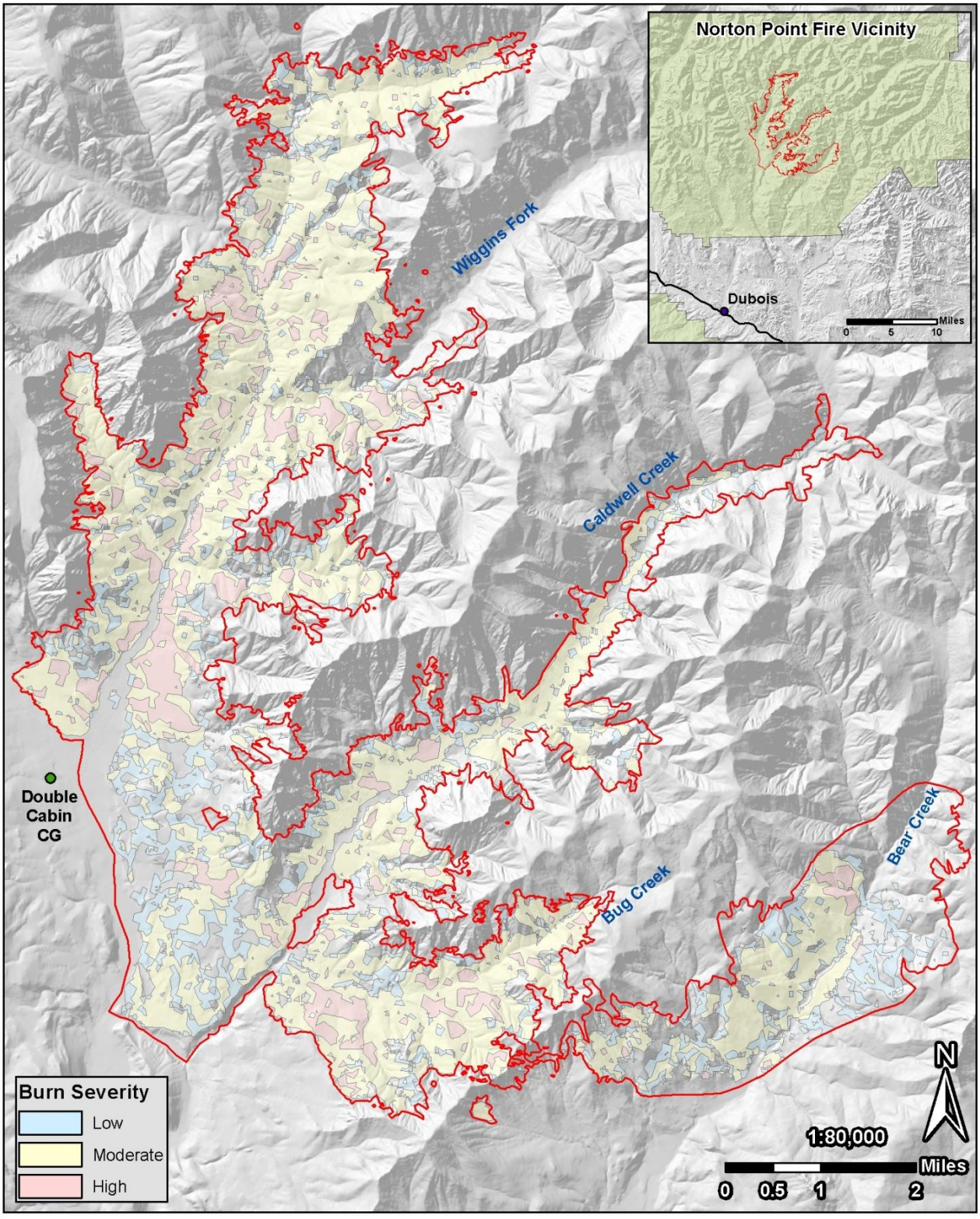
G. Estimated Reduction in Infiltration, (percent): 24

H. Adjusted Design Flow, (cfs per square mile): 13.8 cfs/mi^2

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats

Norton Point Fire Intensity Map



Summary of Watershed Response

Hydrologic Response*:* The Norton Point fire is a managed fire that has periods of fast moving wind driven fire. Extensive areas of moderate to high burn intensity are found in the burn perimeter.

