

Date of Report:

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 # _____
 ☐ Updating the initial funding request based on more accurate site data or design analysis
 ☐ Status of accomplishments to date
☐ 3. Final Report (Following completion of work)

PART II - BURNED-AREA DESCRIPTIONA. Fire Name: Big PoleB. Fire Number: UT-SLD-000544C. State: UtahD. County: TooeleE. Region: R4, IntermountainF. Forest: Uinta-Wasatch-CacheG. District: Salt LakeH. Fire Incident Job Code: PDE4J7I. Date Fire Started: 08/06/2009, 1000J. Date Fire Contained: Not Yet ContainedK. Suppression Cost: \$2,400,000

L. Fire Suppression Damages Repaired with Suppression Funds

1. Fireline waterbarred (miles): None on FS
2. Fireline seeded (miles): None on FS
3. Other (identify): None on FS

M. Watershed Number:

N. Total Acres Burned: _____

NFS Acres(**12,621 [2,571 w/in Wilderness]**) Other Federal (23,766) State (1,283) Private (6,253)O. Vegetation Types: Aspen (42 ac); Barren (64 ac); Spruce (71 ac); Mahogany (12 ac); Pinyon/Juniper (8,799 ac); Douglas Fir (1,264 ac); Sagebrush/grass (1,962 ac); Tall shrub/Mountain brush (486 ac)

P. Dominant Soils:

MU 48-	Reywat-Broad-Rock outcrop association, 30-60% slopes	(24%)
MU 46A-	Podmor, moist-Datemark-Rock outcrop association, 30-70% slopes	(19%)

MU 35-	Kapod very cobbly loam, 5-30% slopes	(17%)
MU 47-	Podmor-Onaqui-Rock outcrop association, 20-60% slopes	(13%)
MU 14A-	Datemark-Podmor, moist-Rock outcrop association, 30-70% slopes	(11%)

Q. Geologic Types: The fire is located in the Great Basin section of the Basin and Range physiographic province. Major landforms in the fire perimeter include steep, uplifted block faulted mountains that reach up to 11,000 ft elevation and dissected alluvial fan and fan remnants extending down to about 5,000 ft elevation. Geology in the area is primarily quartzite and limestone.

R. Miles of Stream Channels by Order or Class:
Perennial (5 mi); Intermittent (16 mi)

S. Transportation System

Trails: 4.1 miles (3.5 mi minimally developed) Roads: 7.9 miles (L1 = 2.75, L2 = 5.1)

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 8,458 ac (low) 1,778 ac (moderate) 486 (high)

B. Water-Repellent Soil (acres): 486 (4% of fire area)

C. Soil Erosion Hazard Rating (acres):
287 (2%) (low) 2,192 (17%) (moderate) 10,199 (80%) (high)

D. Erosion Potential: 60 tons / acre / 2 years

E. Sediment Potential: 7,550 cubic yards / square mile / 2 years

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 5

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

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

D. Design Storm Duration, (hours): 1

E. Design Storm Magnitude, (inches):

F. Design Flow, (cubic feet / second/ square mile): 1.24

G. Estimated Reduction in Infiltration, (percent): see table 1.0

H. Adjusted Design Flow, (cfs per square mile): see table 1.0

Table 1.0 Design Flow estimates for selected drainages for the 2009 Big Pole Fire

Drainage	Area (mi ²)	¹ Design Flow (cfs/mi ²)	Adjusted Design Flow (cfs/mi ²)	Estimated Red. in Infiltration (percent)	Estimated Prefire Discharge from Design Storm (cfs)	Estimated Postfire Discharge from Design Storm (cfs)
Big Pole	1.6	35.2	186.9	81	57.7	306.5
Little Pole	0.9	62.4	247.0	75	56.2	222.3
Unnamed	0.3	74.3	294.0	75	22.3	88.2
Pass	1.9	34.9	241.2	86	66.4	458.3
Chokecherry	1.2	59.3	277.8	79	71.2	333.4

