

Date of Initial Report: 6/22/2012

Date of Interim#1: 6/28/2012

Date of Interim#2: 7/03/2012

Date of Interim#3: 7/05/2012

Date of Revised Interim 3: 7/12/2012

**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 # 3  
☐ Updating the initial funding request based on more accurate site data or design Analysis Interim #1 Changes shown in blue, Interim #2 changes shown in orange, Interim #3 changes shown in green  
☐ Status of accomplishments to date  
☐ 3. Final Report (Following completion of work)

**PART II - BURNED-AREA DESCRIPTION**A. Fire Name: Little Bear FireB. Fire Number: NM-LNF-000007C. State: NMD. Counties: Otero, LincolnE. Region: 03F. Forest: Lincoln NFG. District: Smokey Bear Ranger DistrictH. Fire Incident Job Code: P3GW6AI. Date Fire Started: 06/04/2012J. Date Fire Contained: 95% contained as of 7/05/2012K. Suppression Cost: \$17.9M as of 06/26/2012

L. Fire Suppression Damages Repaired with Suppression Funds

1. Fireline waterbarred and brush brought back on line (miles): Work is ongoing. There are 39 miles of Dozerline, of which 27 miles have already been rehabbed. The remainder is in the process of being reseeded and rehabbed.

2. Fireline seeded (miles): Work is ongoing. The suppression team is in the process of reseeding 39 miles of dozer fireline.

3. Other (identify): There are 34 miles of handline produced on this fire, some of which is being rehabbed as trail improvements. Work is ongoing.

M. Watersheds – Affected 6<sup>th</sup> Codes: Devils Canyon, Gamble Canyon-Three Rivers, Magado Canyon, Middle Rio Bonito, Upper Rio Bonito, Upper Rio Ruidoso. There are less than 100 acres of low intensity burn in the following watersheds, : Willow Draw, Cottonwood Creek, Nogal Creek.

N. Total Acres Burned: 44,330 as of 6/25/2015

NFS Acres: (35,291) Tribal Lands: (357) State: (112) Private: (8,570)

O. Vegetation Types: Pinyon/Juniper, Ponderosa Pine, Mixed Conifer, Alpine Grassland, Aspen, Open grassland

P. Dominant Soils/Map Units: Pachic Argiudolls, Pachic Haplocryolls, Lithic Argiustolls, Pachic Hapludolls, Typic Argiustolls

Q. Geologic Types: Limestone, Andecite, Shale, Alaskite (Granite), Alluvium, Igneous, Mixed Igneous

R. Miles of Stream Channels by Order or Class: Total 161 miles

Perennial: 41 miles

Intermittent: 118 miles

Ephemeral: 2 miles

S. Transportation System

Trails: 48.2 miles

Roads: 77 total FS miles.

### **PART III - WATERSHED CONDITION**

A. Burn Severity on NFS lands (acres): 4,559 (unburned) 9,976 (low) 8,687 (moderate) 12,069 (high).

B. Water-Repellent Soil (acres): 8,125

C. Soil Erosion Hazard Rating (acres):

1,924 (low) 2,795 (moderate) 39,576 (high)

These figures include all burned areas

Field information and research indicate that the greatest effect on the soil and watershed after a fire is the lack of effective ground cover, litter, and vegetation. Erosion and runoff increase with a reduction in cover. This is the situation and has been observed within the Little Bear burn area.

Soils on slopes of over 40 percent and classified with a soil hydrologic group classification of D are soils of concern and comprise 44% of the burned area. Soils from TEUI within the burned area with a severe erosion rating comprise 89% of the burned area.

Models have been run, showing a high erosion and sediment potential for the Little Bear burn.

D. Erosion Potential: 97 tons/acre (average across fire, low mod, and high severity)

E. Sediment Potential: 6200 cubic yards / square mile (average total)

The erosion and sediment potential were field verified from post fire conditions on treated and non-treated areas of the White Fire (2011).

