

Weather Station Fire-July 5, 2005-Hanford Reach National Monument

BURNED AREA EMERGENCY REHABILITATION PLAN



AGENCY/UNIT: U.S. Fish and Wildlife Service, Hanford Reach National Monument/Saddle Mountain National Wildlife Refuge

LOCATION: Grant County, Washington

DATE: July 18, 2005

PREPARED BY: Hanford Reach National Monument ESR Team

Submitted By: _____ Date: _____
Greg M. Hughes, Project Leader

BURNED AREA EMERGENCY REHABILITATION PLAN
WEATHER STATION FIRE-Hanford Reach National Monument

REVIEW AND APPROVAL -- US Fish and Wildlife Service

I. EMERGENCY REHABILITATION PLAN CONCURRENCE

- Concur**
- Concur with Revision**
- Disapproved**

Explanation for Revision or Disapproval:

Gregory M. Hughes, Project Leader, Hanford Reach National Monument

Date

- II. Regional Fire Management Coordinator: Concurrence that this plan fits the technical definition for use of Burned Area Emergency Rehabilitation funding and policy guidelines.**

Regional Fire Management Coordinator, Region 1, USFWS

III. EMERGENCY REHABILITATION PLAN APPROVAL

- Concur**
- Concur with Revision**
- Disapproved**

Explanation for Revision or Disapproval:

David Allen, Regional Director- US Fish and Wildlife Service- Region 1

Date

EXECUTIVE SUMMARY

Introduction

This plan has been prepared in accordance with provisions contained with Chapter 620 DM 3-Burned Area Emergency Stabilization and Rehabilitation, Presidential Proclamation 7319 of June 9, 2000 and the Hanford Reach National Monument Fire Management Plan. This plan provides burned area emergency stabilization and rehabilitation (ESR) recommendations for all lands burned within the Weather Station Fire perimeter and downstream impact areas including public lands administered by the U.S. Fish and Wildlife Service. The primary objectives of the Weather Station Fire Burned Area Emergency Rehabilitation (R) Plan are:

Emergency Rehabilitation

- To prescribe cost effective post-fire rehabilitation measures necessary to protect human life, property, and critical cultural and natural resources.
- To promptly stabilize and prevent further degradation to affected resources on lands within the fire perimeter and mitigate damages caused by wildland fire in accordance with approved land management plans and policies, and all relevant federal, state, and local laws and regulations.

This plan addresses the long-term rehabilitation needs of lands administered by the US Fish and Wildlife Service that were negatively impacted by the Weather Station on July 5-6, 2005 on the Hanford Reach National Monument (HRNM). Based upon field assessments conducted by HRNM staff from July 7-11, 2005, an analysis was conducted to include: suppression impacts, watershed stability, archaeological and vegetation impacts, fire effects on known threatened and endangered (T&E) species and their habitats. Our archeologists conducted initial inventories of suppression impacts for potential damage to cultural sites as well as initiating a cultural resource damage assessment. The vegetation specialist evaluated and assessed fire damages and suppression impacts to vegetative resources, including threatened and endangered (T&E) species, and identified values at risk associated with vegetative losses. The wildlife biologist conducted an assessment of T&E species, and other species of management concern to the HRNM.

Individual resource Burned Area Assessment Reports produced by these specialists are in Appendix I. The individual treatments specifications including the effectiveness monitoring identified in the assessments can be found in Part F. A summary of the costs is in Part E. Appendix II contains the National Environmental Policy Act (NEPA) compliance documentation summary. Appendix III contains photo documentation; Appendix IV contains supporting documentation; and Appendix V contains the ESR Plan maps respectively.

Fire Background

The Weather Station Fire, Number 13700-9141-BYJ7 was reported on July 5, 2005 at approximately 1400 hours. The fire was started by an unknown cause, believed to be human in nature and is currently under investigation. The fire may have been smoldering for approximately nine hours before being discovered and reported at 1400 hours. The fire demonstrated extreme fire intensity on over 80% of the fire area as it was pushed through the shrub-steppe community by gusting winds. The Weather Station fire burned approximately 4,918 acres in Wyoming Big sagebrush/ Spiny Hopsage and Sandberg's bluegrass habitat. The fire exhibited erratic rates of spread and threatened to jump Highway 24 along the eastern portion of the fire. One spot did occur across Highway 24, but was caught by firefighters and by a previously disked line on the east side of the highway. The entire fire area is within the Saddle Mountain National Wildlife Refuge (SMNWR) unit of the Hanford Reach National Monument (HRNM).