¹Discharge estimates were calculated using WILDCAT4 computer model

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

- 1) There is a risk to human life and property from impaired watershed conditions.
 - a) Communities, Residences and Ranches: Private residences and ranches and inholdings to NFS lands may be threatened by impaired watershed conditions. Also, the BLM owned Muskrat Guard Station/Bunkhouse is within the fire perimeter, but was found to be in a location that should not be threatened from post fire burn conditions that exist in Upper Muskrat Canyon. Most of the Muskrat Canyon watershed is on lands managed by the Bureau of Land Management.
 - b) Public and Domestic Water Supplies: Several individual domestic water supplies are within the fire perimeter. The BAER Team evaluated known water supplies and found that these systems within National Forest lands were not at risk from post-fire events.
 - c) Water Transmission Facilities: Spring developments and irrigation diversions and/or ditches are within the fire perimeter, or immediately downslope of it. These facilities are at risk of loss from erosion or flooding especially in the drainages between Chokecherry Spring and Big Pole Creek.
 - d) Road and Bridges: The road and bridge infrastructure may be at some risk to public safety and protect future loss from erosion or flooding. This risk is mainly related to access along the routes during storm events, however, the infrastructure itself is threatened only by larger, non-treatable events in the severely burned watersheds of Big Pole Creek, Little Pole Creek, Pass Canyon, Chokecherry Canyon, and Muskrat Canyon. Potential for damage to the Skull Valley Road infrastructure is low.
 - e) Campgrounds, Trails, and Recreation Facilities: Forest trails were assessed to determine risk to public safety and protect future loss from erosion or flooding. This risk is similar to the risk on the road system and is mainly related to public access and safety during storm events. The risk of irretrievable loss of the trail system is low. The trail system appears to be "user-constructed" and does not pose a threat to other downstream critical or sensitive habitat because the loss would be very localized compared to the damage caused by the event as a whole.
 - f) Special Status Areas: The Stansbury Research Project is within the burn perimeter in the vicinity of Box Canyon. The project is operated in conjunction researchers from Brigham Young University. Fire damage to the research plot infrastructure and vegetation was assessed, along with anticipated natural revegetation pathways and outcomes. It was determined that there is a risk of treatments altering the research within these plots and treatments must be avoided along the edges unless well-controlled. Exclosure fences have been damaged and are not entirely functional. This poses a threat of grazing impacts when allotments are put back into use after 2 growing seasons. There was also a historic Forest Service exclosure fence, about 5 acres, that burned and now poses a public safety hazard, especially to horses, because it is now less visible and strewn across the ground.
- 2) Protect threatened species and their habitat from unnatural events. No Boreal toad habitat has been identified on NF lands in Box Canyon and Chokecherry Springs, however this is habitat for other

aquatic species that are not T&E including the tiger salamander, chorus frog, and great basin spadefoot. Bighorn Sheep have also been a part of Utah history and are native to the Stanisbury Mountain Range. California Big Horn Sheep have been reintroduced and the Forest has been planning vegetation treatments in the Stanisbury Mountain Range to improve habitat. These efforts have been coordinated within the guidelines associated with the Utah Bighorn Sheep Statewide Management Plan (Utah Division of Wildlife Resources, Department of Natural Resources).

