GRAY'S CREEK FIRE

EMERGENCY STABILIZATION PLAN
BLM/BOISE DISTRICT/FOUR RIVERS FIELD OFFICE
IDAHO

FIRE BACKGROUND INFORMATION

Fire Name	Gray's Creek
Fire Number	DY0D
District/Field Office	Boise/Four Rivers
Admin Number	ID 110
State	Idaho
County(s)	Adams
Ignition Date/Cause	08-30-07/Lightning
Date Contained	09-10-07
Jurisdiction	
BLM	1,385
State	756
Private	7,707
Forest Service	7,939
Total Acres	17,789
Total BAR Plan Costs	$ 74,000

Status of Plan Submission (check one box below)

✓	Initial Submission
	Updating or Revising the Initial Submission
	Amendment

PART 1. - EMERGENCY STABILIZATION PLAN SUMMARY

BACKGROUND ON THE FIRE (optional)

The Gray's Creek Fire burned public lands in the Ross Gulch, Indian Valley, Indian Mountain Common, A. Legg Individual, Thorn Creek, and North Fork FFR Allotments. Livestock grazing on the public lands (PL) within these Allotments, which are mostly comprised of private lands.

The woody vegetation species within the Gray's Creek riparian area are moderate to vigorous re-sprouters, and are expected to recover to good health within five years. In the interim, the roots of woody riparian vegetation remain intact and will continue to provide stability in the stream banks. But much of the terrace and flood plain along Gray's Creek burned with moderate to high intensity. As a consequence, there are many areas devoid of ground cover and it is likely little remains in the "seed bank" to re-vegetate the area.

On Monday 10/15/07 the district weed specialist visited the Grays Creek fire to conduct a weed inventory. During the visit it was observed that a considerable soil erosion hazard existed within the terrace above Grays Creek**.** In one particular side drainage there was considerable soil riling occurring on the steep side slopes and the soil was beginning to accumulating in the drainage bottom. Because of this type of initial soil movement there is a concern by the project lead and the district soil specialist of continuing soil loss and or a major soil movement event.

Grays Creek (a first order seasonal watershed) is a perennial stream with a quality salmonid fishery (redband trout, a BLM sensitive species) flows directly downstream of this drainage. Diminished water quality from high sediment levels could aversely effect fish populations for the next few years. This stream was in proper functioning condition in its pre-fire state. Predominant vegetation was a healthy and diverse assemblage of woody species representing the potential natural plant community.

An access road follows Grays Creek up the drainage. The soil movement lies directly above this watershed and has the potential to be damaged if debris flows and sediments originating in the drainage yield sediment downstream. Stabilizing the slopes in this drainage would reduce the impact of run-off events and help prevent degradation of fisheries habitat, water quality, and inundation of the access road by debris flows and sediments.

Pre-fire vegetation on shallow soil areas was stiff sagebrush with bulbous bluegrass as the dominate understory species. Other common species on this site included annual grasses: Japanese brome, medusahead, and sixweeks fescue; perennial grasses: Sandberg's bluegrass, bottlebrush squirreltail, and Nevada bluegrass; and forbs: biscutroot, onion and deathcamas. Riparian areas bordering ephemeral streams commonly support Woods rose, willow and hawthorn. The portion of North Fork Grays Creek which crosses public land is characterized by water birch and cottonwoods and other late seral species. Known noxious weed species include Dalmatian toadflax, houndstongue, Scotch thistle, and rush skeletonweed.

Water quality may be adversely affected as sediment yields increase from upland sources on BLM, State, and privately owned lands throughout the watershed. This is unavoidable and likely of short duration, assuming normal weather patterns. Sediment increases in the affected streams are expected to be primarily in suspended form, consisting of fine charcoal, colloidal clays, and other minute materials, along with organic flotsam**.** It is anticipated that water quality may exceed 80mg/liter (for events lasting < 14 days), or 50mg/liter (for events lasting >14 days) for suspended sediment, but should improve as vegetation stabilizes slopes in the watershed in the following years.