Firefighters from Grant county, Franklin county, Benton county, Hanford Fire and the USFWS (Hanford Reach NM, Columbia NWR, Turnbull NWR) responded to the incident along with the assistance of a Single Engine Air Tanker (SEAT) based out of the Pendleton, Oregon airport. Washington State Patrol, and Washington Department of Transportation assisted by managing traffic and closing highway 24 during the main firefighting effort. The fire threatened private lands on the north flank of the fire and did burn some commercial agricultural lands including an apple orchard, alfalfa, and grain fields.

A unified command initiated initial attack at Road L SW. Initial attack activities were conducted by fire crews and engines and supported by a single-engine air tanker (SEAT). A dozer pulling a disk put in a firebreak on the west and southern flank (Treatments Map, Appendix III). Use of the SEAT and disking, along with engines supported by water tenders, and several back burning operations proved effective methods for line construction and fire containment.

Ground disturbance within the shrub-steppe plant community was substantial given the fire location, and necessary fire suppression actions (disking actions) that were employed to prevent the loss of additional acres. Drought (extremely dry) conditions along with gusting winds had the potential to result in extreme fire behavior, lofting fire brands, and high potential for fire spread. The immediate need was to try to contain the fire to prevent further spread.

Suppression forces accessed the edges of the fire, along boundary fences and thereby created wheel track trails, in addition to the disked lines, that have compacted soils, increased access potential to off-road vehicles and negatively impacted native vegetation and micro-biotic crusts.

The Weather Station Fire was contained at approximately 1700 hours on July 7, 2005.

The HRNM ESR Team, tasked with evaluation of short and long-term emergency stabilization and rehabilitation needs, developed this plan to address the following issues:

- Cultural and natural resource values impacted by the fire or fire suppression actions.

- Rehabilitation requirements established by Federal law, policies, and relevant Department of the Interior resource management mandates.
- Rehabilitation requirements established by state laws, policies, and regulations.
- Implementation of treatments in a timely manner, prior to the first damaging winds and rains.

Fire Damages and Threats to Human Safety and Natural and Cultural Resources

The Weather Station Fire burned 4,918 acres, of public and private lands. All impacted lands are within the SMNWR. Fire suppression impacts included: approximately 1.5 miles of disked fireline, damage to 7.95 miles of Monument boundary fence, and the potential spread of noxious weeds including knapweed and skeleton weed throughout the fire area.

The entire fire has been mapped by the BAER Team for burn severity. Approximately sixty percent of the fire area is classified as low burn severity with forty percent mapped as moderate/high burn severity. This attests to the fires' rapid spread through light fuels, extremely low fuel moisture levels in 100 and 1000 hour fuels and long residency times within the shrubs. Most of the soils examined were not water repellent. Therefore, an overall water yield increase due to the fire is expected to be minor and not exacerbate run-off events.

Almost all plant and litter cover that was present in the burn area has been consumed by the fire. The loss of vegetative cover has exposed fine sandy and silty soils to ablation. Nearly all soils within the burn area have a fairly high risk of wind erosion (please see photo documentation), however, sandy soils within the burn area are especially susceptible and blowing dust poses an immanent threat to human life along State Highway 24. Loss of shrub-steppe habitat and cover has adversely impacted shrub-obligate species in the short-term and could impact habitat effectiveness, connectivity and individual species in the long-term if rehabilitation measures are not implemented.

The ESR Team conducted field surveys after the fire to identify impacts and compile the following recommendations for rehabilitation of affected lands:

Long-term Rehabilitation Treatments:

- Control non-native invasive plants
- Collect native seed for propagation in order to restore critical sage and hopsage populations
- Protect ecological integrity of native shrub-steppe plant communities through native seeding and native shrub plantings
- Monitor seeding effectiveness for site stabilization

Specifications were developed for all actions meeting the requirements for Emergency Rehabilitation funding.

Other resource impacts assessed as a result of the Weather Station Fire included a review of cultural sites impacted, and impacts to wildlife and vegetation resources.

An archeological inventory has been conducted on all suppression lines and known cultural sites within the fire area. Further cultural resource damage assessments will be required prior to implementation of ground disturbing stabilization actions.

Federal T&E plant species listed as occurring or having habitat within Grant County have not been previously mapped within the fire area, however rare plant species of concern to the HRNM management are found within the fire area.