#### **PART IV - HYDROLOGIC DESIGN FACTORS**

A. Estimated Vegetative Recovery Period, (years):	<u>5</u>
B. Design Chance of Success, (percent):	<u>85%</u>
C. Equivalent Design Recurrence Interval, (years):	<u>25</u>
D. Design Storm Duration, (hours):	<u>25 yr/1 hour</u>
E. Design Storm Magnitude, (inches):	<u>2.8</u>
F. Design Flow, (cubic feet / second/ square mile):	<u>84 cfs/mi sq</u>
G. Estimated Reduction in Infiltration, (percent):	<u>51%</u>
H. Adjusted Design Flow, (cfs per square mile):	<u>688 cfs/mi sp</u>

#### **PART V - SUMMARY OF ANALYSIS**

##### **A. Describe Critical Values/Resources and Threats:**

The Little Bear Fire burned on Forest Service and private lands above the northwest portion of the Village of Ruidoso, Alto, Angus, Villa Madonna and other small communities. Fuel types were primarily high elevation mixed conifer, mixed ponderosa pine, and pinon/juniper (P/J) woodland with a smaller amount of Ponderosa Pine, as well as pinon/juniper scrub. Ponderosa pine dominates at the mid elevations and mixed conifer dominates at higher elevations. The terrain within the burned area is steep to very steep with a very high potential for excessive erosion and loss of control of water. Approximately 8500 acres are on private lands.

The burn area is comprised of very steep and rugged terrain reaching from pinyon-juniper scrub around 6500 ft to mixed conifer and alpine grasslands over 11,900 ft elevation. The vast majority of high severity burn was a result of extreme fire behavior in stand replacing burns in

mixed conifer and ponderosa pine. Numerous steep and short drainages will transport significant water and debris flows during subsequent rain events. In the mixed conifer and mature ponderosa pine pre fire tree density and canopy cover was very high, very little grasses or forbs were in the understory. Slopes within the high/moderate areas ranged from nearly level ridge tops at the lower elevations to very steep mountain land at the higher elevations.

The Little Bear Fire continues to actively burn during the BAER assessment, with an active burnout operation ongoing. Soil burn severity was based on BARC imagery from 6/18/2012 when the fire was 44,279 acres. The data was adjusted by team scientists after field assessments to reflect observed conditions and the final burn severity map was created on 6/23/12.

The Little Bear Fire severely burned large tracts of private land, and destroyed 254 structures, 242 of which were residences. The remaining structures in these areas, including subdivisions of Ruidoso, Angus, Alto, Eagle Creek, North Eagle Creek and Villa Madonna, are in areas of high severity burn, as well as being situated in the floodplains. These areas are at high risk of flooding, debris flows and ash flows from post burn rain events.

The fire severely burned across the White Mountain Wilderness, including the headwaters of Bonito Creek, Blue Front and South Fork Bonito Creek. These watersheds drain into the Rio Bonito watershed and Bonito Lake which provides 60% of the municipal water for the City of Alamogordo and Holloman Air Force Base. This also drains into the communities of Alto and Angus, and numerous subdivisions. All of these population centers are situated in the floodplain. The vegetation, duff and soil that once served to slow and hold water were eliminated as a result of the fire. Steep slopes further aggravate the situation.

The soils in the area were formed from alluvium, limestone, shale, volcanic and plutonic rocks. The variable amount of surface rock ranges from 0-70% cover on the surface. Due to the lack of vegetative ground cover, canopy cover and the presence of hydrophobic soils, the post fire soil productivity in the timbered land was at risk due to potential soil loss. The pre-fire average soil loss was less than one ton per acre. In order to validate the loss of soil erosion, the soil team returned to the White Fire that burned in April 2011. Sites of treated and untreated areas were assessed. Field information revealed that pinyon-juniper treated sites showed an average soil loss of 30 tons/acre and untreated sites showed a range of 60 to 80 tons/acre. In addition, the soil team also field verified soil loss on the Little Bear fire after the 1<sup>st</sup> rain event, which occurred on June 22, 2012. Soil loss in mixed conifer was estimated at 30 tons/acre. With these observations a total erosion potential of 97 tons/acre is predicted. Changes in runoff response compounded by sediment bulking are issues of serious concern for downstream values of human life and property.

Severe damage to critical natural resources, including soil productivity, water quality, watershed health, threatened and endangered species, and critical habitat has resulted from this fire and irreversible damage is expected if management action is not taken in North Eagle Creek, Upper and Lower Rio Bonito watersheds mentioned above, as well as in the Devils Canyon and Magado Canyon watersheds.

Forest Service BAER Team members conducted field visits to the fire area & other value-at-risk areas. Soil Burn Severity map has been created from the 18 June, 2012 BARC layer.