The Wiggins Fork, Caldwell, Bear Creek, and Bug Creek Watersheds are affected by the Norton Point Fire. The fire is in very heavily dissected terrain and has 4000 feet of relief. The coarse textured Absaroka volcanic soils are quite vulnerable to debris flow processes. Post fire erosion processes pose extensive potential damage to Forest trails.

High severity burn area is common in the Wiggins Fork, Bug creek, and Bear Creek drainages. Forest trails 813, 815, and 814 traverse much of this heavily burned area, is very subject to erosion damage from the fire.

Debris flows are common in this landscape and the resulting sediment yield increase could be much larger depending upon summer thunderstorm activity. Actual water quality values at risk are minimal because of wilderness and subsequent lack of development. Yellowstone Cutthroat exists in the drainage but is adapted to fires such as this and values at risk are minimal.

Erosion response: Loss to soil erosion is estimated with Disturbed WEPP 2.0 at 0.11 tons per acre during the first year after the fire. This loss will be primarily during the first 3 years post fire and until hydrophobic conditions subside. Forest understory species should provide critical ground cover by the third growing season.

Soils loss can be expected on hill slopes. This photo illustrates soil *movement after* a small rain event during August.

Geologic Response: Debris flows during summer thunder storm activity could be the major cause of soil loss and sedimentation to water courses. Steep slopes, hydrophobic conditions, shallow soils, and sandy loam soil textures throughout the burn area accelerate the debris flow process.

Debris flows, as pointed out by the horse's ear, are a frequent and common occurrence in the Absaroka Volcanic landscapes. This one occurred during one of the slow periods of fire growth in August. Note amount of soil from a small rain event.

Values at Risk:

In accordance with the revised Forest Service manual, the risk matrix below, Exhibit 2 of Interim Directive No.: 2520-2010-1, was used to evaluate the Risk Level for each value identified during Norton Point BAER Assessment. Only treatments that had a risk of Intermediate or above are recommended for BAER authorized treatments.

Probability of Damage or Loss	Magnitude of Consequences		
	Major	Moderate	Minor
	RISK		
Very Likely	Very High	Very High	Low
Likely	Very High	High	Low
Possible	High	Intermediate	Low
Unlikely	Intermediate	Low	Very Low

For the Norton Point Fire risk levels by resource included trails and noxious weeds. Cultural resources are being inventoried by a contractor and information will not be availbale till next summer. Only trails and noxious weeds had risk levels of intermediate or greater and therefore are the only resources recommended for BAER funded treatments.

Probability of Damage or Loss	Magnitude of Consequences		
	Major	Moderate	Minor
	RISK		
Very Likely	Very High	Very High Trails	Low
Likely	Very High	High Weeds	Low Fisheries
Possible	High	Intermediate White bark pine	Low
Unlikely	Intermediate	Low Cultural Resources	Very Low

Trails

The Norton Point Fire perimeter currently predominately in the Washakie Wilderness. Three National Forest system trails are located in the interior of the Norton Point fire perimeter; Wiggins (813), Bug Creek (815), and Bear Creek (814). Historically these trails were used by sheep herders, ranchers, and a spectrum of recreationists. Currently the trail system serves non-motorized users (hikers, horses, and fall hunters).

Approximately 32 miles of Shoshone National Forest trails are expected to be at risk of deterioration from additional runoff and sediment from post-fire conditions, and because of post-fire hazard trees. One threat is from upland slope erosion being deposited on the trail. The trails were not designed for the increased flow that may occur from the fire. This may cause soil erosion on the trail surface and fill-slope. Failure of drainage dips and water bars may cause stream capture onto trail surface area, causing soil erosion, including loss of the trail by rilling and gullying.