Listed wildlife species existing within the fire area include Ferruginous Hawk, Loggerhead Shrike, Sagebrush lizards, and Burrowing Owls. The fire area may also be considered potential habitat for Washington ground squirrels (federal and state candidate) and Columbia Basin pygmy rabbit (federal and state endangered).

Vegetation resources provide valuable wildlife forage and habitat, watershed protection, and comprise a visually pleasing landscape. Generally speaking, bunchgrass communities experienced greater than 95% vegetative loss. On approximately 65% of the fire area, complete consumption of vegetative resources was observed. Most shrub, grass and forb species and organic material on the soil surface was consumed indicating extreme fire intensity. The primary vegetative concerns are the recovery of the shrub-steppe plant community (Wyoming Big Sagebrush and Spiny Hopsage) and control of non-native species and noxious weed invasion.

This BAER Plan is the initial funding request for Emergency Fire Rehabilitation funds. The Emergency Fire Rehabilitation funding for this plan is for a three year period from the date of fire containment. At the conclusion of each funding period, an interim Accomplishment Report will be due to the approval authority. The Accomplishment Report will document the funding received, (initial and supplemental funding), treatments installed, the effectiveness of the installed treatments and the results of monitoring activities. A final accomplishment report will be due at the conclusion of the three year period.

Emergency Rehabilitation

Emergency Rehabilitation actions for the Weather Station fire include:

- Ecological rehabilitation through collection of native seed, and planting of propagated native species to prevent the establishment and re-establishment of non-native invasive plants.
- Noxious weed and invasive species control to protect ecological integrity of the site.
- Monitor state listed plant species to ensure their post-fire survival and recommend necessary treatments that will maintain population viability.

Hanford Reach National Monument Management Requirements

The uniqueness and biological diversity of the Hanford Reach was formally recognized by Presidential Proclamation 7319 of June 9, 2000 establishing this area as the Hanford Reach National Monument. The monument is described as a “biological treasure, embracing important riparian, aquatic, and upland shrub-steppe habitats that are rare or in decline in other areas. Within its mosaic of habitats, the monument supports a wealth of increasingly uncommon native plant and animal species, the size and diversity of which is unmatched in the Columbia Basin.” Because of the high diversity of native plant and animal species, the large number of rare and sensitive plant species, the well developed microbial crusts and significant breeding populations of nearly all steppe and shrub-steppe dependent species, the FWS has been tasked to preserve and protect these objects of antiquity in perpetuity. Primary goals for the Monument through the current Draft Comprehensive Conservation Plan include:

- Protect and restore the native habitats and biodiversity of the Hanford shrub-steppe ecosystem.
- Monitor, protect, and recover native plants and animals that are federally or state listed and any other species that are in any other way considered sensitive.
- Monitor status and trends of migratory birds, particularly those that are considered shrub-steppe obligate species and manage local populations.

- Provide for compatible education, interpretation, and wildlife-dependent recreational opportunities. Promote public understanding of the shrub-steppe ecosystem through scientific research and allow other compatible research opportunities afforded by the unique and isolated environment of the National Monument.
- Manage for the protection, preservation, evaluation, and understanding of the cultural heritage and resources of the ALE Reserve while consulting with appropriate Native American groups and complying with historic preservation legislation.
- Provide for operation and maintenance activities without compromising ecological and cultural values.

**BURNED AREA EMERGENCY REHABILITATION PLAN
WEATHER STATION FIRE-Hanford Reach National Monument**

PART A FIRE LOCATION AND BACKGROUND INFORMATION

Fire Name	Weather Station	Jurisdiction	Acres
Fire Number	13700-9141-BYJ7	<u>USFWS, Hanford Reach NM</u> <u>Private</u>	4,840.0 78.0 .
Agency Unit	US Fish and Wildlife Service Hanford Reach National Monument		
Region	Region 1		
State	Washington		
County(s)	Grant		
Ignition Date/Manner	July 5, 2005 Human-caused		
Zone	Pacific Northwest		
Date Contained	July 06, 2005		
Date Controlled	July 07, 2005		

PART B NATURE OF PLAN

Type of Plan (check one box below)

Initial Rehabilitation Plan Submission	X
Update and Revising Initial Submission	
Supplying Information For Accomplishment To Date On Work Underway	
Different Phase Of Project Plan	
Final Report (To Comply With The Closure Of The EFR Account	

EMERGENCY REHABILITATION OBJECTIVES

- Locate and stabilize severely burned conditions that pose a direct threat to human life, property, or critically important cultural and natural resources.
- Recommend post-fire emergency rehabilitation prescriptions that prevent irreversible loss of natural and cultural resources.
- Develop monitoring specifications designed to document relative effectiveness of emergency rehabilitation treatments or whether additional emergency rehabilitation treatments are required.