Wildcat5 was used for this analysis which uses CN (runoff control) coefficients based on soil and vegetative condition. Peak flows for pre and post conditions were calculated for key areas within the fire area.

The following pre & post peak flows using a 25-year, 1-hour design storm (source: NOAA 14). A map of the watersheds listed in the table below is shown in appendix A:

Watershed subHuc6	Acres	Peak CFS		
		Pre-Burn	Post	Increase
EagleLk_1	1086	851	1534	80%
EagleLk_2	586	565	960	70%
KrautCrk	1027	1099	2871	161%
LittleCrk	966	582	1744	200%
Philadelphia_sidedrain	172	263	769	192%
SkiArea532drain	203	145	739	410%
UpperBigBearCyn	1050	573	3202	459%
FS_upperEagleCrkHm	2033	1794	4099	128%
SkiAreaOutlet	1036	271	1515	459%
average % change				240%

The Upper Rio Bonito has a large percentage of moderate and high burn severity within the watershed. The Upper Big Bear VAR (Value at Risk) watershed showed a 459% percent increase. The Ski area also is showing peak flow increases of 4-to-5 times increase from the pre-fire peak flow due to hydrophobic soil conditions noted throughout the ski area.

### Critical Values Identified

Critical Values identified (FSM 2523.1 Exhibit 01) during the BAER assessment are: Human life and safety, property, natural resources and cultural/heritage resources. The BAER team evaluated the risk to those critical values using the BAER Risk Assessment (FSM 23235.1 Exhibit 02).

The following risk matrix shown on the next page, Exhibit 2 of Interim Directive No.: **2520-2010-1**, was used to evaluate the Risk Level for each value at risk identified during Assessment:

Probability of Damage or Loss	Magnitude of Consequences		
	Major	Moderate	Minor
	Loss of life or injury to humans; substantial property damage; irreversible damage to critical natural or cultural resources.	Injury or illness to humans; moderate property damage; damage to critical natural or cultural resources resulting in considerable or long term effects.	Property damage is limited in economic value and/or to few investments; damage to natural or cultural resources resulting in minimal, recoverable or localized effects.
	RISK		
Very Likely (>90%)	Very High	Very High	Low
Likely (>50% to <90%)	Very High	High	Low
Possible (>10% to <50%)	High	Intermediate	Low
Unlikely (<10%)	Intermediate	Low	Very Low

The following risks are based on the BAER risk assessment matrix. The Very High and High Risk are unacceptable risk levels due to threats to human life, property, infrastructure and resources, therefore treatments should be applied. For an Intermediate Risk, this could be unacceptable if human life or safety is the critical value and treatments may be needed. Due to the changed post-fire watershed condition, no vegetative ground cover remains in high to moderate severity burn areas within the burned area. The presence of hydrophobic soils, steep to very steep slopes within the burn area, and the erosive nature of the soils combine to result in excessive erosion, sedimentation, and loss of control of water. These highly unstable conditions put the following values at risk, and will be confirmed through the assessment using the risk matrix.

The values at risk that have been identified for analysis during this assessment can be found in Appendix B.

### Human Life and Safety

There is high risk of loss of life on National Forest System lands and private land downstream of the burned area. Individuals who may find themselves in any of the drainages or on many of the roads affected by fire upstream are at risk during storm events.

The drainages affected by high burn severity will be subject to higher than usual run-off and debris flows which could cause injury or death. Hazardous materials released from burned homes in the Magnolia and Villa Madonna subdivisions, as well as Eagle Creek, Alto and Angus could be washed downstream towards the Rio Ruidoso River.

## **Property**

There is a high risk of public and private property damage due to storm runoff and debris flows. Hydrologic modeling indicates flow increases of 70% to 459% from 25 year, 1 hour design storms over pre burn conditions.

**Roads:** There is a high risk to the roads on the National Forest Lands as well as to some state roads. These roads are main access roads for administrative use as well as for access to private lands and inholdings. The roads are the main arteries for transportation and access in the area. The roads ranked at Very High risk could have Major consequences, with either a Likely or Very Likely chance of occurrence. These roads at a Very High risk are: FSR 107, 107C, 117, 106, 9015A and 127A. State roads at a Very High Risk are NM 48 and NM 532 (Ski Run Road). There were other roads determined to have High risk, as ranked by the BAER Risk Rating. These were determined to hold Major or Moderate consequences if damaged, and a Likely rate of occurrence. The roads ranked at a High risk are: FSR 131, 600, 598, 108, 107D, and 5615.