The entire fire is within designated crucial elk winter range and the southern third is within crucial mule deer winter range.

COST SUMMARY TABLE

Spec. #	Planned Action	Unit	# Units	Unit Cost	FY07	FY08	FY09	FY10	Spec. # Totals
S3	Aerial Seeding	Acres	40	75	0	3,000	0	0	3,000
S3	Aerial Seed Purchase	Acres	40	175	0	7,000	0	0	7,000
S6	Soil Stabilization	No.	40	1,600	0	64,000	0	0	64,000
	TOTAL COSTS		40	1,850	0	74,000	0	0	74,000

LAND USE PLAN CONSISTENCY

The 1987 Cascade Resource Management Plan (RMP) states: Fire rehabilitation seedings in crucial wildlife habitats would be multi-species, incorporating species to restore wildlife habitat values (page 50) and public land and resources affected by wildfires will be rehabilitated (page 54). Some of the proposed actions listed below are not directly addressed in the 1987 Cascade RMP; however, they are clearly consistent with LUP decisions (objectives, terms, and conditions).

PART 2. – EMERGENCY STABILIZATION ISSUES

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

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

<u>Emergency Stabilization Issues</u>

1. Human Life and Safety: The soil erosion issue discussed in #2 occurs directly above a local access road used by ranchers and recreationalists in the area.

2. Soil/Water Stabilization: During a site visit on Monday 10/15/07 it was observed that a considerable erosion hazard existed within the North Fork Grays Creek drainage**.** It was observed that there was limited soil cover, erosive soils, steep slopes, and surface rill erosion

beginning on 60% of the slopes within a drainage above NF Grays Creek. Soil was beginning to accumulate in the bottom of the drainage and the side slopes were unstable. There is concern of slump block and pop out failures within the drainage if soil continues to move. This is a first order seasonal watershed that burned with high intensity, and no surface ground cover exists to stabilize the fine erosive soils on the steep slopes (>25%). The NF Grays Creek, a perennial stream with a quality salmonid fishery (redband trout, a BLM sensitive species) flows directly downstream of this drainage. Diminished water quality from high sediment levels could aversely effect fish populations for the next few years. An access road up NF Gray's Creek also lies directly below this watershed which will be damaged if debris flows and sediments originating in the drainage yield sediment downstream. Stabilizing the slopes in this drainage would reduce the impact of run-off events and help prevent degradation of fisheries habitat, water quality, and inundation of the access road by debris flows and sediments.

PART 3. - DESCRIPTION OF TREATMENTS

Issue 1. Actions to Repair/Improve Lands Unlikely to Recover Naturally

S3 - Aerial Seeding

A. Treatment/Activity Description (Map 1): Aerial Seed: 40 acres would be broadcast seeded in the fall of 2007 within the target drainage in Grays Creek. We propose to seed at a higher rate to account for seed loss from improper planting depths and possible seed loss due to runoff.

Variety	Approximate Acres	PLS lbs/acre
Intermediate Wheatgrass, Rush	40	8.1
Streambank Wheatgrass, Sodar	40	5.7
Western Wheatgrass, Arriba	40	5.4

B. How does the treatment relate to damage or changes caused by the fire? The goal is to establish rhizomatous perennial grasses which will stabilize the slopes in the long term. The establishment and maintenance of these perennial grass species would also impede the post-fire increased spread of invasive annuals and noxious weeds from the erosion disturbance, and contribute to the stabilization of the recovering ecosystem. The success of the seeding treatment is dependent upon spring moisture and could range in effectiveness from 70-90%.

C. Why is the treatment/activity reasonable, within policy, and cost effective? Specific costs of the aerial seeding are shown in the cost tables. Aerial broadcast seeding is the most efficient and effective way to plant a seed mixture on inaccessible terrain. These species have the highest potential for slope stabilization but also adding to the ecological diversity of the site. The investment to stabilize soils and prevent further site degradation is within policy outlined in the ESR handbook.

