

**BLM NV POST-FIRE RECOVERY PLAN
EMERGENCY STABILIZATION AND BURNED AREA REHABILITATION
2011 PLAN**

RAY MAY FIRE

**US DOI/CARSON CITY DISTRICT/SIERRA FRONT FIELD OFFICE
NEVADA STATE OFFICE
And
US/DOI/BUREAU OF INDIAN AFFAIRS/WESTERN NEVADA AGENCY**

FIRE BACKGROUND INFORMATION

Fire Name	Ray May
Fire Number	GA1D
District/Field Office	Carson City District, Sierra Front Field Office, BLM
Admin Number	
State	Nevada
County(s)	Douglas (NV)
Ignition Date/Cause	8/16/2011, human caused
Date Contained	8/25/2011
Jurisdiction	<i>Acres</i>
BLM	1,902
BIA	1,095
Private	818
Other	
Total Acres	3,815
Total Costs	\$706,000
Costs to LF20000ES BLM PORTION	\$397,000
Costs to LF32000BR BLM PORTION	\$157,000
Costs to LF20000ES BIA PORTION	\$152,000
Costs to LF32000BR BIA PORTION	\$0

Status of Plan Submission (check one box below)

	Initial Submission of Complete Plan
X	Updating or Revising the Initial Submission
	Amendment

Revision 1:

Due to BLM policy constraints and differing professional opinions, separate seed mixes for BLM and BIA portions of the burned area have been developed. The following plan has been updated to reflect the differing costs and mixes for the different jurisdictional boundaries.

PART 1 - PLAN SUMMARY

BACKGROUND INFORMATION ON THE FIRE

The Ray May Fire was started on 8/16/2011 by an escaped campfire that was not in a developed campground. The fire occurred on the west side of the Pine Nut Mountains in Douglas County, Nevada. The fire was controlled at 3815 acres and was declared out on 8/29/2011. Prior to the fire, large portions of the Pine Nuts were in phase 2 or 3 of pinion/juniper encroachment. There are private residences within the burn perimeter, as well as within a half mile outside of the burn perimeter. The burn is within the Pine Nut PMU for the Bi-state population of sage grouse, and is adjacent to critical sage grouse habitat.

Postfire analysis of the Ray May Fire suggests that most of the area on public lands burned at moderate to high intensity, creating a loss of perennial vegetation. The pre-fire perennial vegetation was composed of pinion pine (*Pinus monophylla*) and western juniper (*Juniperus occidentalis*) forming a dense overstory. The naturally expected understory species were lacking in portions of the area where the pinion and juniper had occluded it. Areas where understory species were observed were composed of big sagebrush species (*Artemisia tridentata* var *vaseyana*, *Wyomingensis* and *tridentata*) and bitterbrush (*Purshia tridentata*) along with perennial grasses such as Thurber needlegrass (*Achnatherum thurberianum*), basin wildrye (*Leymus cinereus*), bluegrass species (*Poa Sp.*), Indian ricegrass (*Achnatherum hymenoides*), bluebunch wheatgrass (*Pseudoroegneria spicata*) and bottlebrush squirreltail (*Elymus elymoides*).

Elevation throughout the burn ranges from 5,600 to 7,700 feet, but 6,200 to 6,600 feet is most common. The majority of the area within the Ray May burn area has a high probability of being transitioned to cheatgrass (*Bromus tectorum*). Native perennial plant species were killed during the Ray May fire by high burn intensities. In addition perennial grass seed banks are low in these areas due to pre-burn plant community conditions.

Disturbance from the fire has left the burn available to the establishment of invasive and noxious species. The following invasive and noxious weed species are available to occupy the site: cheatgrass, yellow star-thistle (*Centaurea solstitialis* L.), Scotch thistle (*Onopordum acanthium*), hoary cress (*Cardaria draba*) and perennial pepperweed (*Lepidium latifolium*), which are present along the transportation routes into the burn area. Without stabilization and rehabilitation the noxious weeds and less desirable species will likely colonize and occupy the site and impede the re-establishment of desirable perennial species.

LAND USE PLAN CONSISTENCY

The proposed action conforms to the Carson City Field Office Consolidated Resource Management Plan, as revised with the Carson City Field Office Fire Management Plan, approved by the BLM, Nevada State Director on September 30, 2004. The proposed action is consistent with resource objectives of the plan and with other federal, state, tribal and local laws, regulations, policies, and plans to the maximum extent possible. This action is also consistent with the Normal Year Fire Rehabilitation Plan Environmental Assessment NV-030-02-07 (2002).