- 3) The risk of increased infestations of noxious weeds is high due to many existing populations within the fire perimeter, it is likely that some treatment will be necessary. Two aggressive noxious weeds need immediate attention: musk thistle and Scotch thistle. Canada thistle, field bindweed, hoary cress, houndstongue, and poison hemlock; all on the State of Utah noxious weed list, were observed on, or within one mile, of the forest.
- 4) There is a great risk to the ecological integrity and future soil productivity of the burned area. It will be compromised by an invasion of cheatgrass (*Bromus tectorum*) into the areas where the juniper cover type burned and resulted in moderate and high soil burn severity. This aggressive species would also alter the fire regime. If these areas convert to a cheatgrass dominated understory, the fire return interval might be 10 times as frequent as the historical fire patterns.
- 5) Significant historic and cultural sites were assessed for damage and protection measures were evaluated to prevent additional loss. Along the west side of the Stanisbury Range, of the Uinta-Wasatch-Cache National Forest, five prehistoric and four historic heritage resources have been identified in past and present projects. The prehistoric sites are all lithic scatters dating to the Late Archaic (1500 BC – 700 AD) and Fremont (400 AD – 1300 AD) timeframes. The historic sites consist of two trash/camping sites and two historic water systems, a masonry aqueduct and a wooden pipeline, all dating to the beginning of the 20th century. Of these nine sites four of the prehistoric lithic scatters and the two historic trash/camp sites were previously recorded. Of these, three of the prehistoric sites are eligible for the national register of historic properties, making them critical resources requiring assessment for threats. The three remaining sites were identified in the reconnaissance portion of this BAER assessment; these sites included another prehistoric lithic scatter and the two historic water systems. Based on field observation, these sites are considered to be eligible to the national register and therefore require assessment for threats. All of the above-defined critical resources were susceptible to threats from the fire itself as well as mitigation used to abate the fire that can alter and damage site integrity. They now face threats from post fire processes and events. Post fire threats are a result of the removal of vegetation and degree of soil hydrophobicity, both on sites and in adjacent landscapes. These environmental alterations result in site deterioration through natural events, such as, erosion, debris flow, and flooding. It also makes sites highly visible, promoting casual theft of artifacts by visitors.
- 5) Sub-watersheds with a significant extent of high intensity burn have been identified and include Muskrat Canyon, Chokecherry, Pass Canyon, Little Pole, and Big Pole. Generally, all of the lower portions of all of the previously mentioned drainages experienced a high intensity burn as indicated by the consumption of vegetation. Soil burn severity in these areas was generally light to moderate (see BARC Map). The exception is within the old monument burn which experienced a light burn intensity and severity.
 - a) Upper drainages on the northern end of the fire (north end of the fire to monument canyon) were not burned as extensively as upper drainages located from Chokecherry Canyon to Big Pole with burning in the upper portions of these watersheds being extensive, of a high intensity, and a moderate to high severity. This is especially true for areas previously dominated by Douglas-fir and spruce/fir. As a result the highest potential for flash flooding is in Little Pole Canyon, No Name Canyon, Big Pole Canyon, Pass Canyon, and Chokecherry Canyon. Increased runoff is likely in other drainages within the fire perimeter but it is expected to be less.
 - b) There are several Values At Risk located downstream of Chokecherry Canyon extending to Big Pole. These include the water delivery system and the historic aqueducts which extend from Chokecherry Canyon to Pass Canyon. The water conveyance system is at an increased risk of failure due to reduced ground cover and increased hydrophobic soil conditions which will result in

increased flows and probable debris flooding. In addition, the Muskrat Guard Station and the Ensign ranch were areas of concern.

- c) Water conveyance system pipelines: The pipelines are at a substantial increased risk of being further damaged and/or destroyed due to expected increased flows and potential debris flooding. Failure of the water development would negatively affect those currently utilizing water provided by the water conveyance system. Of special concern is the area where the PVC pipeline and associated bridge traverse Pass creek. Modeling (WILDCAT4 and WINXSPRO) strongly suggests that this structure is at an elevation that will pass flows of 250 cfs, but will not pass the predicted flows of ~ 458 cfs (5 yr event, 1 hr. event, 1.24" ppt @ 80% confidence interval).
- d) Water detention pond: The water collection pond located just downstream of Natioinal Forest lands will likely fail due to expected increased flows and potential debris flooding. Failure of the water development would negatively affect those currently utilizing water provided by the water conveyance system. Additionally failure of the pond could create a domino effect that may further impact the water pipelines further downstream.
- e) Historic aqueducts: The historic aqueduct extending along the base of the slope from Little Pole Canyon to Big Pole canyon is at an increased risk for damage from flooding and debris flows. Post-fire flow modeling suggests the majority of these cultural resources are to be impacted by expected increased flows (5 yr event, 1 hr. event, 1.24" ppt @ 80% confidence interval).
- f) Ensign Ranch/Mustrat Guard Station (not on NFS lands): Initially there was a concern increased flows may result in property damage and/or potential harm and/or loss of life. However after reviewing the areas it is highly unlikely damages from debris flood to reach the Ensign Ranch and Muskrat Guard Station as the bulk of the material and runoff should be deposited on the alluvial fan well upslope from these developments. In addition, modeling results from WILDCAT4 and WINXSPRO suggests flows likely will not be enough to overfill the ephemeral drianage located approximately 1,000 feet north of the Muskrat Guard Station and very strongly suggests that if the ephemeral drainage is flooded that flows will not be high enough to damage the muskrat guard station (5 yr event, 1 hr. event, 1.24" ppt @ 80% confidence interval).

B. Emergency Treatment Objectives:

The primary objectives of the Big Pole Burned Area Emergency Stabilization Plan were:

- To insure the BAER team's personal safety and provide for public safety during our assignment
- To coordinate with the BLM, Private Landowners, and NRCS.
- To assess the risk to human life and property and/or natural or cultural resources from impaired watershed conditions and to recommend appropriate stabilization actions to protect the following values:
 - Re-establish native plant communities in a timely fashion in order to reduce or eliminate a threat to long-term soil productivity and protect the ecological integrity of the ecosystem.
 - Control expected invasion by cheatgrass (*Bromus tectorum*).
 - Accelerate, using wildlife funds, re-establishment of an important winter range plants.
 - Warn the public about future flooding, especially during storm events in or near the mouths of severely burned watersheds and along trails and roads.
 - Protect or advise downstream landowners of the future risk to water transmission lines.
 - Minimize the safety risk resulting from burned infrastructure such as fencing.
 - Local culturally significant sites.