In localized sections of trail on high ridges and steep slopes the trail tread is indiscernible from sloughing in high burn intensity segments. With tread loss and blazed trees burned, there is a high potential for trails to become braided. If the system trail is not apparent, visitors will venture off the main tread with associated safety concerns and more erosion by developing trail braids and reroutes. Blazes and or rock cairns need to be established or re-established for erosion concerns and also crew/traveler safety. Safety concerns are relevant regarding hazard trees and/or tread failure. Warning signs also need to be installed at trailheads and trail portals. Signs at portals will provide information for recreational users about the hazards of the Norton Point fire. Warning signs are needed at trail access points for the Wiggins (813), Bug Creek (815), and Bear Creek (814) trails.

Forest Service crews will remove hazard trees, install erosion control devices, localized reconstruction of tread for better surface drainage and slough removal and replace signs at trail junctions.

Noxious Weeds

Concern exists regarding the potential spread of noxious weeds in the Norton Point Fire area. Weed infestations and associated seed banks include Oxeye daisy, Russian knapweed, hound's tongue, and Canada thistle. Suppression personnel traveled through known oxeye daisy populations to access the fire. This situation demands treatment of known populations and monitoring for new infestations and spread.

Weed sprayers treating oxeye daisy along the Wiggin's Fork as the Norton Fire starts on July 22, 2011.

Pre-burn Invasive Plant and Noxious Weed Condition
Approximately 1000 gross acres of a known oxeye daisy infestation and associated seed bank occur in and adjacent to the fire area. Russian knapweed and Hound's tongue are known to occur only sporadically in the area. New infestations can easily start in nearby suppression activity areas and burn areas

For most noxious weed species identified in the Norton Point Fire, disturbed sites and montane vegetation types are the most at risk from invasion and spread. Disturbed areas include roads, recreation trails, dispersed recreation sites, game trails and where ground disturbing fire suppression actions occurred (i.e. hand lines, helispots, and drop points). Burned sites can have altered soil structure and reduced organic matter content creating a more favorable germination substrate for weed seeds.

The following table displays potential vegetation types in the burn perimeter and nearby suppressions lines and have been determined to be vulnerable to the listed weed species when there is site disturbance, such as wildfire.

Vulnerable Vegetation Types in the Norton Point Fire

Species	Vulnerable Vegetation Types within the Burn Perimeter
Oxeye daisy	Any disturbed site
Spotted knapweed	Graminoid parks and sageland
Hounds tongue	Any disturbed site
Canada thistle	Riparian, uplands, shrublands and meadows

It is important not to overlook potential seed sources within the burn area as well. Although these sites (such as game trails, roads and recreation trails, and fence-lines) are converted areas where ecosystem integrity has already been altered, they are the main sources of weed seeds that can facilitate and greatly exacerbate the spread of weeds into more pristine areas. It is critical that these areas are treated as well to protect currently unaffected but vulnerable areas within the fire.

Norton Point Fire Weeds Emergency Determination
The fire-caused weed emergency to resource recovery is of a high priority, especially in those areas, which have highly invasive species' concentrations prior to the burn. About 1000 gross acres are infested with oxeye daisy on the western edge of the fire. This gross area provides a seed bank where oxeye daisy seeds can continue to germinate, grow, and spread.

Suppression firelines for the Norton Point Fire are considered prime weed beds, especially with a large infestation being in the area and suppression activities possibly moving seed source around suppression lines. The Norton Point Fire burned grassland and forest land, and eliminated natural competition for invaders. The fire-caused disturbance creates perfect habitat for noxious weed invasion and expansion. If emergency mitigation activities are not implemented this problem will expand exponentially and will require future extensive resources to manage. If left unmanaged the results could permanently alter plant communities and habitat. Results of uncontrolled weed spread are well documented. Without treatment, weeds will increase.

Fisheries

Wyoming Game and Fish databases shows that Cut throat trout occur in the Wiggins drainage. Future spring runoff and summer precipitation events will cause erosional processes beginning on burned slopes of the uplands. This will collect and carry saturated soil material, wood debris, and the associated hydrologic energy downhill to stream channels. First and second order streams will have some morphologic changes due to depositional depositing and scouring processes. The introduction of large woody material into these stream systems may cause further changes in channel features. The loss of stream-side vegetation will increase surface water temperatures in the short-term. However, riparian plant species should rapidly recover next year.