S6 - Soil Stabilization:

A. Treatment Description: Wood straw bales will be used to capture fine sediments and retain them on site so they do not mobilize during precipitation or runoff events and further destabilize the drainage. Each structure will consist of approximately ten wood straw bales

placed perpendicular to the drainage and will be anchored in place with erosion material and steel or wooden stakes. The sediment traps would be expected to impede flow in the drainage whenever a strong rainstorm passes through the area or there is a heavy spring runoff. It is expected that sediments would settle-out on the upstream side of the sediment traps while water would filter through the structures. These structures will remain in place until the unstable soils have revegetated and stabilized. Helicopters will be necessary to transport material to the drainage sites due to the inaccessibility of the site to vehicles or ATV's due to steep terrain and mud.

Wood straw mulch material will be distributed via helicopter over the area in parallel strips, and would follow the contour lines in the drainage. Strips would be alternated, and separated by untreated strips about 100 feet apart to stabilize the rill erosion on the side slopes. Wood straw cover will be approximately 50%, this has been shown to increase water infiltration, protect sensitive soils from direct rain impact, and intercept and delay overland flows on burned terrains and allows for seeded species to emerge from underneath the material for long term site stabilization. This will be accomplished by covering the strips with approximately 3.8 tons of wood straw per acre using a helicopter to evenly distribute the material.

B. How does the treatment relate to damage or changes caused by the fire? The fire removed annual and perennial vegetation from the project area. Before the fire, the upland and riparian vegetation would have reduced soil erosion. Without this vegetation, soil is more susceptible to erosion. This can cause large influxes of fine sediment into downstream habitat and can destabilize the upper stream reaches (i.e. headcutting). The proposed treatments will intercept in-channel soil and retain them on-site. Stabilizing these soils will allow revegetation to occur at a faster rate than what would occur if structures were not used to reduce erosion. These types of treatments are proven to be effective in stabilizing soils after a fire. This will reduce the potential harm that could be caused by the sediment load to aquatic wildlife and recreation.

C. Why is the treatment/activity reasonable, within policy, and cost effective? Placement of Wood straw bales and mulch within the drainage will assist in stabilizing the soil and prevent the loss of degradation of productivity of the site. This is of the primary functions of the emergency stabilization program. The cost is reasonable considering the alternative of soil movement onto the roadway and into the stream. The proposal is for strip mulching to reduce the cost of the overall project but still meeting objectives.

PART 4. – INDIVIDUAL TREATMENT SPECIFICATIONS

ES		FY07	FY08	FY09	FY10	Total Costs
S3	Aerial Seeding					
	Labor	0	0	0	0	
	Travel/Vehicles	0	500	0	0	
	Equipment Mobilization	0	0	0	0	
	Supplies/Materials	0	0	0	0	
	Contract	0	1,000	0	0	
	Contract Administration	0	1,200	0	0	
	Total	0	3,000	0	0	3,000
S3	Aerial Seed					

	Seed Mix 1		6,200			
	Seed Mixing/Testing/Handling	0	450	0	0	
	Total	0	7,000	0	0	7,000
S6	Soil Stabilization (other than seeding/planting)					
	Labor	0	3,000	0	0	
	Travel/Vehicles	0	1,000	0	0	
	Mobilization	0	0	0	0	
	Supplies/Materials	0	37,000	0	0	
	Contract	0	21,000	0	0	
	Contract Administration	0	2,000	0	0	
	Total	0	64,000	0	0	64,000
	EMERGENCY STABILIZATION	0	74,000	0	0	74,000