**Ski Apache:** The drainages within the ski area are predicted to have peak flows increases ranging from 410% to 459% due to the high hydrophobicity of the soils. This has the potential to cause accelerated erosional processes that may damage existing infrastructure and potentially endanger safety. The lower portion of the ski area, to the east and above the Mescalero Nation casino building (near the Elk lift) may be subjected to slope slump failure/landslide due to the post-fire soil and vegetative condition. Mitigation proposed by the tribe may include but is not limited to: hazard tree falling/removal, seed, mulch, channel stabilization, silt fencing, sandbagging, k-rails, & channel construction. Expenditure of Forest Service funds to treat non-National Forest System property or infrastructure is not permitted, but the Mescalero Apache Tribe are advised to make improvements to their storm drainage system to prepare for increased flows modeled for the Upper Rio Ruidoso watershed. The BAER team felt that a full engineering survey and design was needed to address pre-existing infrastructure issues. The BAER team has made an assessment and shared ideas with the ski area manager on problem areas and possible mitigation measures. All modeling, soils and flow data have been shared with the Tribe. The tribe submitted a silvicultural report and recommendations to the BAER team. The ski area will benefit from the hill slope seeding and mulching treatments which will be applied to the high severity burn areas above the ski area. Within the 542 acres that burned of the ski area, 321 acres will be treated, which amounts to 81% of the burn. The treatment includes 256 acres of seed and mulch while 65 acres will be treated with the double seed mix. These treatments have already been approved. The full Ski Apache report is shown in appendix C

## **Natural Resources**

### **Site Productivity and Water Quality**

#### Soils

There is a high risk of increased levels of surface soil erosion and sediment delivery predicted to result as an effect of the burn severity within the Little Bear Complex burned area. The initiation of new surface erosion sources from moderately steep and steep slopes pose an extreme threat to long-term soil productivity, increased risk of water quality impacts, and threats to downstream resources and property from bulking of flood flows.

#### Water Quality

Water quality will be greatly degraded due to ash and sediment deposition post fire in all HUC 6 drainages affected by the burn.

#### Hydrologic Function

Hydrologic function will be greatly degraded due to the loss of vegetative ground cover and erosion. Recovery of watershed condition can take up to 25 years to stabilize.

#### Riparian Habitats

Riparian areas are at high risk on NFS lands due to changes in peak flows, which will result in channel erosion and damage or loss of the riparian vegetation. Riparian habitat within the stream drainages are expected to be subject to increased channel erosion and scour as well as deposition of ash, sediment and debris from upstream areas of high burn severity. Loss of streamside shade will result in warming of surface waters which will result in impacts to or loss of aquatic habitat for fish and macro- invertebrates.

### **Fish and Wildlife Species**

#### Mexican Spotted Owl

The Mexican spotted owl is a threatened species. A total of 17 Mexican spotted owl protected activity centers (PACs) occur within the burn perimeter. Fifty percent of the burned area is within designated critical habitat for the species.

### **Invasive Plants**

#### Bullthistle, Musk Thistle, Cheatgrass

The existing bullthistle, musk thistle and cheatgrass populations exist in most of the watersheds affected by the fire. There is an existing large population of bullthistle on City of Alamogordo lands above the Bonito Lake. In addition, Dalmation toadflax has been reported along the ridge above Kraut and Littleton. Generally a 25% increase in non-native invasive plant species is seen after a major wildfire event.

## **Cultural Resources**

The Lincoln National Forest contains and manages significant cultural resources. Much of the Little Bear burn area is in higher elevations (7,500 feet and above). Sites are located to 10,000 feet within the burn area. Most of the sites in the higher elevation tend to be historic



properties with prehistoric sites common below 8000 feet. Many of the cultural resource sites are located on or near slopes. Increased flows of sediment pose a threat to cultural resource due to erosion across sites removing soil along with potential inundation and the burying of features and artifact. Hazard trees pose a threat to cultural resource when they fall uprooting soil, damaging, disturbing, and displacing features and artifact.

There are approximately 59 cultural resource sites located within the burn perimeter, 34 of these are archaeological sites or historic properties that are listed, eligible, or have an undetermined significance for the National Register of Historic Places. Because of their association with the National Register they have a high value associated with them. The types of sites in the high value category include historic lookouts, mines, homesteads, and ranching properties, along with prehistoric rockart, pithouses, and artifact scatters. Many of these prehistoric cultural resources are significant to the Mescalero Apache.