The BAER assessment evaluated the above objectives for possible mitigation using an array of treatment

options and/or actions allowable by FSM 2523. Treatments have been designed specifically to mitigate the threats and issues listed above.

No land treatments or inchannel sediment detention structures are recommended on National Forest lands because of the low likelihood of success in controlling floods in these steep and narrow canyons which are not conducive to hillslope treatments. Another reason for not recommending hillslope treatments is due to the high cost of implementation. Hillslope and inchannel detention basins are more costly than repairing water delivery/developments like those in Pass Canyon.

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

Land NA % Channel NA % Roads/Trails NA % Protection/Safety 95 %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	50%	60%	60%
Channel	NA	NA	NA
Roads/Trails	NA	NA	NA
Protection/Safety	90%	70%	60%

E. Cost of No-Action (Including Loss): The cost of restoring this area to pre-fire conditions after cheatgrass and noxious weeds have invaded and dominated the area will be very expensive. The damaged ecosystem integrity and shortened fire frequency associated with a cheatgrass and weed dominated landscape, however, are non-market. Ecosystem integrity includes soil productivity, diversity of species, etc., and it is difficult to accurately assign a monetary value to these resources. The new VAR Calculation Tool (Calkin et al, 2007) provides a standardized way to approach non-market values. This equation gives the analyst a value defined as the Implied Minimum Value (IMV). The $IMV = (\text{treatment cost} / (\text{Probability of loss occurring with no treatment} - \text{Probability of loss occurring with treatment}))$. The IMV of the non-market ecosystem integrity of this burned area is at least \$1,270,000.00. This is a minimum market value for treatments to be economically justifiable. Since early prevention of cheatgrass and weed invasion is likely to be more effective than efforts delayed by several years, we assume that the cost of no action is likely to be much greater than the IMV. How much more is hard to say. For this exercise, we could assume \$2,500,000.00 to \$3,000,000.00.

F. Cost of Selected Alternative (Including Loss): About $\$250,000.00 + \$250,000 = \$500,000$ (including loss). Treatment to protect ecological integrity may have a 50% probability of effectively competing with cheatgrass and resulting in a condition where desirable native and non-native species are the majority. Due to the narrow window for early prevention, a failure in the first season would not result in a loss of the entire resource value because it is valuable enough that the treatment would likely be repeated. The probability of success with two treatments in successive years following the fire is likely. The limiting factor, however, is precipitation received in the first spring after seeding; if precipitation is good or "near normal" the seed has a greater chance of success and competition with cheatgrass. The treatments are considered necessary and economically justifiable because the ecological integrity of the burned area as a non-market value is worth more than the IMV of \$1,270,000.00.

G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input type="checkbox"/> Geology	<input checked="" type="checkbox"/> Range	<input type="checkbox"/>
<input type="checkbox"/> Forestry	<input type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input type="checkbox"/> Engineering	<input type="checkbox"/>
<input type="checkbox"/> Contracting	<input checked="" type="checkbox"/> Ecology	<input checked="" type="checkbox"/> Botany	<input checked="" type="checkbox"/> Archaeology	<input type="checkbox"/>
<input type="checkbox"/> Fisheries	<input type="checkbox"/> Research	<input type="checkbox"/> Landscape Arch	<input checked="" type="checkbox"/> GIS	

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H. **Treatment Narrative:**

(Describe the emergency treatments, where and how they will be applied, and what they are intended to do. This information helps to determine qualifying treatments for the appropriate funding authorities. For seeding treatments, include species, application rates and species selection rationale.)

Land Treatments:

Noxious Weed Detection and Treatment

General Description:

The purpose of this noxious weed detection treatment is to identify the spread of noxious weeds from any currently known location of noxious weeds. Due to existing populations within the fire perimeter, it is likely that some treatment will be necessary. Two aggressive noxious weeds need immediate attention: musk thistle and Scotch thistle. Canada thistle, field bindweed, hoary cress, houndstongue, and poison hemlock; all on the State of Utah noxious weed list, were observed on, or within one mile, of the Forest. This recently burned area offers a disturbed site for noxious weeds to occupy. Monitor along the outside perimeter of all documented known weed sites within the fire perimeter. Treat and map any new or expanded weed populations for 1 year under the BAER program. Detect and control noxious weeds for at least 3 additional years with other program funds.