BURNED AREA EMERGENCY REHABILITATION PLAN

PART C - TEAM ORGANIZATION

BAER TEAM MEMBERS

POSITION	TEAM MEMBER / AGENCY
Team Leader	David N.Smith, USFWS
Operations	Robert Little, USFWS
Vegetation	Heidi Newsome, Jenny Meisel, USFWS
Soil and Watershed	David N. Smith, USFWS
Wildlife	Heidi Newsome, USFWS
Cultural	Chuck James, BIA
Environmental Compliance	David N. Smith, USFWS
GIS	Lindsey Hayes, USFWS
IT / Documentation	David N. Smith, Heidi Newsome, USFWS

PRIMARY SUPPORT PERSONNEL

Hanford Reach NM Deputy Project Leader	Mike Ritter, USFWS
Fire Management Officer	Eric Hagen, USFWS

PART D - SUMMARY OF APPROVAL AUTHORITIES

US FISH AND WILDLIFE SERVICE

ACTIVITIES REQUIRING NATIONAL OFFICE APPROVAL (Emergency Rehabilitation Requests (Charged to ES)).	Cost
#1R -Native seed collection and processing	\$10,361.00
#2R Non-native invasive species control – native plantings	\$237,081.00
#3R – Monitor State Listed Plant Species	\$11,169.00
SUBTOTAL	\$258,611.00

PART E SUMMARY OF ACTIVITIES

The SUMMARY OF ACTIVITIES table identifies emergency rehabilitation costs charged or proposed for funding from fire suppression rehabilitation, emergency stabilization, or rehabilitation funding sources. The total cost of the treatments excluding the costs absorbed by the fire (fire crew, labor and associated overhead) is displayed as either Fire Suppression Rehabilitation (SR), Emergency Stabilization (ES), Rehabilitation (R), or Agency Operations/Other (OP/O).

PART E – US FISH AND WILDLIFE SERVICE

No.	TREATMENT SPECIFICATION	UNIT	UNIT COST	# OF UNITS	COST BY FUND SOURCE			IMPLEMENTATION METHOD	SPECIFICATION TOTAL
					SR	ES	R		
#1R	Native seed collection and processing	Lot	\$1,036	10		R		P,C	\$10,361.00
#2R	Non-native invasive species control – native plantings	Acres	\$395	600		R		C	\$237,081.00
#3R	MONITOR STATE LISTED PLANT SPECIES	Survey	\$1,861	3		R		P	\$11,169.00
								TOTAL	\$258,611.00

BURNED AREA EMERGENCY REHABILITATION PLAN

PART F - SPECIFICATION

SPECIFICATION TITLE:	Ecological Stabilization- Native Seed Collection	JURISDICTIONS:	USFWS-HRNM
PART C: LINE ITEM:	#1R -Native seed collection and processing	FISCAL YEAR:	2006,2007
ESR REFERENCE #:	8.3.2.3 Revegetation	SPECIFICATION TYPE:	R