## **B. Emergency Treatment Objectives:**

1. Place high severity burn areas and affected roads and trails in an administrative closure status to prevent injury to the public from hazard trees, flooding, debris flows, and potential entrapment within the burn area.
2. Place closure gates and post warning signs at key access points of the burn area to protect the public from entering the burned area and preventing exposure to the hazards of the burned area.
3. Minimize damage to Forest System roads within the burn area by installing additional drainage features such as rolling dips, armoring outslopes, and preparing roads to handle increased modeled storm runoff.
4. Pump 15 vault toilets along streams that will be affected by post fire flows. This is intended to prevent contamination of waterways and prevent risk to public health.
5. Stabilize Heritage sites that consist of archaeological sites, historic buildings, and traditional cultural properties (TCPs) from post fire conditions relating to storm runoff and hazard tree impacts.
6. Conduct hazard tree removal along roads and in recreation (high use) area for protection of life and safety.
7. Minimize damage to recreational trails and main access points by trail work to prevent channalization and increased erosion.
8. Stabilize soil and provide immediate protection from rainfall by aerial mulching high and some moderate severity burn areas where elevated runoff events pose an imminent risk to life, property, cultural resources, and critical natural resources. This will assist in reducing erosion and maintaining long term soil productivity.
9. Seed high and moderate burn severity areas to promote short and long term soil stability against erosion and soil productivity loss and protect critical natural resources.

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

Land 70 % Channel NA % Roads/Trails 60 % Protection/Safety 80 %

#### D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	85	85	85
Channel	-	-	-
Roads/Trails	85	85	85
Protection/Safety	95	90	90

E. Cost of No-Action (Including Loss): \$779,686,313

F. Cost of Selected Alternative (Including Loss): \$147,247,443

#### G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input checked="" type="checkbox"/> Geology	<input 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 checked="" type="checkbox"/> Contracting	<input checked="" type="checkbox"/> Ecology	<input checked="" 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

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The full team roster is shown in appendix D

#### H. Treatment Narrative:

Land Treatments:

##### **Mulch**

**10,241 acres** of high and moderate burn severity with highly erosive soils, that drain through the communities of numerous communities and subdivisions within and downstream of the fire scar.

The areas of moderate burn severity proposed for treatment exhibit high hydrophobicity and a lack of needle fall to provide natural mulch. The Loma Grande subdivision is at particular flow risk from this type of moderate burn and calls for treatment in units S and T. Mulch is the most effective treatment for controlling erosion and reducing runoff as it provides immediate ground cover (Robichaud, et al, 2010, Napper, 2006, Larsen, et al, 2009). Areas proposed for mulching would be treated at a rate of **one ton per acre**. Mulch would be applied by helicopters at locations identified on the attached treatment maps, avoiding slopes of greater than 65%. Mulch would be applied to reduce erosion and peak flows. It would be effective for reducing loss of soil productivity and hydrologic function and would also provide some reduction in peak flows that threaten downstream life and safety, downstream property and infrastructure, and critical aquatic resources.

