White Bluffs Fire- Hanford Reach National Monument

BURNED AREA EMERGENCY STABILIZATION AND REHABILITATION (ESR) PLAN

Final Accomplishment Report for 2002-2004 Treatments

AGENCY/UNIT: Hanford Reach National Monument/Saddle Mountain National Wildlife Refuge

LOCATION: Richland, Franklin County , Washington

DATE: January 22, 2004

Submitted By: _____ Date: _____

Gregory M. Hughes, Project Leader

List of Preparers

This document has been prepared in conformance with final reporting requirements outlined in the Department of Interior Departmental Manual, Part 620: Wildland Fire Management; Chapter 3: Burned Area Emergency Stabilization and Rehabilitation.

This report has been prepared by:

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PART A - FIRE LOCATION AND BACKGROUND INFORMATION

Fire Name	White Bluff
Fire Number	13700-9261-1510
Agency Unit	Hanford Reach National Monument
Region	1
State	WA
County(s)	Franklin
Ignition Date/Cause	7/7/2002- Lightning
Zone	CWICC
Date Contained/ Controlled	07/08/2002
Jurisdiction- USFWS	285 Acres
Total Acres	285 Acres

PART B - NATURE OF PLAN

I. Type of Plan (check one box below)

	Emergency Stabilization
	Rehabilitation
✓	Both Emergency Stabilization and Rehabilitation

II. Type of Action (check one box below)

	Initial Submission
	Updating or Revising the Initial Submission
	Supplying Information of Accomplishment to Date on Work
	Different Phase of Project
✓	Final Accomplishment Report

Fire Background

The White Bluff Fire, Number 13700-9261-1510, started on July 7, 2002 at approximately 1930 hours by a lightning strike. The fire grew rapidly driven by erratic winds from the passing thunderstorm. The fire exhibited extreme rates of spread and threatened private property and crops on the east side of the fire. The HRNM fire crew and staff, with assistance from neighboring fire districts, initiated initial attack at White Bluffs. Additionally, a neighboring farmer attacked the fire using a tractor and disk to protect crops on his lands. The disk proved an effective method of line construction but, unsupported by fire crews, the fire over-ran several firelines. Ground disturbance within the shrub-steppe plant community was substantial given the fire location, poor accessibility, and necessary fire suppression actions (disking and dozer actions). The disk lines were later used by suppression forces to access the edges of the fire and thereby created trails that compacted soils, increased access potential to off-road vehicles and negatively impacted native vegetation and micro-biotic crusts.

The White Bluffs Fire was contained at 2200 hours on July 8, 2002.

The White Bluff Fire burned 285 acres, on public and private lands within a perimeter of 3.25 miles. Fire suppression impacts included: approximately 5 miles of disked fireline, one mile of dozerline, damage to the Refuge boundary fence, and the potential spread of yellow starthistle and rush skeleton weed by suppression forces and actions.

The entire fire was mapped by the Burned Area Emergency Response (BAER) Team for burn severity. One hundred per cent of the fire area is classified as low burn severity or unburned. This attests to the fires' rapid spread through light fuels and low residence time. There were some pockets of higher burn severity where larger sagebrush plants were consumed.

Ninety percent of all plant and litter cover present in the burn area was consumed by the fire. The loss of vegetative cover exposed fine sandy and silty soils to ablation. All soils within the burn area have a high risk of wind erosion.

PART E- SUMMARY OF ACTIVITIES- **COST SUMMARY TABLE- White Bluffs Fire - HANFORD REACH NATIONAL MONUMENT**			***FWS Acreage= 285***			
Part E- Line Item	**Treatment Unit**	**# of Units**	**Approved ESR Plan Expenditures**	**Total Expenditures**	**Cost per Unit**	**Implementation Method**
#1 Dozerline and Diskline Rehabilitation			$ 13,639.00	charged to suppression account		P
#2 Boundary Fence Repair/Replace			$ 6,755.00	charged to suppression account		P
#3 Noxious Weed- Invasive Species Control	acres	280	$ 13,228.00	$13,228.00	$47.24	C,P
#4- Ecological Stabilization- Native Grass Seeding	acres	280	$ 194,800.00	$194,739.00	$695.50	C,P
#5 Cultural Resource Damage Assess.-Suppression	acres	15	$ 9,890.00	$ 9,890.00	N/A	C
#6 Cultural Resource Damage Assess.-Stabilization	acres	120	$ 3,940.00	$ 3,940.00	$32.83	P
#7 Noxious Weed and revegetation effectiveness monitoring	acres	280	$ 20,576.00	$ 20,576.00	$73.48	P
TOTALS			**$ 262,828.00**	**$ 262,767.00**		
P= Agency Personnel C= Contract *=Cumulative Total for specs N3a&b						