There are no BAER emergency rehabilitation actions recommended for fisheries. This is due to that these stream systems rapidly recover from fire effects. Further, the drainages that have been affected by fire do not connect to any waters of concern.

Cultural Resources

None of the heritage resource sites monitored warrant immediate BAER treatment. However, there is a high risk for illegal collecting, looting and vandalism in areas where high fire severity has exposed heritage resource sites. This unacceptable degradation of heritage resources is highly likely to occur within one year, until vegetative cover has been re-established. Increased site monitoring is recommended for one site as mitigation, with follow-up law enforcement investigation where necessary.

Heritage compliance level inventory and evaluation are required for all ground disturbing projects associated with BAER treatments and will follow procedures already established in the WYSHPO PA for sites located on Forest Service administered lands. Involvement of the Crow, Eastern Shoshone, and Northern Arapho tribal councils essential at all stages of BAER implementation work should these activities have an effect on the sites identified above.

Sensitive Plants

Whitebark pine has been recently listed as a Region 2 sensitive plant. Elevations generally greater than 8500 feet in the Norton Point Fire can be occupied by this species. Many stands were heavily impacted by mountain pine beetles. Stand replacement fire will assist in the establishment of new whitebark pine seedlings by Clark's

Nutcracker seed cashing. At this time no treatments are planned. Monitoring of whitebark pine re-establishment should be a priority over the next 5 years.

Note the stand replacing fire in whitebark and scattered trees above that will become seed source for Clark's Nutcrackers to cashe in the Caldwell drainage.

B. Emergency Treatment Objectives:

As noted above, theats to natural and cultural resources, public safety, from loss of water control, increased sediment delivery, increased debris flow potential, establishment of noxious weeds, and habitat degredation as a result of the Norton Point Fire. For these reasons the primary treatment objectives are:

- Mitigate effects changed post-fire watershed response on BAER implementation crews and trail users safety.
- Mitigate effects of changed post-fire watershed response on Forest Service trails.
- Moniter effects of changed post-fire watershed response on the historic properties and cultural resources.
- Minimize the increased potential for the spread of invasive and noxious weeds.

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

Land 80 % Channel **N** % Roads/Trails 80 % Protection/Safety 80 %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Trails	80	85	95
Weeds	80	80	80

E. Cost of No-Action (Including Loss): $372,570

F. Cost of Selected Alternative (Including Loss): $74,515

G. Skills Represented on Burned-Area Survey Team:

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

Team Leaders: Kent E. Houston

Email: khouston@fs.fed.us Phone: 307-578-5142

Team Members:

- Kent Houston– Soil Scientist, Botany, Ecology, and Weeds
- Lucinda Jann - Trails
- Ken Ostrom – GIS, Forester
- Krystal Hazen-McCreary– Heritage
- Wayne Baxter - GIS
- Kyle Wright- Heritage

H. Treatment Narrative:

Note: The treatment descriptions below are summarized.

Land Treatments:

Trails

Within the Norton Point Fire burn area, National Forest system trails will require emergency assistance to reduce erosion, protect trail prism and provide for safe travel. Trail BAER treatments consist of 4 primary activities.

1) Hazard tree removal for public safety

The tree in the center left was missed by suppression crews.

2) Installation of drainage structures such as check dams, water bars, and drain dips.

Replacement of burned out structures is needed.

Replacement of water bars.

3) In localized areas tread stabilization for surface drainage, tread erosion and upslope slough removal provide for safe travel.

The trail tread needs to be reestablished in some areas.

4) Warning signs being installed at trailheads or portals that inform the public about entering a burned landscape and the associated hazards.

These treatments to reduce erosion, runoff and sediment delivery are being recommended at varying levels for each trail, with a number of factors taken into consideration. These factors are burn intensity, burn severity, soil type and structure, trail grade, side slope, alluviums, topography, vegetative cover,

watersheds, proximity to Yellowstone Cut throat habitat, current trail use, expected use, and future travel planning being consideration in the near future.

Specific Norton Point trail BAER work includes:

Drainage structures on trails $48,160.

1. General Description: Install drainage structures (water bars, check dams, and/or drain dips) on trails to prevent erosion from the expected increase in runoff from the fire along and above trails.