### Seeding

A total of **19,211 acres** of high and moderate burn severity would be seeded to provide vegetative ground cover where the soil seedbank has been eliminated. Most of the high burn severity that occurred as a result of the Little Bear Fire burned in mature ponderosa pine and mixed conifer. In the upper elevation mixed conifer habitat, a dense, closed canopy contributed to an accumulation of a thick layer of duff over approximately a 100-250 year period. As observed in other closed-canopy forests, the lack of sunlight leads to conditions that result in an exclusion of forb or graminoid cover. The organic duff layer contains a portion of the seedbank, while the soil beneath retains the remainder of the seedbank. These seeds have been observed to persist as viable in the soil-based seedbank for up to 150 years, and may persist for years beyond that most currently estimate. During high intensity fires, the organic duff layer is often consumed, destroying tree seeds as well as grass and forb seeds. Seeds are also consumed in the fire or heat sterilized in the upper surfaces of the soil layer. Some seedbank is retained at a lower (deeper) soil layer. However, natural regeneration could be inhibited due to the loss of a large part of the seedbank which had previously been present in the organic duff and upper soil layer. Therefore, these areas will not stabilize as quickly as those sites with a low intensity burn, which will contain a higher seed loading from which to recruit vegetative germination and re-growth. A quick germinating nonpersistent annual species would provide rapid ground cover and native perennial species would provide longer term ground cover. Seeding would reduce impacts to soil productivity and hydrologic function and reduce threats to downstream life and safety, and to downstream property and infrastructure by reducing erosion and runoff. Seeding would also provide benefits for critical natural resources by accelerating vegetative recovery that would reduce erosion and sedimentation into streams, and by accelerating habitat recovery for spotted owl prey species. The contract for the Aerial seeding was advertised, and closed on July 5, 2012. There was a single bid, and the bid was higher than the original government estimate. This was based on doubled seed costs, which was factored into the government estimate, and the higher weight of the barley in the seed mix, thus substantially raising the application cost. This higher weight of the barley tripled the cost of seed application for the mulched acres. This also doubled again the cost of the seed application for the un-mulched acres, which had doubled the seed. The base price for seed remains the same. Therefore, the difference between the government and the the aerial seeding is listed in part VI, and is the amount requested in the Interim #3. Treatment areas are identified on the attached seeding map. The proposed seed mixes are identified in the tables below.

Seed mix for use in combination with straw mulch. This mix has a reduced level of annual barley. Areas treated with straw mulch will provide immediate ground cover and a lighter seeding rate is prescribed.

#### For Seed and Mulch Treatment Area

Species	Planting Rate (pls # <sup>2</sup> /acre)	Seeds/ft <sup>2</sup> Contribution from Planting Rate
Barley ( <i>Hordeum vulgare</i> )	34.80	10.00
Little Bluestem ( <i>Schizachyrium scoparium</i> )	0.50	3.00
Muttongrass ( <i>Poa fedleriana</i> )	0.05	1.00
Prairie junegrass ( <i>Koeleria macrantha</i> )	0.04	2.00
Slender Wheatgrass ( <i>Elymus trachycaulus</i> )	2.46	9.00
Total	37.85	25.00

Seed mix for use in treatment areas that will **not** receive mulch. This mix includes a higher concentration of Barley in the absence of straw mulch.

#### For Seed Only Treatment Area

Species	Planting Rate (pls # <sup>2</sup> /acre)	Seeds/ft <sup>2</sup> Contribution from Planting Rate
Barley ( <i>Hordeum vulgare</i> )	69.70	20.00
Little Bluestem ( <i>Schizachyrium scoparium</i> )	1.00	6.00
Muttongrass ( <i>Poa fedleriana</i> )	0.05	1.00
Prairie junegrass ( <i>Koeleria macrantha</i> )	0.04	2.00
Slender Wheatgrass ( <i>Elymus trachycaulus</i> )	4.38	16.00
Total	75.17	45.00

#### Noxious Weed Detection and Treatment

Field visits for the detection and of invasive noxious weed species will take place post monsoon season and again in the spring. Visits will focus on areas around known populations of bull thistle on City of Alamogordo lands above Bonito Lake and Dalmation toadflax along the ridge above Kraut and Littleton Creeks. Any weed species found will be treated.

#### Wilderness Treatments:

Due to the extreme nature of the burn in the headwaters of several watersheds in the White Mountain Wilderness and the risks to life, property, cultural and natural resources the BAER team is recommending that the seeding and mulching treatments listed above be utilized within the wilderness as well. A total of 8,916 acres will be either seeded or seeded and mulched in the wilderness. In addition the Forest is cooperating with the USGS and NRCS to have those agencies install ALERT precipitation monitors, one of which will be in the wilderness. Minimum Requirements Decision Guides have been prepared to authorize the proposed work in the White Mountain Wilderness.

### Roads Treatments:

Storm inspection and response. Roads within the Little Bear Complex Fire contain drainage structures that cross streams located in watersheds that have a high to moderate burn severity. These streams now have the potential for increased runoff and debris flows. The patrols are used to identify road problems such as plugged culverts and washed out roads and to clear, clean, and/or block those roads that are damaged.