Accomplishments:

A. Dozerline and Diskline Rehabilitation

Accomplishment Summary:

- Recontour one mile of dozerline and five miles of disk line
- Conduct seed bed preparation for seeding operations
- Reseed all disturbed areas with native seed

One mile of dozerline and five miles of disk line were rehabilitated in December of 2002. Rehabilitation treatments were delayed until fall of 2002 in order to obtain adequate moisture levels prior to mechanical treatments. Disk lines and roads were reshaped to level out berms and recontour disturbed soils using a grader and cultipacker. Disk lines and roads within the fire area were drill seeded with an 8' standard seed drill that was loaned to the Monument by Columbia NWR. A native species mix (see item D below) was applied on December 8, 2002. Following the seeding operation, approximately nine inches of precipitation was received (HRNM is in a 6" precip. zone). Future spot treatments of herbicide were applied between March of 2002 and June of 2003 to control yellow starthistle and rush skeleton weed that was spread by the fire suppression activities. Followup treatments will be required to combat yellow starthistle infestations within the fire area using other program funds. Monitoring effectiveness studies conducted in the summer of 2003 showed that drill seeding operations were successful in re-establishing native species within 75% of the seeded areas. Approximately 25% of treated areas failed to establish significant ground cover following the fire resulting from soil erosion and disturbance by unauthorized vehicle traffic on closed road systems.

B. <u>Facilities Rehabilitation</u>

Three-quarters of a mile of 4-strand barbed wire fence with wooden posts was damaged during the fire. Materials to replace the fence were purchased. Wooden posts were replaced with more durable steel T-posts, and new wire was purchased to replace the heat damaged wire. The Youth Conservation Corp (YCC) crew with assistance from the Maintenance staff were used as labor to remove the damaged fencing and to install the replacement fencing.

C. <u>Ecological Rehabilitation</u>- Noxious Weed/Invasive Species Control

Accomplishment Summary:

- Section 106 Compliance
- Fire area pre-treated with Roundup® to suppress cheatgrass prior to native seeding
- Native seeding of 285 acres- Fall 2002
- Follow-up treatment of Plateau to control non-native species- Fall 2003
- Spot treatment of yellow starthistle and rush skeleton weed- 2002, 2003 and 2004

A field visit was conducted immediately following notification of the Rehabilitation plan approval. The winter of 2002/2003 was fairly mild, and native forbs were already emerging and growing by mid-February 2003.

Prior to suppression damage repair and emergency stabilization work initiation, a Section 106 (National

Historic Preservation Act) cultural resources clearance for this activity was conducted in accordance with 36 CFR 800 regulations by the staff Cultural Resource Manager. Although potential prehistoric and historic cultural material had been suspected within the project area, only one site, an isolated historic site, was discovered adjacent to existing fire lines within the fire area (See details under D.). Mitigation called for avoidance of the site utilizing a flagged area as a protective buffer.

An initial herbicide treatment was conducted in November of 2002 using 3 ounces of Roundup® per acre to control emerging cheatgrass. A followup treatment scheduled for spring of 2002 was postponed due to concerns of impacting emerging native species. Herbicide treatments in fall of 2002 had minor impacts to some native species such as Sandberg's bluegrass. Followup monitoring showed that this treatment burned newly sprouted perennial grasses but did not kill emerging plants. The Roundup treatment was effective at reducing cheatgrass cover prior to native seeding activities. During the summer of 2002, effectiveness monitoring showed that noxious weed species were thriving within the burned area due to heavy spring precipitation and above-normal growing conditions. A second herbicide application was planned and implemented in the fall of 2003 using Plateau® to combat yellow starthistle, rush skeleton weed and broadleaf species (tansey mustard). Plateau® is a residual herbicide that can provide long-lasting weed contol after application.

Monitoring work conducted in 2004 showed that Plateau® was extremely effective in controlling broadleaf annual weeds and grasses such as tumble mustard (*Sisymbrium altissimum)* and cheatgrass. Plateau® was not effective in the control of tumbleweed (*Salsola kali*) or kochia (*Kochia spp.)*. These two species emerged in the late spring and were not impacted by residual effects of the Plateau® .