I. WORK TO BE DONE

A. Provide a Brief General Description of Treatment
Collect native seed from shrub-steppe plant communities surrounding the Weather Station fire area for the establishment of rehabilitation plant materials for rehabilitation treatments related to ecological stabilization of the site, and for rehabilitation of any suppression impacts (backfire areas and dozer/diskline).
B. Describe Specific Treatment Location or General Description of Suitable Sites for Treatment
Collect seed from native Wyoming big sagebrush (<i>Artemisia tridentata</i>), bitterbrush (<i>Purshia tridentata</i>), spiny hopsage (<i>Grayia spinosa</i>), purple sage (<i>Salvia dorrii</i>) and buckwheats (<i>Eriogonum sp.</i>) and bunchgrass (<i>Poa sp.</i> , <i>Stipa sp.</i> , <i>Oryzopsis sp.</i> , <i>Agropyron sp.</i>) populations for the establishment of nursery stock for rehabilitation efforts within the Weather station fire area. Collection sites will be within HRNM, SMNWR, or adjacent lands with permission.
C. Provide and Number Detailed Design/Construction Specifications
1. Identify collection sites within the project area for native seed collection.
2. Develop collection protocols to ensure genetic quality and the protection of collection sites from over-harvest.
3. Collect adequate seed in CY06 & 07 to contract for seedling production and seed multiplication in 07 & 08.
4. Process and clean collected seed to obtain useable material for nursery growing operations (seedling production) and field trials.
D. Describe Purpose of Treatment Specification – What Resource will be Protected
To ensure compatibility for adaptation of plants to site specific conditions. The Hanford Site area is known to be one of the most harsh (i.e. hottest and driest parts of Washington state), plants do not survive well in this area unless derived from local stock, or adapted to conditions in the Columbia Basin. Seed collection will protect the ecological integrity and site productivity of shrub-steppe plant communities within the Weather Station fire area, by providing plants that are adapted to site specific conditions.
E. Describe Treatment Effectiveness Monitoring
Seeds would be categorized by collection (seed lot) and germination trials conducted. Seedlings/seeds produced from seed would be outplanted in fire area and monitored for survival.

II. LABOR, EQUIPMENT, MATERIALS, AND OTHER COST:

PERSONNEL SERVICES (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item Do not include contract personnel costs here (see contractor services below).	COST/ITEM
Natural Resource Specialist GS- 11 @ \$21.68/hr. X 200 hours X 2 years	\$8,672.00
TOTAL PERSONNEL SERVICE COST	\$8,672.00

EQUIPMENT PURCHASE, LEASE, OR RENTAL (Item @ Cost/Hours or Cost/Day or # Days X # Fiscal Years = Cost/Item) Note: Purchase requires written justification that demonstrates cost/item benefits over lease or rental.	COST/ITEM
TOTAL EQUIPMENT PURCHASE, LEASE, OR RENTAL COST	

MATERIAL AND SUPPLIES (Item @ Cost/Each X Quantity X # Fiscal Years = Cost/Item)	COST/ITEM
TOTAL MATERIAL AND SUPPLY COST	

TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X # Fiscal Years = Cost/Item)	COST/ITEM
GSA Vehicle- 100 miles per day , 4 days per week, for 6 weeks @ .37 per mi.	\$888.00
TOTAL TRAVEL COST	\$888.00

CONTRACT COST (Labor or Equipment @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item)	COST /ITEM
Seed Cleaning Costs (to produce up to 25 pounds of clean seed of grasses) @ \$61.25 per lot X 5 species	\$306.00
Germination tests per seed lot @ \$ 45 per lot X 5 species	\$225.00
TZ testing per seed lot @ \$ 54 per lot X 5 species	\$ 270.00
TOTAL CONTRACT COST	\$801.00

SPECIFICATION COST SUMMARY

FISCAL YEAR	UNIT	UNIT COST	# OF UNITS	COST	FUNDING SOURCE	METHOD
2005	lot	\$1,036	5	\$5,181	R	P, C
2006	lot	\$1,036	5	\$5,180	R	P, C
TOTAL	lot	\$1,036	10	\$10,361	R	P,C
FUNDING SOURCES F= Fire Suppression ESR = Emergency Stabilization & Rehab. OP/O = Agency Operating Fund EWP = Emergency Watershed Program		SPECIFICATION TYPE ES = Emergency Stabilization R = Rehabilitation FS = Fire Suppression		METHOD OF COMPLETION P = Agency Personnel Services C = Contract EFC = Emergency Fire Contract FC = Crew Labor Assigned to Fire		

SOURCE OF COST ESTIMATES

Put Letter (P,M,T,C, or F) Next to Appropriate Cost Estimate Source (1-5) Below	
1. Estimate obtained from 2-3 independent contractual sources.	C
2. Documented cost figures from similar project work obtained from local agency sources.	T
3. Estimate supported by cost guides from independent sources or other federal agencies.	
4. Estimates based upon government wage rates and material cost.	P
5. No cost estimate required – cost charged to Fire Suppression Account (not tracked in plan)	
P = Personnel Services M = Materials/Supplies T = Travel C = Contract F = Suppression	