Location (Suitability) of Sites:

Musk thistle occurs on the Bureau of Land Management near Pass Canyon within 0.25 miles of the wilderness and is capable, over years, of spreading to the mountain crest. There is a strong likelihood that musk thistle occurs in other locations yet to be mapped. Scotch thistle is located on private land at the historic Dell Ranch less than one mile west of the forest boundary and likewise has great potential to spread on the forest. This is critical opportunity to apply an early detection/rapid response strategy and keep these from spreading to the Forest.

The other five species of noxious weeds are Canada thistle, field bindweed, hoary cress, houndstongue, and poison hemlock. These occur near the west edge of the forest at Pass Canyon, along the road to Box Canyon, or at the historic Dell Ranch.

Design/Construction Specifications:

This treatment provides for a weed crew to monitor the 600-ft-wide buffer around known locations of noxious weeds on the National Forest lands to detect and treat new occurrences of noxious weeds that may be spreading away from the known location out into the burned area.

- Monitoring will be timed to catch both early and late maturing species.
- Monitoring will be conducted by a botanist and/or a technician under direction of a botanist qualified to identify target species. Weeds of primary concern are musk thistle and Scotch thistle, but also include Canada thistle, field bindweed, hoary cress, houndstongue, and poison hemlock.
- New population locations will be mapped using a gps and/ or 1:24,000 quad map and flagged on the ground. Because BAER funds will help to locate the new populations, the UWC National Forest can cost share with normal appropriated NFRW funding to enter the information into databases. NRIS and Wasatch-Cache survey and treatment forms will be filled out and entered into national

database.

- d) Rapid response treatments will occur on new, small populations that are detected by monitoring. Larger populations will be flagged for later treatment and a request for additional funding will be submitted.
- e) Equipment washing for weed prevention is mandatory on all equipment and/or vehicles that may be harboring soil and debris prior to entering burned area for rehab or any other related activity.

Purpose:

The fire has created suitable habitat for the spread of existing population of noxious weeds. Monitoring will reduce the potential for establishment of new noxious weed sites or populations.

Non-Wilderness Broadcast Seeding Treatment

General Description:

A selected seed mixture would be distributed across the polygons identified on the treatment map and encompass hillslopes that have been burned at a moderate to high soil burn severity using aerial broadcast seeding.

Location (Suitability) of Sites:

The following treatments are designed for the areas with moderate and high soil burn severity on two soil types (map symbols): Kaypod (35) and Reywat (48). These are the two soil types in the burned area where juniper is increasing in cover and can form closed canopies. Seed areas outside of the wilderness north of Pass Canyon with a mixture of native and non-native species. The areas suitable for this treatment are the sub-set of areas identified as moderate and high burn severity that have gentle slopes and the best chance for seed germination/establishment success. The lower slope angles will reduce solar insolation impacts on evaporation and snowpack melt, helping to prolong soil moisture and enhance seed germination and establishment.

Treatment polygons were derived by starting with high and moderate pixels on the BARC soil burn severity map for the Kaypod and Reywat soil types. These areas were smoothed using the nearest neighborhood statistics and spatial analyst tool with the severity raster grid to design the treatment polygons.

Design/Construction Specifications:

The areas outside of the wilderness north of Pass Canyon should be seeded with the mixture of native and non-native species selected in **Seed Mixture #1**. 683 acres.

Aerially broadcast seed in late fall just before, or after, the first snow. "The optimal time to apply grass seed to burned areas is before or just after the first snowfall so that the seed will benefit from the moisture provided by spring snowmelt and become established before the following summer thunderstorms." (Groen, Amy H. and Scott W. Woods, 2008). If Treatment 2 is implemented, then the seed for 683 acres will need to be aerially applied in early fall to allow sufficient time for the seed to be covered.

Special Notes:

Caution: Do not seed within 300 yards of the Joint Fire Sciences Program/Brigham Young University study plots at the west edge of the forest near Round Canyon. Contact Dr. Bruce Roundy (Professor, Brigham Young University and Eric Lamalfa, Fuels Specialist, Uinta-Wasatch-Cache N.F. prior to aerial application of seed in section 5 near Round Canyon).