Seed mix recommendations were to include 4 native grass species, and 1 native forb species.
A contract was developed using the following specifications for the native seed mix:

a) The seed had to include locally derived ecotype seed, and be sold on a PLS (pure live seed) basis.
b) The mix was developed during the field visit by recording species that were present or were historically at the fire location. The mix was developed with the relative abundance of each species in mind, as well as the size of the seeds (number of seeds per pound).
c) All seed for this project was independently tested prior to delivery to ensure purity, germination, inert matter and noxious weed specifications were met. Contractor provided certification of each lot of seed used in mixture.
d) No substitute species were allowed in the mix.

The following is the description and amounts used in the seed mix:

Native seed mix:
4 # PLS Sandberg's blue grass (Hanford)
4 # PLS Schwindimar Thickspike wheatgrass
3 # PLS Nezpar Indian Rice Grass
2# PLS Bottlebrush squirreltail
0.2 # PLS White Yarrow
1 # PLS Needle and Thread (Hanford)
(14.2 # PLS/acre)

The rehabilitation method chosen was to drill seed all roads and disk lines within the fire area and broadcast native seed on top of a light snow covering. The broadcast seeding provided for good seed

coverage of the fire area while reducing ground disturbance of the fragile soils of the White Bluffs area. Immediately following the seeding operation, approximately 9 inches of rain was received from December till March of 2003 allowing for good seed/soil contact and above-normal germination and growing conditions.

The majority of the rehabilitation efforts were carried out in November 2002, and required the work of five US Fish and Wildlife Service (FWS) employees. An Engineering Equipment Operator and Maintenance Worker operated the tractor and drill seeder, while the Natural Resources Specialist, Wildlife Biologist and Biological Technician administered aerial spraying and broadcast seeding operations.

A total of 4,047 PLS pounds of native grass seed was spread on the site by a fixed-wing aircraft at 14.2 pounds per acre.

Because there is still the opportunity to use herbicides to try to encourage native grass establishment, no sagebrush has been planted in the area as of this date.

Monitoring efforts indicate that much of the area is still infested with cheat grass. Although the Roundup® treatment suppressed cheatgrass development in the spring of 2003, overall percentage of cheatgrass within the fire area did not statistically change. Plateau® treatments impacted cheatgrass development in 2004 growing season and may have impacted cheatgrass abundance within the fire area but additional monitoring data is required in order to verify this observation.

Native forbs in the area seem to be emerging and establishing. Native hoary aster (*Macheranthera canescens*) is quite abundant, as is yarrow (*Achillea* spp.), dune scurfpea (*Psoralea lanceloata*), and Carey's balsamroot (*Balsamorhiza careyana*). Further monitoring needs to be conducted to assess conclusively the establishment of the seeded native grass species.

D. Cultural Resource Damage Assessment- Suppression and Stabilization

A preliminary records check of the project area revealed few known cultural resources in the vicinity and no surveys had been undertaken in the immediate burn area. The known sites consist of an early transportation route known as General Palmer's road, which appears on the Symon's survey map of the area in 188l. This portion of Palmer's road was used enough over the ensuing years that it is still a dirt track access road along the top of the rim. In addition, site HT-92-056 is an historic debris scatter and cistern immediately north of the start of the existing access road (Palmer's). Numerous prehistoric sites and several historic homesteads are known along the Columbia River just over a mile to the south and west. However, the location of the project on a high ridge above the river precludes easy access to the closest water source.

The project area was surveyed with parallel, Northwest/Southeast trending transects within the burn and along the fire break line. Transects were spaced about 20 meters apart. The bulk of the cultural material located within the project consisted of historic items such as isolated cans, two 30 calibur bullets, wood fragments and wire. The material was scattered and did not constitute a site (did not meet either the quantity or temporal significance threshold). Two areas of interest that relate to the Hanford development of the area were noted on the western boundary of the fire, outside of the project. These include a benchmark, USGS brass cap which shows as "Savage 947 ft" on the topo quad. Immediately downslope to the southwest were two names/initial carved in to the dirt bank along a two track going

toward the river. These were dated 1944. Both of the sites remain outside the project and were not impacted by the fire or restoration efforts.

E. Noxious Weed and revegetation effectiveness monitoring

During the 2003 field season, the fire area was visited three times to monitor seeding effectivenss and noxious weed treatments. A biological science technician utilized a Global Positioning System (GPS) to map and record noxious weed occurrences within the fire area and utilized this data to prioritize weed treatments with the FWS maintenance staff.