III. RELEVANT DETAILS, MAPS, AND DOCUMENTATION INCLUDED IN THIS REPORT

List Relevant Documentation and Cross-References within ESR Plan

IV. TOTAL COST BY JURISDICTION

JURISDICTION	UNITS TREATED	COST
USFWS-HRNM	10	\$10,361
TOTAL COST	10	\$10,361

BURNED AREA EMERGENCY REHABILITATION PLAN

PART F - SPECIFICATION

SPECIFICATION TITLE:	Ecological Stabilization- Native Plantings	JURISDICTIONS:	USFWS-HRNM
PART C: LINE ITEM:	#2R Non-native invasive species control – native plantings	FISCAL YEAR:	2005, 2006
ESR REFERENCE #:	8.3.2.3 Revegetation	SPECIFICATION TYPE:	R

V. WORK TO BE DONE

A. Provide a Brief General Description of Treatment
The treatment will consist of planting native shrub seedlings including Wyoming big sagebrush (<i>Artemisia tridentata</i>), Spiny hopsage (<i>Grayia spinosa</i>), Antelope bitterbrush (<i>Purshia tridentata</i>), winterfat (<i>Eurotia lanata</i>), and/or purple sage (<i>Salvia dorrii</i>), as available, to rehabilitate impacted shrub-steppe plant communities that serve as critical habitat for listed and sensitive species.
B. Describe Specific Treatment Location or General Description of Suitable Sites for Treatment
Seedlings will be planted in historic native shrub plant community sites. Planting sites will be chosen based upon habitat recovery needs, soil productivity, moisture regimes, lack of invasive species, and other native plant species post-fire recovery. Seedling shrubs will be installed in areas near to the limited existing shrub cover that survived the fire. This will expand the effective shrub cover within the fire area, and will allow areas being seeded to native grasses to receive herbicide treatment without impacting planted shrubs. Shrubs will be installed by contracted professional re-forestation planting crews. All sites will be cleared for planting by cultural resources staff prior to installing seedlings.
C. Provide and Number Detailed Design/Construction Specifications
1. Select planting locations and GPS boundaries of planting locations.
2. Provide maps to cultural resources personnel for review and clearance under section 106 NHPA.
3. Install seedling plants using contract re-forestation planters, December 2005. Supervise planting and provide maintenance and logistics support.
D. Describe Purpose of Treatment Specification – What Resource will be Protected
Protect and stabilize the ecological integrity and site productivity of native shrub-steppe plant communities, by preventing the invasion of non-native invasive species, and by establishing a trajectory for site recovery, within the Saddle Mountain NWR in accordance with established refuge purposes and establishment guidelines.
E. Describe Treatment Effectiveness Monitoring
During the summer of 2006, conduct survival survey to determine success of outplantings. Determination of survival rate should be documented with findings incorporated into greenhouse growing operations, management guidelines for native restoration, Agency protocols, and annual budget submissions.

VI. LABOR, EQUIPMENT, MATERIALS, AND OTHER COST:

PERSONNEL SERVICES (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item Do not include contract personnel costs here (see contractor services below).	COST/ITEM
Wildlife Biologist or Natural Resource Specialist GS -11 (\$21.68/hr) X 480 Hours	\$10,406.00
Archeologist GS-11 (\$21.68/hr) X 80 Hours	\$1,735.00
Administration Contractual Support- GS-11 (\$23.50/hr) x 40 Hours	\$940.00
TOTAL PERSONNEL SERVICE COST	\$13,081.00

EQUIPMENT PURCHASE, LEASE, OR RENTAL (Item @ Cost/Hours or Cost/Day or # Days X # Fiscal Years = Cost/Item) Note: Purchase requires written justification that demonstrates cost/item benefits over lease or rental.	COST/ITEM
TOTAL EQUIPMENT PURCHASE, LEASE, OR RENTAL COST	

MATERIAL AND SUPPLIES (Item @ Cost/Each X Quantity X # Fiscal Years = Cost/Item)	COST/ITEM
Native shrub seedlings – 10” tubling container stock @ .75 X 200,000	\$150,000.00
TOTAL MATERIAL AND SUPPLY COST	

TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X # Fiscal Years = Cost/Item)	COST/ITEM
TOTAL TRAVEL COST	

CONTRACT COST (Labor or Equipment @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item)	COST /ITEM
Re-forestation planting crew @ .37 per plant X 200,000 plants	\$74,000.00
TOTAL CONTRACT COST	COST /ITEM