- Armor the fill slope on sections of FR 107, FR 117, and FR 127A with large riprap to lessen damage to the road from storm runoff flows.
- Prepare 37 existing culverts in, or downslope from high severity burn areas to handle increased runoff flows.
- Enhance ditch blocks at 37 culverts by excavating culvert inlets and using this material to ensure ditch flow is directed into culvert.
- Install 3 overflow drains (2 on FR 127A, 1 on FR 598) to prevent ditch overflow from running down the road.
- Install a total of ~~68~~ 251 low standard rolling dips. The existing roadways would be excavated and lead out ditches or sediment traps constructed.
- Prepare ~~6.6~~ 7.7 miles of road side ditch for increased runoff flows.
- Install 8 hazard warning signs at key entry points to the burn area.
- Install 1 closure gate on road
- Construct large drainage swale on FR 107C. Remove vegetation from Bonito Creek around the bridge.
- Remove a total of 4 culverts and construct 2 low-water crossings on FR 127A
- Install a 10 ft culvert extension and place/fill 100 CY gabion baskets on FR 127A
- Remove rock and concrete slope pavement under 3 aquatic organism passage bridges on FR 127A to allow for increased flows.
- Place jersey barriers at spill out points near historic cabins along FR 127A
- Place and fill 100 CY gabion baskets and place 100 linear feet of jersey barriers along FR 107 to protect a low lying section of the road prism that is at risk of washing out.
- Remove one 24" culvert and construct a low-water crossing on FR 108
- Remove 2 existing damaged 36" cmp culverts and replace with 4 new 36" cmp culverts on FR 117

### Recreation Treatments:

Recommended emergency treatments for recreation sites affected by the fire or by threats of possible post-fire monsoon season flooding include:

- Continued closure of sites to all public entry and use, to be evaluated after monsoons, at which time a determination would be made if continued closure of the site is warranted due to continued threat to public health and safety.
- Installation of barriers, signage, and copies of Forest Closure Orders at all entry points of closed areas to notify the public of the hazards involved and enforce closure of the site to public entry and use.
- Replace 290' of burned wood retaining walls in the Southfork Campground. The walls vary in height from 3' to 5' and are used to support some of the chip sealed level 4 roads in the campground. Without the support walls roads will begin to collapse.

- Installation/ repair of waterbars and burned retaining walls in the 16.5 miles of trail in the high severity burn area.
- Installation/ repair of waterbars and retaining walls in the 8.83 miles of trail in the moderate severity burn area.

### Cultural Resources

11 cultural resource sites require treatments to protect them against post fire erosion and falling hazard trees. These sites will be treated with a combination of seeding and/or tree felling as needed. BAER team cultural resource specialists were not able to visit three of the affected sites – these will need to be assessed and if treatments are needed they will be proposed in future interim reports.

In addition the Monjeau Lookout building, which is a National Register of Historic Places listed structure, was damaged and needs to be protected against the infiltration of rain.

### Ski Apache Area Treatments

Ski Apache, operated by the Mescalero Apache, is situated on National Forest System Lands with a portion on Mescalero Apache lands. The majority of the Ski Apache operation residing on NFS lands is operated under a special use permit with terms and conditions in a lease. The lease provides for safe operation of the area and the operators are responsible for removing or mitigating any hazards.

The managers of the Ski Apache Resort area have proposed a set of treatments for their operation that will compliment treatments proposed by the FS BAER team assessment of the area. All assessment data, modeling and reports have been shared with the Tribe. The BAER team has concluded that any treatments designed to address the point protection of ski area infrastructure are outside of the scope of BAER funding. However, the team is recommending that the Tribe silviculturalist's timber treatments (see appendix E) be implemented. The proposed treatments include felling hazard trees in place (37 ac), contour felling (30 ac), and salvage/hazard tree removal (51 ac). This is in addition to the BAER treatments of aerial seeding and mulching already approved in interim #1.

**NOTE: This treatment was not approved.**

### Protection/Safety Treatments:

- Enact closure orders for the burn area, as well as key roads and trails accessing the burn. Install hazard warning signs and closure orders at key entry points around the burn area. Install locked closure gates on access routes to the burn area.
- Hazard trees will be felled along ~~6.85~~ 8.85 miles of National Forest roads. This ensures access on level 3 and 4 roads and the level 2 road to the Buck Mtn electronic and communications site
- Felling of all hazard trees in directly fire impacted recreation sites.
- Pumping of 19 vault toilets, to prevent down-stream contamination should the vault be inundated by floodwaters:

Oak Grove Campground- 3 toilets  
 Southfork Campground - 8 toilets  
 Monjeau Campground - 1 toilet  
 Argentina-Bonito Dispersed area - 3 toilets

Schoolhouse Picnic Site - 2 toilets  
Skyline Campground - 2 toilets

## **I. Monitoring Narrative:**

### Seed and Mulch Treatment Effectiveness Monitoring

Field monitoring visits to evaluate the effectiveness of mulch and seed treatments. This will be accomplished through pace transects, ocular ground cover estimates, and photo points.