COST SUMMARY TABLES

Emergency Stabilization (LF20000ES):

Action/ Spec. #	Planned Action	Unit (acres, WMs, number)	# Units	Unit Cost (If Applicable)	FY11	FY12	FY13	FY14	Totals by Spec.
S1	Planning (Project Mgmt)	WM's	1.5		\$5,000	\$10,000	\$0	\$0	\$15,000
S2	Ground Seeding	Acres	0		\$0	\$0	\$0	\$0	\$0
S3	Aerial Seeding	Acres	2997		\$0	\$456,000	\$0	\$0	\$456,000
S4	Seedling Planting	#	0		\$0	\$0	\$0	\$0	\$0
S5	Noxious Weeds	Acres	0		\$0	\$0	\$0	\$0	\$0
S6	Soil Stabilization (Other than seedling, planting)	Acres	0		\$0	\$0	\$0	\$0	\$0
S7	Fence/Gate/Cattle Guard	Miles	0		\$0	\$0	\$0	\$0	\$0
S8	Road/Trail Water Diversion	#	0		\$0	\$0	\$0	\$0	\$0
S9	Cultural Protection (Stabilization/Patrol)	Acres	0		\$0	\$0	\$0	\$0	\$0
S10	Tree Hazard Removal	#	0		\$0	\$0	\$0	\$0	\$0
S11	Facilities	#	0		\$0	\$0	\$0	\$0	\$0
S12	Closures (area, OHV, livestock)	#	2		\$0	\$8,300	\$0	\$0	\$8,300
S13	Monitoring	Acres	2997		\$0	\$17,000	\$17,000	\$22,000	\$56,000
S14	Other Treatments	Acres	1902		\$0	\$14,000	\$0	\$0	\$14,000
TOTAL COSTS (LF20000ES)					\$5,000	\$505,300	\$17,000	\$22,000	\$549,300
OTHER FUND CODE TOTALS:									
TOTAL COSTS LF20000ES BLM Portion					\$5,000	\$369,300	\$10,000	\$13,000	\$397,300
TOTAL COSTS LF20000ES BIA Portion						\$136,000	\$7,000	\$9,000	\$152,000
TOTAL COSTS (???)									

Burned Area Rehabilitation (LF32000BR):

Action/ Spec. #	Planned Action	Unit (acres, WMs, number)	# Units	Unit Cost (If Applicable)	FY11	FY12	FY13	FY14	Totals by Spec.
R1	Planning (Project Mgmt)	WM's	0		\$0	\$0	\$0	\$0	\$0
R2	Ground Seeding	Acres	0		\$0	\$0	\$0	\$0	\$0
R3	Aerial Seeding	Acres	0		\$0	\$0	\$0	\$0	\$0
R4	Seedling Planting	#	15,000		\$0	\$2,500	\$23,000	\$0	\$25,500
R5	Noxious Weeds	Acres	1,902		\$0	\$12,500	\$12,500	\$12,500	\$37,500
R6	Soil Stabilization (Other than seedling, planting)	Acres	0		\$0	\$0	\$0	\$0	\$0
R7	Fence/Gate/Cattleguard	Miles	0		\$0	\$0	\$0	\$0	\$0
R8	Road/Trail Water Diversion	#	0		\$0	\$0	\$0	\$0	\$0
R9	Cultural Protection (Stabilization/Patrol)	Acres	1000		\$0	\$43,500	\$4,800	4,700	\$53,000
R10	Tree Hazard Removal	#	0		\$0	\$0	\$0	\$0	\$0
R11	Facilities	#	0		\$0	\$0	\$0	\$0	\$0
R12	Closures (area, OHV, livestock)	#	1,902		\$0	\$8,700	\$8,700	\$8,600	\$26,000
R13	Monitoring	Acres	1,902		\$0	\$5,000	\$5,000	\$5,000	\$15,000
R14	Additional Treatments		0		\$0	\$0	\$0	\$0	\$0
TOTAL COSTS (LF32000BR)					\$0	\$0	\$0	\$0	\$157,000
OTHER FUND CODE TOTALS:									
TOTAL COSTS (???)									
TOTAL COSTS (???)									
TOTAL COSTS (???)									

PART 2 – POST-FIRE RECOVERY ISSUES AND TREATMENTS

The lands within the Ray May Fire are not likely to naturally recover, since the burn was entire and of high intensity throughout much of the burned area, resulting in loss of seedbed and vegetation. Due to this, seed islands and native vegetation have been entirely removed and will not provide a seed source for recovery. Large portions of the burned area were phase 2 and 3 pinion-juniper encroachment prior to the burn, leaving depleted understory amounts and conditions through much of the burned area.

Soil loss is a distinct possibility throughout the site, as the majority of the soils present in the burned area are prone to erosion. The loss of soil could be mitigated to a large degree with establishment of deep rooted, drought tolerant perennial species. In addition, seeding deep rooted drought tolerant perennial species will help minimize the establishment and dominance of undesirable annual species or noxious weeds. In addition, horizontal falling some of the existing trees on steep slopes could help slow runoff.

Large portions of the Ray May fire have a high probability of being transitioned to cheatgrass (*Bromus tectorum*), as well as being invaded by other undesirable annuals or noxious weeds.