Rest the seeded area, and entire burned area, from livestock grazing for two full growing seasons. This will give the seeded species and residual plants two seasons to grow, set seed and begin to re-establish. The area could be grazed late season 2011 after seed set. The livestock hoof action would help to work some of the shattered ripe seed into the soil.

Although an objective of the BAER emergency seeding treatment is to accelerate the re-establishment of an important winter range plants, only wildlife project funds will be used to purchase the supplemental seed needed to accomplish this. The actual seed mixture has not been developed at the time of this initial request, therefore the contributed cost of the seed cannot be shown in Part VI of the report.

Native or Introduced	Species to be Seeded	Seed Mix #1 Non-Wilderness	Seed Mix #2 Wilderness; Non- Wilderness Edge
< ---- Pounds / Acre (PLS) ---- >			
N	Big bluegrass “Sherman”	0.25	0.25
N	Bluebunch wheatgrass “Anatone”	4	7
N	Snake River wheatgrass “Secar”	3	0
N	Canby bluegrass	0.5	0
N	Sandberg bluegrass VNS	0	0.5
N	Slender wheatgrass “Pryor”	0	5
N	Thickspike wheatgrass “Bannock”	0.5	0.5
N	Thickspike wheatgrass “Critana”	0.5	0.5
N	Western wheatgrass “Rosana”	2	2
N	Western yarrow	0.05	0.05
I	Crested wheatgrass “Hycrest”	3	0
I	Blue flax “Appar”	0.25	0

Total Pounds / Acre

Total Seeds / Ft² 1/

Estimated Seed Cost / Acre

Estimated Cost Seed Mix/Pound

14.05	15.80
64	66
\$75.90	\$93.15
\$5.40	\$5.90

1/ Recommended rates for broadcast seeding mixes are about 50 – 100 seeds per square foot.

Estimated Cost / Acre

(Includes seed mix #1 and fixed-wing
and seed mix #2 and helicopter)

Seed Mix # 1	Seed Mix # 2
\$82.90	\$133.15

Purpose:

The purpose of this aerial broadcast seeding is to protect the ecological integrity of the burned area that will be compromised by an invasion of cheatgrass into the areas where the juniper cover type burned and resulted in moderate and high soil burn severity. This treatment also is intended to prevent an alteration of the fire regime. If these areas convert to a cheatgrass dominated understory, the fire return interval might be 10 times as frequent as the historical fire patterns.

Non-Wilderness Edge Broadcast Seeding Treatment

General Description:

A selected seed mixture would be distributed across the polygons identified on the treatment map and encompassing hillslopes that have been burned at a moderate to high severity using aerial broadcast seeding.

Location (Suitable) of Sites:

The following treatments are designed for the areas with moderate and high soil burn severity on two soil types (map symbols): Kaypod (35) and Reywat (48). These are the two soil types in the burned

area where juniper is increasing in cover and can form closed canopies. Seed areas outside of, but directly adjacent to the wilderness in Pass Canyon and at the southwest corner of the burned area with a seed mixture of all native species.

Treatment polygons were derived by starting with high and moderate pixels on the BARC burn severity map for the Kaypod and Reywat soil types. These areas were smoothed using the nearest neighborhood statistics and spatial analyst tool with the severity raster grid to design the treatment polygons.

Design/Construction Specifications:

The areas outside of, but directly adjacent to, the wilderness in Pass Canyon and at the southwest corner of the burned area should be seeded with the seed mixture comprised of all native species. (109 ac) selected in **Seed Mixture #2**.

Aerially broadcast seed in late fall just before, or after, the first snow. Excellent results have been observed when seed is applied on a thin layer of snow.

Rest the seeded area, and entire burned area, for two full growing seasons. This will give the seeded species and residual plants two seasons to grow, set seed and begin to re-establish. The area could be grazed late season 2011 after seed set. The livestock hoof action would help to work some of the shattered seed into the soil.

Purpose:

The purpose of this aerial broadcast seeding is to protect the ecological integrity of the burned area that will be compromised by an invasion of cheatgrass into the areas where the juniper cover type burned and resulted in moderate and high soil burn severity. This treatment also is intended to prevent an alteration of the fire regime. If these areas convert to a cheatgrass dominated understory, the fire return interval might be 10 times as frequent as the historical fire patterns.

Wilderness Broadcast Seeding Treatment

General Description:

A selected seed mixture would be distributed across the polygons identified on the treatment map and encompassing hillslopes that have been burned at a moderate to high severity using aerial broadcast seeding.