SEED LISTS

Seed Type/Variety	PLS Rating	Seeding Acres	Lbs/ Ac Bulk	Lbs/ Ac PLS	# Seeds/ Lb Bulk	# Seed Lb PLS	# Seed/ Ac Bulk	# Seed/ Ac PLS	# Seed/Sq Ft PLS	Total Lbs PLS	Total Lbs Bulk	Cost Per Lb	Total Cost
Intermediate Wheatgrass, Rush	0.8075	40	10.0	8.1	110,000	88,825	1,100,000	888,250	20.4	323	400	$5.00	$2,000.00
Streambank Wheatgrass, Sodar	0.8075	40	7.0	5.7	170,000	137,275	1,190,000	960,925	22.1	226	300	$5.00	$1,500.00
Western Wheatgrass, Arriba	0.7650	40	7.0	5.4	120,000	91,800	840,000	642,600	14.8	214	300	$9.00	$2,700.00
TOTALS		120	24.0	19.1			3,130,000	2,491,775	57.2	763	1,000		$6,200.00

NON-NATIVE PLANT WORKSHEET

Proposed Non-native Plants in Seed Mixture

1. Is the use of non-native plants necessary to meet objectives, e.g., consistent with applicable approved field unit management plans?
Yes [**X**] No [ ] Rationale: Use of non-native species is consistent with the Cascade Resource RMP. Use of site suitable non-natives is necessary in order to compete with invasive annuals.

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 [**X**] No [ ] Rationale: Establishment of perennial non-native species would assist with slope stabilization and increase diversity. The established non-native perennials would inhibit the spread of invasive annuals and noxious weeds.

3. Will non-native plants stay on the site they are seeded and not significantly displace or interbreed with native plants?
Yes [**X**] No [ ] Rationale: The site is a favorable precipitation are and it is believed that the remaining native plants outside of this unstable drainage will recover after the fire and stabilize the remaining area. There will be little likelihood that non-native seeded species would interbreed with native plants or spread off-site.

PROPOSED SEEDED SPECIES

Non-native Plants	Native Plants
Intermediate Wheatgrass, Rush	Streambank Wheatgrass, Sodar
	Western Wheatgrass, Arriba

PART 5. – COST-RISK ANALYSIS

Probability of Rehabilitation Treatments Successfully Meeting Objectives

Action/ Spec. #	Planned Action	Unit (acres, WMs, number)	# Units	Total Cost	% Probability of Success
S3	Aerial Seeding	WM	.4	10,000	80
S6	Soil Stabilization	acres	524	64,000	90
	TOTAL			74,000	

COST-RISK SUMMARY

The costs of the project and probability of success of the proposed treatments are compared with the risks to resource values if: 1) no action is taken, and 2) the proposed action is successfully implemented. Alternatives may be included in this analysis to assist in the selection of the treatments that will cost effectively achieve the rehabilitation objectives. Answer the following questions to determine which proposed treatments should be selected and implemented.

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 [**X**] No [ ] Rationale: The proposed treatments are related actions which maximize the probability of success and effectiveness of stabilizing gray's creek drainage and will minimize the hazard associated with sediment movement within the drainage.
No Action Yes [ ] No [**X**] Rationale: No action would allow sediment and debris to continue to move off site and pose a safety hazard to the access road downstream and adversely affect water quality in grays creek and endanger the red band trout species.
Alternative(s) Yes [ ] No **[X]** Rationale: Although acceptable alternatives may exist, none have been identified that would pose less risk to the natural resources or private property than the proposed treatments.