Therefore, this area requires seeding for reestablishment of stabilizing perennial species and to impede weed growth and establishment, as well as maintain the soil on site. Deep rooted, drought tolerant perennial species are the focus of seeding efforts in this area. Seed bed preparation could greatly improve the seeding effort success.

EMERGENCY STABILIZATION ISSUES AND TREATMENTS

Emergency Stabilization Objectives: “determine the need for and to prescribe and implement emergency treatments to minimize threats to life or property or to stabilize and prevent unacceptable degradation to natural and cultural resources resulting from the effects of a fire.” 620DM3.4

Emergency Stabilization Priorities: 1). Human Life and Safety, and 2). Property and unique biological (designated Critical Habitat for Federal and State listed, proposed or candidate threatened and endangered species) and significant heritage sites. 620DM3.7

ES Issue 1 - Human Life and Safety. The potential for cheatgrass (*Bromus tectorum*) to invade the site is high. These fuels typically create flashy, fast moving fire behavior capable of re-burning within 3 years of the original fire. The site has a high amount of human recreational activities and wildland urban interface concerns. Seeding with more fire-resistant perennial grass species would be appropriate to mitigate future risk.

ES Issue 2 - Soil/Water Stabilization. Soil water permeability is slow, water runoff is rapid and the hazard of water erosion is high. Aerial seeding of perennial grass species is necessary to stabilize soils. Seeding with perennial grass species will help stabilize the highly erosive soils through the establishment of deep rooted perennial bunchgrasses.

Contour falling of Pinyon/Juniper trees burnt in the fire will be conducted as a stopgap method of providing some interference to sheet and rill erosion until seeded grasses have a chance to establish.

ES Issue 3 - Habitat for Federal/State Listed, Proposed, or Candidate Species.

The burned area is within the Pine Nut PMU for the Bi-state distinct population segment of Sage grouse. Active Sage-grouse leks are present to the east of the burned area. The hope is that appropriate stabilization and rehabilitation actions will help to allow this population to expand into the burned area.

ES Issue 4 - Critical Heritage Resources. This area has a high potential for cultural sites. The best protection is reestablishment of perennial vegetation. In the meantime, signing areas to minimize and discourage use is recommended, and periodic patrol by law enforcement will be conducted to ensure compliance.

ES Issue 5 - Invasive Plants and Weeds. Due to the fire disturbance the entire burn area is now available to the establishment of invasive and noxious species. The following invasive and noxious weed species are available to occupy the site: Yellow starthistle, Hoary cress, perennial pepperweed, Russian knapweed, bull thistle, Canada thistle, and squarrose knapweed are all present either within or in close proximity to the burned area. Tumble mustard, cheatgrass, and other miscellaneous nonnative annuals are present on the site, and have the potential to gain dominance if perennial plants are not established quickly post-burn.

Without stabilization and rehabilitation these aggressive invasive and noxious species will colonize the site and prevent the establishment of more desirable native perennial species. If the site becomes occupied by the less desirable species, soil erosion and fire return intervals will increase and degrade site conditions further. Once a site is occupied by invasive and noxious species it becomes necessary to remove the undesirable species before native species and natural ecological cycles can be restored. It is far more cost effective to prevent infestations and treat small weed infestations, than to restore lands. The most cost effective solution is to establish perennial grass species during stabilization after one burn cycle. Once the site is occupied by perennial grass species the risk of invasive and noxious species establishing within the disturbed site is greatly reduced, the risk of soil erosion is reduced which maintains site integrity and the re-establishment of a perennial herbaceous understory greatly improves the sites resiliency to future fire disturbance.

Treatment/Activity: S3 Aerial Seeding

A. Treatment/Activity Description: A mix of perennial grass species will be aurally seeded during the winter of 2011. The density of the seeding will be calculated to create a stand that is capable of competing against invasive annual species.

B. How does the treatment relate to damage or changes caused by the fire? 1. Aerial seeding of deep rooted, drought tolerant perennial species is necessary because most of the perennial grass species were killed in the fire. Without adequate native vegetation in place aggressive invasive species will dominate the site. Invasive annual species are known to increase the fire return interval, and do not contribute to soil stabilization. 2. The aerial seeding is designed to

discourage invasive plant species establishment and domination by providing competition against the invasive species for available soil moisture and nutrients. 3. This treatment is expected to be quite effective and is recognized within the Bureau as a proactive approach in invasive species management.

C. Why is the treatment/activity reasonable, within policy, and cost effective?

Aerial seeding with perennial grass species is a proactive approach to noxious weed management designed to provide competition against the establishment and domination of non-native invasive species. Bureau policy (BLM Manual 1745) promotes the use of native species on public lands in all types of restoration projects and portions of the seed mix will reflect this direction. This proactive approach is relatively inexpensive and effective in discouraging invasive species establishment and is one component of integrated pest management (IPM). Once established the perennial grass stands will continue to compete against non-native invasive species for many decades and will be self-maintaining and renewing.