2. Location (Suitable) Sites:

    a. 12.4 miles - #813 – Wiggins
    b. 11.6 miles - #814 – Bear Creek
    c. 8 miles - #815 – Bug Creek

3. Design/Construction Specification(s):

    Install a total of 140 drainage structures: Wiggins Fork Trail install 90 drains; Bug Trail install 25 drains; and Bear Creek install 25 drains. Drainage structures should be spaced as staked on the ground. All work shall be according to EM-7720-102, Standard Specification for Construction of Trails, as amended for this project.

4. Purpose: The drainage structures are intended to prevent accelerated erosion by diverting, discharging, and dissipating runoff flowing down trail tread. This protects watersheds by lessening the force and concentration of water flowing downslope.

Hazard Trees $4,000

1. General Description: Cut and remove standing, leaning, and fallen hazard trees that were weakened as a result of the fires to insure the public safety. A considerable number have already been removed by suppression crews.

2. Design/Construction Specification(s)

    a. Remove approximately 200 hazard trees identified along the trails listed below.

    b. All work shall be according to EM-7720-102, Standard Specification for Construction of Trails, as amended for this project.

3. Purpose**:** Clearing will permit reasonable safe passage for BAER rehab crews and the public.

5. Location (Suitable) Sites:

    a. 12.4 miles - #813 – Wiggins
    b. 11.6 miles - #814 – Bear Creek
    c. 8 miles - #815 – Bug Creek

Tread Stabilization $10,504

1. General Description: Some trails within the Norton Point Fire burned area require re-treading and trail prism stabilization to remove material sloughing from post fire runoff, adequately reduce the risk of further erosion and degradation of trail prism and provide for safe access for BAER rehab crews.

2. Location: approximately 5200 feet of the trail distance below needs tread stabilization.

    a. 3000 ft- #813 – Wiggin's Fork
    b. 800 feet - #814 – Bear Creek
    c. 1200 - #815 – Bug Creek

3. Purpose: To remove material sloughing from post fire runoff, adequately reduce the risk of further erosion and degradation of trail prism and provide for safe access for BAER rehab crews.

Noxious Weeds $9,600

Land Treatment - Weed Monitoring Strategy and Estimated Cost
Norton Point BAER weed treatments include implementing an early detection rapid response strategy. Proposed treatments and monitoring follow Forest Service regulatory requirements and protocols in accordance with existing 1999 Noxious Weed EA.

BAER team vegetation experts assessed areas at risk from invasion and potential seed sources into these areas. The primary area of concern is the west edge of the fire along the Wiggins Fork. This area has a large infestation of oxeye daisy that the Forest has been actively treating. Baer funds will be used to increase EDRR activity on this area of the burn perimeter.

Weed Early Detection and Rapid Response Cost

Monitoring	Resources Needed	Estimated Unit Cost	Estimated Total Cost
EDRR	3 member Horse pack sprayer weed crew from Fremont County Weed and Pest	$400/person/day 8 days	$9,600
Total Cost			**$9,600**

I. Monitoring Narrative: Weed monitoring is listed previously with weed treatments.

Part VI – Emergency Stabilization Treatments and Source of Funds

Line Items	Units	Unit Cost	# of Units	BAER $	Other $
A. Land Treatments					
Weed herbicide treatment / EDRR	days	$400	24	$9,600	
Subtotal Land Treatments				$9,600	
C. Roads and Trails					
Hazard tree removal	each	20	200	$4,000	
Install drainage structures	each	140	344	$48,160	
Tread Stabilization	feet	2.02	5200	$10,504	
Trail signs	each	750	3	$2,250	
Subtotal Roads and Trails				$64,914	
E. BAER Evaluation					
Assessment (person days)	DAYS	325	18		$5,850
Travel costs	LS	150	1		$150
Subtotal Evaluation					$6,000
F. Monitoring					
Weed monitoring					
Included with treatment / EDRR					
Subtotal Monitoring					
Total for this request				**$74,514**	**$6,000**

PART VII - APPROVALS

1. /s/ Joe Alexander — 10/4/2011
   Forest Supervisor — Date

2. /s/ Maribeth Gustafson — 10/5/2011
   Regional Forester — Date