Location (Suitable) of Sites:

The following treatments are designed for the areas with moderate and high soil burn severity on two soil types (map symbols): Kaypod (35) and Reywat (48). These are the two soil types in the burned area where juniper is increasing in cover and can form closed canopies. Seed inside the wilderness with the same mixture of native species.

Treatment polygons were derived by starting with high and moderate pixels on the BARC burn severity map for the Kaypod and Reywat soil types. These areas were smoothed using the nearest neighborhood statistics and spatial analyst tool with the severity raster grid to design the treatment polygons.

Design/Construction Specifications:

The inside of the wilderness should be seeded with the same mixture of native species. (799 ac) selected in **Seed Mixture #2**. Aerially broadcast seed in late fall just before, or after, the first snow. Excellent results have been observed when seed is applied on a thin layer of snow.

Rest the seeded area, and entire burned area, for two full growing seasons. This will give the seeded species and residual plants two seasons to grow, set seed and begin to re-establish. The area could be grazed late season 2011 after seed set. The livestock hoof action would help to work some of the shattered seed into the soil.

Purpose:

These wilderness areas are recommended for treatment because similar threats to ecosystem integrity exist across the wilderness boundary. The same vegetation types, burn severity and threats exist in

the wilderness as outside the wilderness. Although the threats are the same, the seed mix is only native species in order to better meet the Forest Plan wilderness management prescription direction. The purpose of this aerial broadcast seeding is to protect the ecological integrity of the burned area that will be compromised by an invasion of cheatgrass into the areas where the juniper cover type burned and resulted in moderate and high soil burn severity. This treatment also is intended to prevent an alteration of the fire regime. If these areas convert to a cheatgrass dominated understory, the fire return interval might be 10 times as frequent as the historical fire patterns.

Channel Treatments:

None proposed at this time 8/21/2009 for FS lands.

Note for Non-FS Lands:

Pass Canyon Water Delivery System: The appropriate stakeholders were informed by the BAER Team leader on August 17th and 18th, 2009 (e.g. Ensign Ranch, BLM, and NRCS) of the increased probability of failure of the detention basin and pipelines so that appropriate action may be taken. In addition, data from Wildcat 4 and WINXSPRO modeling the expected flows will be provided. This will allow all stakeholders involved to come up with a plan of action that will have an improved likelihood of success.

Roads and Trail Treatments:

None proposed at this time 08/21/2009

Protection/Safety Treatments:

Burned Area Warning Signs

General Description:

This treatment is for the installation of burned area warning signs. Burned area signs consist of a warning to the public identifying of the possible dangers associated with a burned area. It shall contain language specifying of items to be aware of when entering a burn area such as falling trees and limbs, rolling rocks, and flash floods.

Location (Suitable) of Sites:

Burned Area Signs - These signs shall be installed at all entries into the fire perimeter. The location of these signs shall be along trails and roads. All signs will be placed facing the direction of travel entering the burn area. The locations of these signs are listed below:

- Box Canyon trail, at the Forest Boundary
- Pass Canyon trail, at the Forest Boundary
- Muskrat Canyon trail, at BLM trailhead
- Trailheads on East side of Stansbury mountains

Design/Construction Specifications:

- Use the Manual on Uniform Traffic Devices, Federal Highway Administration to determine sign letter and colors that are based speed of travel at the sign location. Burned Area warning signs along the trails shall measure, at a minimum, 2 feet by 2 feet and consist of 0.08" aluminum, sheeted in high intensity orange with black letters. The BURNED AREA lettering shall be a minimum of 4 inches in height and all remaining lettering, indicating the hazards, shall be a minimum of 2 inches in height.
- Ensure maximum visibility and readability of signs warning visitors of the hazards to human life and safety that exist in burned areas.

Purpose:

The purpose of the BURNED AREA signs is to warn the public of potential hazards resulting from the effects of the fire, such as rolling rocks, falling trees, road washouts, and flash floods.

Exclosure Fence Removal Treatment

General Description:

The exclosure located adjacent to the Round Canyon road next to the forest boundary is essentially a complete loss. Closure of the area would be difficult because the hazard is to those travelling cross-country. Signing the hazard would be almost as expensive as removing the material because it would need to be posted from all possible angles of approach. This project would fund a crew to remove old wire at the site, which needs to be rolled up and properly disposed of as soon as possible to provide for public safety.

Location (Suitable) of Sites:

The remains of the exclosure about (5 acres in size) is located adjacent to the Round Canyon road next to the forest boundary.