The BLM is partnering with the Western Nevada Agency of the BIA to aerially seed all 2997 acres of federally administered lands. The BIA will be including the non-native species forage kochia on the 1095 burned acres that they administer as an additional means to provide forage values for large ungulates and as an additional measure to help prevent cheatgrass encroachment. Additionally, BIA personnel have determined that a higher than normal seed application rate (approximately 2 times standard rate) is warranted due to the values at risk and lack of seedbed preparation opportunities. This has necessitated the formation of two separate seed mixes and application rates (see seed tables below).

Treatment/Activity: S12 Closures

Emergency Closure of Burn Area to Off-Highway Vehicles (OHV) and Travel Management Signing

A. Treatment/Activity Description: The area will be closed to OHV and livestock use to allow the site time to stabilize and to reduce weed transport into the burn area. Signing and road closures are necessary to inform the public and enforce the closures.

B. How does the treatment relate to damage or changes caused by the fire? The burn area is located in an urban and residential setting where recreation activities include OHV use. The OHV designation in the area is 'open' which allows cross country travel. The fire has removed natural vegetative barriers and subsequently made the area more accessible to OHV's. The burn area is accessible to OHV use and available to the establishment of invasive and noxious species and invasive and noxious weed species are available especially along existing transportation routes to occupy the site. Due to the fire disturbance, vegetative cover has been removed which increases soil instability and opens the area to OHV use. Within the burn area, the emergency closure would allow OHV access on existing roads and trails and eliminate any cross-country travel for a period of up to three years.

Also, travel management signage for the burn area is recommended to inform the recreating public of the emergency closure and wildland fire rehabilitation efforts.

C. Why is the treatment/activity reasonable, within policy, and cost effective? Closure to OHV use is necessary to reduce soil erosion and prevent the establishment of new routes on open areas that are devoid of vegetation. Closure to livestock use is necessary to allow vegetation that survived the fire a chance to re-establish and seeded species an opportunity to establish. Closing the area to both OHV and livestock will reduce weed seed transport into the burn area.

Treatment/Activity: S13 Monitoring

A. Treatment/Activity Description The area will be surveyed for noxious weed species. If infestations are found they will be treated.

B. How does the treatment relate to damage or changes caused by the fire? Due to the fire disturbance the entire burn area is now available to the establishment of invasive and noxious species and invasive and noxious weed species are available to occupy the site.

C. Why is the treatment/activity reasonable, within policy, and cost effective? Once a site is occupied by invasive and noxious species it becomes necessary to remove the undesirable species before native species and natural ecological cycles can be restored. It is far more cost effective to prevent infestations and treat small weed infestations, than to restore lands.

Treatment/Activity: S14 Lateral Tree Falling (Contour Falling)

A. Treatment/Activity Description. Burned trees on steep slopes will be felled, limbed, and laid horizontally (across the slope/side hill). These trees will be staggered in a way to create a terraced landscape that allows for water infiltration and decreases overland flow and erosion.

B. How does the treatment relate to damage or changes caused by the fire? The soils within the fire area are erodible soils, and now that they are not stabilized with vegetation, the chances of soil loss due to water erosion are high. The intent of this treatment is to attempt to stabilize these soils for a “normal year” event.

C. Why is the treatment/activity reasonable, within policy, and cost effective? Once soil is lost, the recovery and rehabilitation of the site is severely impeded. It is much more cost effective to maintain the soil in site for recovery, as opposed to attempting any recovery or rehabilitation efforts after soil loss.

BURNED AREA REHABILITATION ISSUES AND TREATMENTS

Burned Area Rehabilitation Objectives. 1) To evaluate actual and potential long-term post-fire impacts to critical cultural and natural resources and identify those areas unlikely to recover naturally from severe wildland fire damage; 2) To develop and implement cost-effective plans to emulate historical or pre-fire ecosystem structure, function, diversity, and dynamics consistent

with approved land management plans, or if that is infeasible, then to restore or establish a healthy, stable ecosystem in which native species are well represented; and 3) To repair or replace minor facilities damaged by wildland fire. 620DM3.4

Burned Area Rehabilitation Priorities. 1) To repair or improve lands damaged directly by a wildland fire; and 2) To rehabilitate or establish healthy, stable ecosystems in the burned area. 620DM3.8

BAR Issue 1 - Lands Unlikely to Recover Naturally.

The lands within the Ray May Fire are not likely to naturally recover, since the burn was entire and of high intensity throughout much of the burned area, resulting in loss of seedbed and vegetation. Due to this, seed islands and native vegetation have been entirely removed and will not provide a seed source for recovery. Large portions of the burned area were phase 2 and 3 pinion-juniper encroachment prior to the burn, leaving depleted understory amounts and conditions through much of the burned area.

Soil loss is a distinct possibility throughout the site, as the majority of the soils present in the burned area are prone to erosion. The loss of soil could be mitigated to a large degree with establishment of deep rooted, drought tolerant perennial species. In addition, seeding deep rooted drought tolerant perennial species will help minimize the establishment and dominance of undesirable annual species or noxious weeds. In addition, horizontal falling some of the existing trees on steep slopes could help slow normal year runoff.