2. Is the probability of success of the proposed action, alternatives or no action acceptable given their costs?
Proposed Action Yes **[X]** No [ ] Rationale: The probability of the proposed treatments being successful are relatively high, and with the potential of a serious safety hazard from a slope failure occurring the costs are acceptable.
No Action Yes [ ] No [**X**] Rationale: There would be no costs associated with no action, but no benefits would be realized and an unacceptable situation would occur.
Alternative(s) Yes [ ] No [**X**] Rationale: No alternatives have been identified that would be more cost effective than the proposed treatments

3. Which approach will most cost-effectively and successfully attain the rehabilitation objectives and therefore is recommended for implementation from a Cost/Risk Analysis standpoint?
Proposed Action [**X**], **Alternative(s)** [ ], or **No Action** [ ]

Comments: The proposed treatments are anticipated to be necessary to stabilize the area in the short and long term. Successful implementation of the treatments would reduce the potential for mass soil movement within the drainage and establishment of rhizomatous species will ensure stability in the long term. The cost/risk is reasonable considering the benefits to the long-term stability of the ecosystem.

RISK OF RESOURCE VALUE LOSS OR DAMAGE

Identify the risk (high, medium, low, none or not applicable (NA) of unacceptable impacts or loss of resources.

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	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 6. – MONITORING PLAN

Monitoring costs will be covered with the Burned Area Rehabilitation Plan

Monitoring protocols for vegetation treatments within this plan are based primarily on those described in the Monitoring Manual for Grassland, Shrubland, and Savanna Ecosystems by Jeffery E. Herrick, Justin W. Van Zee, Kris M. Havstad, Laura M Burkett, and Water G. Whitford; published in 2005 by USDA-ARS Jornada Experimental Range, New Mexico State University.

The proposed treatments would be actively monitored and documented by personnel of the Boise District; Division of Operations and Four Rivers Field Office.

1. Aerial Seeding:

Monitoring the success of the aerial seeding would take place during the summers of 2008-2010. The treatment objective would be achieved when data collected from 2 monitoring sites, with at least thirty (30) 0.25m2 plots per site, indicate the mean density of mature established seeded perennial grasses, is ≥ 5/m2, have developed root systems that are extensive enough to provide soil stabilization and prevent uprooting when grazed, and 60% or more of those plants have produced seed heads.

2. Soil Stabilization

Monitoring the success of the in stream soil erosion structures will be conducted in the springs of 2008-2010. Observations of soil retention and structure integrity will be observed. Photo plots will be taken at the time of installation and at regular intervals to record and observe the amount of soil retention and structure integrity. Wood straw mulch will be monitored at the time of distribution to ensure coverage objectives and will then be monitored to determine amount f wood straw cover vs. amount of vegetative cover to determine treatment effectiveness and to monitor the progress of the slope stability due to wood material vs. the slope stability due to vegetative material over time. Treatment objectives would be achieved when cover data collected from at six sites reading 15 plots shows a vegetative cover of 80%.

PART 7 - MAP

1. Aerial Seeding, Seedling Planting & Fence Repair

REVIEW, APPROVALS, and PREPARERS

EMERGENCY STABILIZATION PLAN TEAM MEMBERS

Position	Team Member (Agency/Office)	Initial and Date
Team Leader, Natural Resources Specialist	Allen Tarter (BLM/ID110)	
Rangeland Mgt Spec	Mike Barnum (BLM/ID110)	
Operations ESR Coordinator	Cindy Fritz (BLM/ID102)	
Botanist	Mark Steiger (BLM/ID110)	
Cultural Resources/Archeologist	Dean Shaw (BLM/ID110)	
Wildlife Biologist	Tim Carrigan (BLM/ID110)	

EMERGENCY STABILIZATION PLAN APPROVAL
"The Agency Administrator is responsible for developing, implementing, and evaluating emergency stabilization and rehabilitation plans, treatments, and activities." 620 DM 3.5C