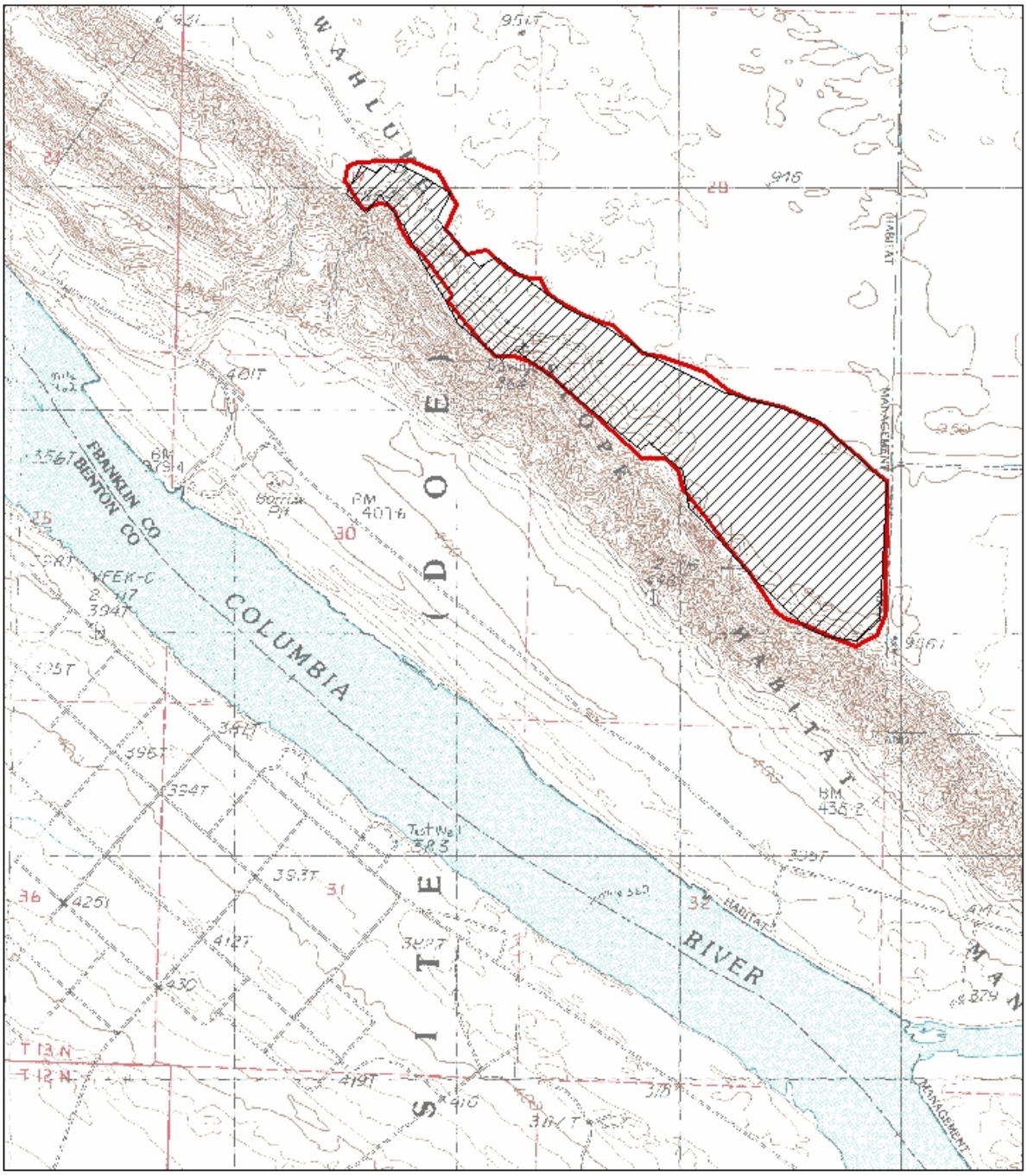
Preliminary observations showed that Roundup® was effective in initial cheatgrass control but did not significantly alter composition or percent cover within the fire area. Monitoring showed a marked increase in yellow starthistle and rush skeleton weed immediately after the fire and followup treatments were initiated based upon monitoring results. A followup treatment with Plateau® in the fall of 2003 was initiated based upon monitoring results.

Monitoring of seeding effectiveness and seedling survival will continue through fall of 2005. Initial observations showed that native seeding was successful in the re-establishment of native species within the fire area but monitoring results were inconclusive as to the number or percentage of seedling survival following the dry spring of 2004. Additional monitoring will be conducted using other program funds and protocols.

APPENDIX I - MAPS

- **Fire Perimeter / Aerial Spraying and Seeding Map**

White Bluffs Fire



White Bluffs Fire

Sprayed and Seeded

N

0 0.5 1 Miles

0 0.5 1 Kilometers