Large portions of the Ray May fire have a high probability of being transitioned to cheatgrass (*Bromus tectorum*), as well as being invaded by other undesirable annuals or noxious weeds.

Therefore, this area requires seeding for reestablishment of stabilizing perennial species and to impede weed growth and establishment, as well as maintain the soil on site. Deep rooted, drought tolerant perennial species are the focus of seeding efforts in this area. Seed bed preparation could greatly improve the seeding effort success.

Jeffery Pine was thought to be on the site prior to the Comstock Era, and reintroducing Jeffery Pine to the site is ideal post-burn, when the conditions are best for the seedings of this specie.

BAR Issue 2 - Weed Treatments. Due to the fire disturbance the entire burn area is now available to the establishment of invasive and noxious species. The following invasive and noxious weed species are available to occupy the site: cheatgrass, yellow star-thistle, Scotch thistle, hoary cress and perennial pepperweed. Without stabilization and rehabilitation these aggressive invasive and noxious species will colonize the site and prevent the establishment of more desirable native perennial species. If the site becomes occupied by the less desirable species, soil erosion and fire return intervals will increase and degrade site conditions further. Once a site is occupied by invasive and noxious species it becomes necessary to remove the undesirable species before native species and natural ecological cycles can be restored. It is far more cost effective to prevent infestations and treat small weed infestations, than to restore lands. The most cost effective solution is to establish perennial grass species during stabilization after

one burn cycle. Once the site is occupied by perennial grass species the risk of invasive and noxious species establishing within the disturbed site is greatly reduced, the risk of soil erosion is reduced which maintains site integrity and the re-establishment of a perennial herbaceous understory greatly improves the sites resiliency to future fire disturbance.

BAR Issue 4 – Seedling Planting.

Treatment/Activity: Seedling Planting (R4)

Jeffery Pine Seedling Planting

A. Treatment/Activity Description. A state or federal nursery would be contracted to grow out 15,000 Jeffery Pine (*Pinus jeffreyi*) seedlings in the fall of 2011. The seedlings would be planted by contracted personnel during the spring of 2013.

B. How does the treatment relate to damage or changes caused by the fire? 1. Most of the trees within the burned area were destroyed in the fire. The loss of trees represents a loss in wildlife habitat and a loss in visual aesthetics both of which are highly valued. 2. Tree planting within the burned area would reintroduce Jeffery Pines to an area that they existed before the Comstock Era. 3. The treatment is expected to be highly successful. The nursery will select pine seeds that will be geographically appropriate to the area and grow out a sufficient number that will allow greater tree densities to be planted on site. The climate is conducive to the successful establishment of the seedlings as there is adequate precipitation during the winter to keep the soils moist during critical times during the growing season.

C. Why is the treatment/activity reasonable, within policy, and cost effective? Hand planting of Jeffrey pine seedlings is a cost-effective method to ensure that a sufficient density of Jeffrey pine trees establish on the site. Once mature, Jeffrey pine forests are fire adapted and, depending on fire severity, will be able to survive future light to moderate intensity ground fires.

Seedling Planting (R4)

Treatment/Activity: Bitterbrush and Sagebrush Seedling Planting

A. Treatment/Activity Description. A state or federal nursery would be contracted, by NDOW, to grow out 8,000 bitterbrush (*Purshia tridentata*) and 8,000 sagebrush (*Artemisia tridentata*) seedlings in the fall of 2011. The seedlings would be planted by NDOW coordinated volunteers during the spring of 2013.

B. How does the treatment relate to damage or changes caused by the fire? 1. Bitterbrush and sagebrush are not fire tolerant and most of these plants within the burned area were killed by the fire. The loss of these shrubs represents a loss in critical wildlife habitat and site integrity. 2. Seedling planting within the burned area would speed up the natural recovery of bitterbrush and sagebrush in the area thereby restoring wildlife habitat sooner and restoring site integrity. 3. The treatment is expected to be highly successful. The nursery will select shrub seeds that will be geographically appropriate to the area and grow out a sufficient number that will allow greater

shrub densities to be planted on site. The climate is conducive to the successful establishment of the seedlings as there is adequate precipitation during the winter to keep the soils moist during critical times during the growing season.

C. Why is the treatment/activity reasonable, within policy, and cost effective?

Hand planting of shrub seedlings is a cost-effective method to ensure that a sufficient density of bitterbrush establishes on the site. Cultural inventories would be conducted on up to 400 acres prior to hand planting. Wildlife values are a priority in this area.

BAR Issue 5 – OHV Closures

Treatment/Activity: R12 Closures

A. Treatment/Activity Description: Monitoring of the burn area will be conducted by resource personnel and law enforcement to ensure compliance with the closure and the effectiveness and condition of the signage. Monitoring of the area would be conducted over the lifespan of the emergency closure (3 years) primarily in the fall and spring to coincide with peak OHV riding seasons.