Design/Construction Specifications:

Replacement of this exclosure is not part of this treatment. The project would remove the hazard of the down fencing wire.

Purpose:

Old wire on the ground poses a safety hazard to anyone traveling cross-country, especially equestrians. Horses have the potential to get tangled in the wire.

I. Monitoring Narrative:

(Describe the monitoring needs, what treatments will be monitored, how they will be monitored, and when monitoring will occur. A detailed monitoring plan must be submitted as a separate document to the Regional BAER coordinator.)

Seeding Treatment Effectiveness Monitoring (To Be Determined by UWC National Forest and requested through an Interim Report)

General Description:

Evaluate the response to the seeding treatments in the spring and summer of 2010 to determine whether the treatment was implemented in areas most in need of native-vegetation recovery and to ensure that the seeding treatment has met its intended purpose. If it is determined that the treatment did not meet its objective, then the Forest will seek any available funding to repeat the treatment in the fall of 2010.

Location (Suitable) of Sites:

Stratified sample of areas treated in the three broadcast seeding treatments listed within the land treatment category.

Design/Construction Specifications:

To be developed prior to summer of 2010 by the UWC Forest with involvement from Jeff Bruggink, Mark Madsen, Mike Duncan, and Bob Campbell. This monitoring should be medium-intensity, quantitative, and compiled into a report to help make future decisions about the effectiveness of broadcast seeding without covering the seed. Suggested stratifications for the monitoring strategy are soil type and mechanical seed cover vs. broadcast only. A RAWS station to measure site-specific precipitation the treatment receives may also be of value.

Purpose:

To monitor whether the aerial broadcast seeding treatments (without chaining or other methods to cover the seed and provide better soil/seed contact) met intended objectives of germination and growth in the first year after treatment.

Part VI – Emergency Stabilization Treatments and Source of Funds

Interim #

Line Items	Units	Unit Cost	NFS Lands		Other \$	Other Lands			All Total \$
			# of Units	BAER \$		# of units	Fed \$	# of Units Non Fed \$	
A. Land Treatments									
Noxious Weed Detect	Acre	150	100	\$15,000	\$0		\$0	\$0	\$15,000
Non-Wilderness Broad	Acre	125	683	\$85,375	\$0		\$0	\$0	\$85,375
Seed Implmnt Cost	Each	20000	1	\$20,000	\$0		\$0	\$0	\$20,000
Non-Wilderness Edge	Acre	143	109	\$15,587	\$0		\$0	\$0	\$15,587
Wilderness Broadcast	Acre	143	799	\$114,257	\$0		\$0	\$0	\$114,257
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0
<i>Subtotal Land Treatments</i>				\$250,219	\$0		\$0	\$0	\$250,219
B. Channel Treatments									
				\$0	\$0		\$0	\$0	\$0
				\$0	\$0		\$0	\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0
<i>Subtotal Channel Treat.</i>				\$0	\$0		\$0	\$0	\$0
C. Road and Trails									
NA				\$0	\$0		\$0	\$0	\$0
				\$0	\$0		\$0	\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0
<i>Subtotal Road & Trails</i>				\$0	\$0		\$0	\$0	\$0
D. Protection/Safety									
Burned Area Warning	lea	300	7	\$2,100	\$0		\$0	\$0	\$2,100
Exclosure Fence Remo	mi	3000	1	\$3,000	\$0		\$0	\$0	\$3,000
				\$0	\$0		\$0	\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0
<i>Subtotal Structures</i>				\$5,100	\$0		\$0	\$0	\$5,100
E. BAER Evaluation									
Team				\$39,852			\$0	\$0	\$0
<i>Insert new items above this line!</i>				---	\$0		\$0	\$0	\$0
<i>Subtotal Evaluation</i>				---	\$0		\$0	\$0	\$0
F. Monitoring									
Seeding Treatment Eff	Year	0	1	\$0	\$0		\$0	\$0	\$0
				\$0	\$0		\$0	\$0	\$0
<i>Insert new items above this line!</i>				\$0	\$0		\$0	\$0	\$0
<i>Subtotal Monitoring</i>				\$0	\$0		\$0	\$0	\$0
G. Totals				\$255,319	\$0		\$0	\$0	\$255,319
Previously approved									
Total for this request				\$255,319					

PART VII - APPROVALS

 1. /s/Brian Ferebee
 Forest Supervisor (signature)

08/26/09
 Date

 2. _____
 Regional Forester (signature)

 Date