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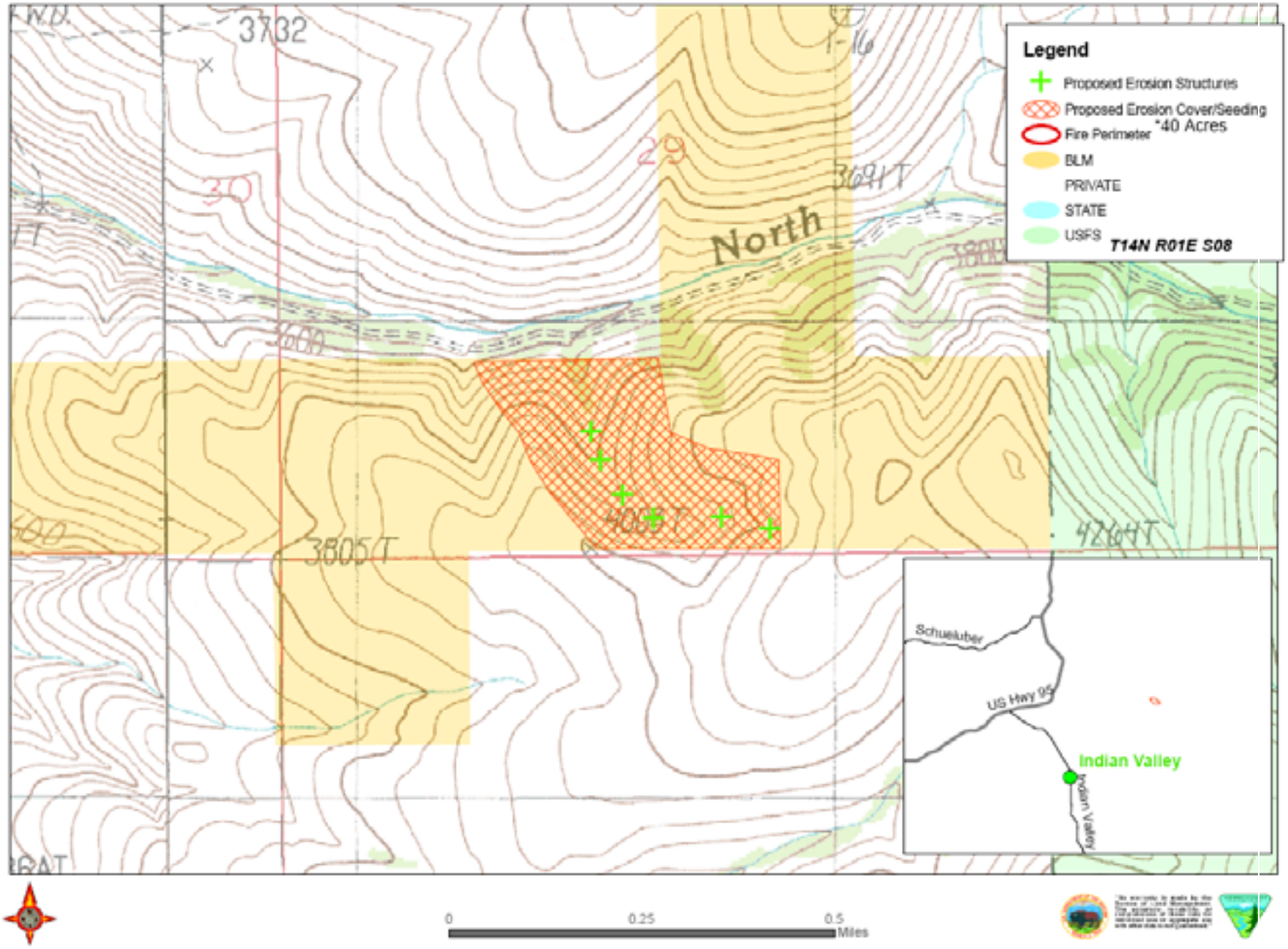
FIELD OFFICE MANAGER DATE

FUNDING APPROVAL

Funding of ES Plans is approved through a memo from the appropriate approval administrative level. ES Plans below $100,000 may be approved by the State Director; ES Plans of $100,000 and above must be approved by the WO. Funding is approved and allocated on a year-by-year basis.

towards southeast

Gray's Creek

DY0D GRAYS CREEK Erosion Control and Seeding