B. How does the treatment relate to damage or changes caused by the fire? The burn area is located in an urban and residential setting where recreation activities include OHV use. The OHV designation in the area was ‘open’ before the fire, which allowed cross country travel. The fire has removed natural vegetative barriers and subsequently made the area more accessible to OHV’s. This cross country travel is already impacting known cultural resource sites important to the Washoe Tribe. The burn area is accessible to OHV use and available to the establishment of invasive and noxious species and invasive and noxious weed species are available especially along existing transportation routes to occupy the site. Due to the fire disturbance, vegetative cover has been removed which increases soil instability and opens the area to OHV use. Within the burn area, the emergency closure would allow OHV access on existing roads and trails and eliminate any cross-country travel for a period of up to three years. In addition, travel management signage for the burn area was placed on the site to inform the recreating public of the emergency closure and wildland fire rehabilitation efforts.

C. Why is the treatment/activity reasonable, within policy, and cost effective? Closure to OHV use is necessary to reduce soil erosion and prevent the establishment of new routes on open areas that are devoid of vegetation. Closure to livestock use is necessary to allow vegetation that survived the fire a chance to re-establish and seeded species an opportunity to establish. Closing the area to both OHV and livestock will reduce weed seed transport into the burn area. The only way to enforce these closures is to have enforcement of the closure, and cite incidences of non-compliance.

BAR Issue 6 – Cultural Protection

Treatment/Activity: R9 Cultural Protection

A. Treatment/Activity Description: Denuding of the landscape has allowed for OHV use to impact known and important sites to the Washoe Tribe. Activities and surveys need to be conducted to mitigate these impacts and to assess the extent of rehabilitation needed.

B. How does the treatment relate to damage or changes caused by the fire? The burn area is located in an urban and residential setting where recreation activities include heavy OHV use. The OHV designation in the area was 'open' before the fire, which allowed cross country travel. The fire has removed natural vegetative barriers and subsequently made the area more accessible to OHV's. This cross country travel is already impacting known cultural resource sites important to the Washoe Tribe.

C. Why is the treatment/activity reasonable, within policy, and cost effective? The National Historic Preservation Act of 1966, as amended, and the Archaeological Resources Protection Act of 1979 clearly require that any sites of archaeological significance must be identified prior to potentially damaging activities and/or rehabilitated in the case that damage has already occurred.

PART 3 – DETAILED TREATMENT COST TABLE -- See separate detailed cost table/excel file.

PART 4 – SEED LISTS

BLM AERIAL SEED MIX

Species	% PLS	PLS Seeds/sq.ft	PLS Seeds/ac.	Seeds/lb (bulk)	Total Seeds/Acre (Bulk)	Aerial Seeding [Acres]	Bulk Lbs./ Acre	PLS Lbs / Acre	Total Lbs. (bulk)	Cost / Lb.	Total Cost
<i>Agropyron fragile var. vavilov</i>	96	18	784,080	220,000	816,750	1902	3.71	3.56	7050	\$1.83	\$12,902
<i>Poa secunda</i>	87	45	1,960,200	950,000	2,253,103	1902	2.37	2.06	4500	\$6.78	\$30,510
<i>Elymus elymoides</i>	77	13	566,280	190,000	735,428	1902	3.87	2.97	7350	\$14.36	\$105,546
<i>Pseudoroegneria spicata ssp. spicata</i>	89	14	609,840	120,000	685,213	1902	5.71	5.08	10,900	\$12.00	\$130,800
TOTALS		90					15.66	13.67	29,800	\$34.97	\$280,000

BIA AERIAL SEED MIX

Species	% PLS	PLS Seeds/sq.ft	PLS Seeds/ac.	Seeds/lb (bulk)	Total Seeds/Acre (Bulk)	Aerial Seeding [Acres]	Bulk Lbs./ Acre	PLS Lbs / Acre	Total Lbs. (bulk)	Cost / Lb.	Total Cost
<i>Agropyron fragile var. vavilov</i>	96							12.0	13,700	\$2.00	\$26,280
<i>Kochia prostrata</i>	80							3.0	4050	\$12.00	\$39,420
<i>Elymus wawawaiensis var. Secar</i>	89							10.0	12350	\$5.00	\$54,750
<i>Sanguisorba minor var. Delar</i>	80							5.0	6850	\$1.00	\$5,475
TOTALS								30			\$125,925

SEEDLINGS

Seedling Species	Acres of Seedlings Planted	# of Seedlings / Acre	Total # of Seedlings	Cost / Seedling	Total Cost
Jeffery Pine	600	25	15,000	\$0.30	\$4,500
Sagebrush	200	40	8,000	\$0.00	\$0.00
Bitterbrush	200	40	8,000	\$0.00	\$0.00
Totals					