### Cultural Resource Treatment Effectiveness Monitoring

Cultural Resource treatment monitoring will be accomplished with one visit per site following the monsoon season to assess treatment effectiveness.

### Trail Treatment Effectiveness Monitoring

Direct observation of recreation sites and trails will be accomplished (at a minimum) each spring to assess the effectiveness of trail stabilization and erosion control treatments.

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

Interim #3

Line Items	Units	Unit Cost	NFS Lands		Other \$	Other Lands			All Total \$
			# of Units	BAER \$		# of units	Fed \$	# of Units Non Fed \$	
<b>A. Land Treatments</b>									
Aerial Seeding	acres	75	19,211	\$1,440,825	\$0		\$0	\$0	\$1,440,825
Aerial Mulch 1 ton/ac	acres	625	10,241	\$6,400,625					
CR site stabilization	sites	500	11	\$5,500					
Noxious Weed	days	525	20	\$10,500					
Cost adj. seeding	acres	25.09	1911	\$47,947					
Cost adj. mulching	acres	47.82	10241	-\$489,725					
<i>Subtotal Land Treatments</i>				\$7,415,672	\$0		\$0	\$0	\$1,440,825
<b>C. Road and Trails</b>									
Armor Road FSR 107C	cu yd	95	3700	\$351,500	\$0		\$0	\$0	\$351,500
Culvert Preparation	per	300	75	\$22,500					
Overflow Drains on culv	per	3,000	3	\$9,000					
Rolling Dips	per	400	251	\$100,400					
Drainage swale 107C	per	2,500	1	\$2,500					
Remove Veg Bridge	per	5,000	1	\$5,000					
Ditch Cleaning	miles	200	7.7	\$1,540					
Culver removal/lwc	per	5,000	2	\$10,000					
Jersey Barriers/historic	per	10,000	1	\$10,000					
Culvert work on 127A	per	76,000	1	\$76,000					
Gabion baskets	CY	200	150	\$30,000					
Jersey barriers FR 107	LF	100	40	\$4,000					
Retaining wall in CG	per	20,000	1	\$20,000					
Storm Insp. & resp.	patrols	6,000	8	\$48,000	\$0		\$0	\$0	\$48,000
Remove foot bridge	per	500	1	\$500					
Trail stabilization	miles	1,150	25.33	\$29,130					
<i>Subtotal Road &amp; Trails</i>				\$720,070	\$0		\$0	\$0	\$399,500
<b>D. Protection/Safety</b>				\$0	0				
Hazard/Closure Signs	per	300	10	\$3,000	\$0		\$0	\$0	\$3,000
Closure gates	per	5,000	1	\$5,000	\$0		\$0	\$0	\$5,000
Pump vault toilets	per	789	19	\$15,000					
Hazard Tree Felling	miles	8,000	8.85	\$70,800					
<del>Ski Area Treatments</del>	<del>acres</del>	<del>0</del>	<del>0</del>	<del>\$0</del>					
Rec site hazard tree	per	800	6	\$4,800					
Monjeau LO protection	sites	700	1	\$700					
<i>Subtotal Structures</i>				\$99,300	\$0		\$0	\$0	\$8,000
<b>E. BAER Evaluation</b>									
assessment	per	209,879	1	---	\$209,879		\$0	\$0	\$209,879
<i>Subtotal Evaluation</i>				---			\$0	\$0	\$209,879
<b>F. Monitoring</b>									
Treatment Effectiveness	days	650	20	\$13,000					
<i>Subtotal Monitoring</i>				\$13,000	\$0		\$0	\$0	\$0
<b>G. Totals</b>							\$0	\$0	\$8,899,698
Previously approved				\$8,689,819					
This request				\$0					



## **PART VII - APPROVALS**

1. /s/ Chad Stewart for Robert Trujillo 07/03/2012  
Robert Trujillo  
Forest Supervisor (signature) Date
2. /s/ C.L. Newman, Jr. 07/16/2012  
Corbin L. Newman, Jr.  
Regional Forester (signature) Date