PART 5 - NATIVE/NON-NATIVE PLANT WORKSHEET

A. Proposed Native Plants in Seed Mixtures (Both ES & BAR Treatments)

1. Are the native plants proposed for seeding adapted to the ecological sites in the burned area?
 Yes No Rationale: Only seed with an identified source of origin similar to the burned area will be purchased.
2. Is seed or seedlings of native plants available in sufficient quantity for the proposed project?
 Yes No Rationale: Quantities are increased knowing that there will be some mortality.
3. Is the cost and/or quality of the native seed reasonable given the project size and approved field unit management and Plan objectives?
 Yes No Rationale: The quantity and cost of the native seed and seedlings are reasonable as the plant material will be purchased through the BLM regional seed warehouse and a USDA or state nursery.
4. Will the native plants establish and survive given the environmental conditions and the current or future competition from other species in the seed mix or from exotic plants?
 Yes No Rationale: See comment in 1.
5. Will the existing or proposed land management practices (e.g. wildlife populations, recreation use, livestock, etc.) maintain the seeded native plants in the seed mixture when the burned area is re-opened?
 Yes No Rationale: Stocking rates are adjusted in response to changes in available forage. Protective tubes will be temporarily placed around the shrub seedlings to reduce use and allow shrub establishment. Signs will be posted asking visitors to tread lightly.

B. Proposed Non-native Plants in Seed Mixture (Both ES & BAR Treatments)

1. Is the use of non-native plants necessary to meet objectives, e.g., consistent with applicable approved field unit management plans?
 Yes No Rationale: Siberian wheatgrass has shown consistent ability to provide adequate stabilization for soils in our ecotype while competing with invasive annuals and providing forage value. The probability of successful stabilization actions is increased by including this non-native species.
2. Will non-native plants meet the objective(s) for which they are planted without unacceptably diminishing diversity and disrupting ecological processes (nutrient cycling, water infiltration, energy flow, etc.) in the plant community?
 Yes No Rationale: Siberian wheatgrass provides for integrity of ecological processes, while allowing native vegetation to reestablish throughout the site.
3. Will non-native plants stay on the site they are seeded and not significantly displace or interbreed with native plants?
 Yes No Rationale: Siberian wheatgrass has been used in seedings extensively and has shown to remain in the seeded area and not expand into adjacent sites.

C. Proposed Seed Species – Natives & Non-Natives (Both ES & BAR Treatments)

Non-native Plants	Native Plants
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Siberian wheatgrass	Sagebrush
Forage Kochia	Wildrye
	squirreltail
	Bluebunch wheatgrass
	Bitterbrush
	Jeffery Pine
	Delar Small Burnet

PART 6. – COST-RISK ANALYSIS

A. Probability of Treatments Successfully Meeting Objectives

Action/ Spec. #	Planned ES Action (LF20000ES)	Unit (acres, WMs, number)	# Units	Total Cost	% Probability of Success
S1	Planning (Plan Prep)	WM's	1.5	\$15,000	95%
S2	Ground Seeding	Acres			
S3	Aerial Seeding	Acres	2997	\$456,000	70%
S4	Seedling Planting (shrub/tree)	#			
S5	Noxious Weeds	Acres			
S6	Soil Stabilization (other than seeding/planting)	Acres			
S7	Fence/Gate/Cattleguard	Miles			
S8	Road/Trail Water Diversion	#			
S9	Cultural Protection (stabilization/patrol)	Acres			
S10	Tree Hazard Removal	#			
S11	Facilities/Improvements	#			
S12	Closures (OHV, livestock, area)	#	2	\$8,300	80%
S13	Monitoring	Acres	2997	\$56,000	90%
S14	Additional Treatments (Lateral tree felling)	Acres	1,902	\$14,000	60%
TOTAL COSTS:				\$549,300	

Action/ Spec. #	Planned BAR Action (LF32000BR)	Unit (acres, WMs, number)	# Units	Total Cost	% Probability of Success
R2	Ground Seeding	Acres			
R3	Aerial Seeding	Acres			
R4	Seedling Planting (shrub/tree)	#	15,000	\$25,500	90%
R5	Noxious Weeds	Acres	1,902	\$ 37,500	80%
R6	Soil Stabilization (other than seeding/planting)	Acres			
R7	Fence/Gate/Cattleguard	Miles			

R8	Road/Trail Water Diversion	#			
R9	Cultural Protection (stabilization/patrol)	Acres	1000	\$53,000	95%
R10	Tree Hazard Removal	#	0	0	
R11	Facilities/Improvements	#	0	0	
R12	Closures (OHV, livestock, area)	#	2	\$26,000	80%
R13	Monitoring	Acres	1,902	\$15,000	90%
TOTAL COSTS:				\$157,000	

B. Cost Risk Summary

1. Are the risks to natural resources and private property **acceptable** as a result of the fire if the following actions are taken?

Proposed Action Yes No Rationale for answer: There are multiple issues regarding this piece of ground: soil stability, potential noxious weed invasion, high recreational use, and close proximity to local communities. The proposed action addresses and attempts to mitigate these concerns using the best available research while striving to maintain fiscal integrity.

No Action Yes No Rationale for answer: The most likely scenario if following the no-action alternative would result in unacceptable losses in soil, vegetative diversity, cultural resource values, and wildlife habitat.

Alternative(s) Yes No Rationale for answer:

2. Is the probability of success of the proposed action, alternatives or no action acceptable given their costs?

Proposed Action Yes No Rationale for answer: The proposed action is taking an integrated approach to management of invasive species, soil stability, and habitat diversity. All portions of the proposed actions aid each other in addressing these issues.

No Action Yes No Rationale for answer: The probable outcomes if no action is taken would result in excessive costs necessary to regain ecological function and eradicate noxious weeds. Costs for restoration efforts typically far outstrip those of a rehabilitation action.

Alternative(s) Yes No Rationale for answer:

3. Which approach will most cost-effectively and successfully attain the objectives and therefore is recommended for implementation from a Cost/Risk Analysis standpoint?

Proposed Action

Alternative(s)

No Action

Comments: The proposed action addresses multiple issues that have been identified within burned area. The individual action items included within the proposed action are recognized as proactive and integrated management strategies supported by BLM policy and address noxious weed encroachment, soil stabilization, ecological function, and vegetative diversity simultaneously. Costs to restore these lands if no action is taken would be much more expensive than the costs of the proposed action.

C. Risk of Resource Value Loss or Damage

No Action - Treatments Not Implemented (check one)

Resource Value	N/A	None	Low	Medium	High
Unacceptable Loss of Topsoil					X
Weed Invasion					X
Unacceptable Loss of Vegetation Diversity					X
Unacceptable Loss of Vegetation Structure					X
Unacceptable Disruption of Ecological Processes					X
Off-site Sediment Damage to Private Property			X		
Off-site Threats to Human Life		X			
Other-loss of Access Road Due to Plugged Culverts			X		

Proposed Action - Treatments Successfully Implemented (check one)

Resource Value	N/A	None	Low	Medium	High
Unacceptable Loss of Topsoil			X		
Weed Invasion			X		
Unacceptable Loss of Vegetation Diversity			X		
Unacceptable Loss of Vegetation Structure			X		
Unacceptable Disruption of Ecological Processes			X		
Off-site Sediment Damage to Private Property		X			
Off-site Threats to Human Life		X			
Other-loss of Access Road Due to Plugged Culverts		X			

PART 7 – MONITORING PLAN

Treatment/Activity: S3 & R4 (Aerial seeding and seedling planting)

1) Treatment Objectives: Aerially seed grasses to stabilize soils and prevent invasive weed encroachment, hand plant Jeffery pine seedlings to re-establish woody cover.

2) Describe how implementation will be monitored: Aerial seeding completeness and coverage will be monitored using standard protocol including seed catch pans, AGNAV GIS data, and COR/PI observations. Tree planting crews will be inspected and monitored to ensure that no J-rooting or improper tamping takes place.

3) Describe how effectiveness will be monitored, how it will be measured, and within what time period.

Monitoring will be checked annually for completeness and accuracy. Monitoring will be necessary to measure the success of re-vegetation and seeding in the burned area. Methods that will be used to monitor the success of the re-vegetation include density, percent cover, photo points, and weed inventories. Seeding and natural re-vegetation success will primarily be determined by the average square meter density and average percent cover of the native perennial species. Re-vegetation will be considered successful if average square meter density estimates are greater than or equal to 3-5 perennial plants/sq.m. If, by the end of the first year, photo plots, density estimates and percent cover values show low native release and high invasive species presence, then rehabilitation may be necessary in the second year.

The vegetation monitoring protocol to be used is the standard BLM sanctioned method developed by the USDA-ARS-New Mexico State University Jornada Experimental Range. The monitoring is more closely aligned with the criteria used in Rangeland Health Assessments than monitoring methods used in past years.

PART 8 - MAPS

1. Fire Perimeter
2. Colored Land Status Map
3. Seeding or Seedling Treatment areas
4. Invasive Species

PART 9 – REVIEW, APPROVALS, and PREPARERS

TEAM MEMBERS

Position	Team Member (Agency/Office)	Initial and Date
Team Leader	Ryan Elliott	RE 9/27/11
Operations	Scott Johnson	SJ 9/27/11
NEPA Compliance & Planning		
Botanist	Dean Tonenna	DT 9/27/11
Hydrologist		
Soil Scientist		
Cultural Resources/Archeologist	Rachel Crews	RC 9/27/11
Rangeland Mgt. Specialist	Kathryn Dyer	KD 9/27/11
Wildlife Biologist	Pilar Ziegler	PZ 9/27/11
GIS Specialist		
Forester	Steep Weiss	SW 9/27/2011
Fire Management Specialist		
Other Technical Specialists		
Resource Advisor(s) on Fire		

PLAN APPROVAL

Acting
James W. Schindler
9/27/2011

 FIELD OFFICE MANAGER DATE

FUNDING APPROVAL