SPECIFICATION COST SUMMARY

FISCAL YEAR	UNIT	UNIT COST	# OF UNITS	COST	FUNDING SOURCE	METHOD
2005						
2006	acre	\$395	300	118,540	R	P,C
2007	acre	\$395	300	118,541	R	P,C
TOTAL	acre	\$395	600	\$237,081.00	R	P,C
FUNDING SOURCES F= Fire Suppression ESR = Emergency Stabilization & Rehab. OP/O = Agency Operating Fund EWP = Emergency Watershed Program		SPECIFICATION TYPE ES = Emergency Stabilization R = Rehabilitation FS = Fire Suppression		METHOD OF COMPLETION P = Agency Personnel Services C = Contract EFC = Emergency Fire Contract FC = Crew Labor Assigned to Fire		

SOURCE OF COST ESTIMATES

Put Letter (P,M,T,C, or F) Next to Appropriate Cost Estimate Source (1-5) Below	
1. Estimate obtained from 2-3 independent contractual sources.	M
2. Documented cost figures from similar project work obtained from local agency sources.	P, C
3. Estimate supported by cost guides from independent sources or other federal agencies.	
4. Estimates based upon government wage rates and material cost.	P
5. No cost estimate required – cost charged to Fire Suppression Account (not tracked in plan)	
P = Personnel Services M = Materials/Supplies T = Travel C = Contract F = Suppression	

VII. RELEVANT DETAILS, MAPS, AND DOCUMENTATION INCLUDED IN THIS REPORT

List Relevant Documentation and Cross-References within ESR Plan
See Vegetation Assessment, Wildlife Assessment, Appendix I, Treatment Map, Appendix V

VIII. TOTAL COST BY JURISDICTION

JURISDICTION	UNITS TREATED	COST
USFWS	600 acres	\$237,081
TOTAL COST	600 acres	\$237,081

BURNED AREA EMERGENCY REHABILITATION PLAN

PART F - SPECIFICATION

SPECIFICATION TITLE:	MONITOR Threatened and Endangered Species	JURISDICTIONS:	USFWS-HRNM
PART C: LINE ITEM:	#3R - MONITOR STATE LISTED PLANT SPECIES	FISCAL YEAR:	2006,2007
ESR REFERENCE #:	8.3.8 Threatened and Endangered Species	SPECIFICATION TYPE:	R

IX. WORK TO BE DONE

A. Provide a Brief General Description of Treatment
Monitor three previously identified state listed (T & E & sensitive) plant species to determine fire impacts on these species and their post-fire recovery potentials. Conduct short-term monitoring (2 years) on known locations of <i>Camissonia pygmaea</i> (dwarf evening primrose), <i>Camissonia minor</i> (small-flower evening primrose), and <i>Eatonella nivea</i> (white eatonella) within the fire area.
B. Describe Specific Treatment Location or General Description of Suitable Sites for Treatment
Refer to Plan Vegetation Assessment for Rare Plants, and Appendix V - T&E Plant Species map for potential survey area.
C. Provide and Number Detailed Design/Construction Specifications
1. Visit known occurrences for one year following the fire. Implement monitoring protocols in cooperation with the Washington Natural Heritage program rare plant botanist and follow WNHP protocols for monitoring of rare plants.
2. Map, photo-document, and census (using WNHP protocol) each occurrence; collect voucher specimens as needed
3. At the end of the field season, prescribe management responses and submit supplemental funding requests as needed. Prepare final report of findings for submission to NIFC for inclusion in fire effects (FEIS) data base. <ul style="list-style-type: none"> a. Occurrences within the fire showing a decrease in distribution and/or number of individuals greater than 30% of their entire population require a management action. b. Management actions will consist of the following options, depending upon the recommendations from site monitoring: <ul style="list-style-type: none"> i. Conservation of propagule material ii. Propagation and reintroduction of individual plants to appropriate habitat iii. Mitigation of threats to the population (may include removal of non-native species, protection from predation, and/or protection from human disturbance including off-road vehicles) iv. Seek supplemental funds through the Burned Area Emergency Rehabilitation Program (BAER)
D. Describe Purpose of Treatment Specification – What Resource will be Protected
The Hanford Reach National Monument is a refuge for 30 species of rare plants as described by the State of Washington Natural Heritage Program (WNHP). Three populations of rare species have been burned by the Weather Station Fire; there is limited information regarding the potential effects of the fire to these species and an unknown impact to the population dynamics of this species on lands administered by the USFWS.
E. Describe Treatment Effectiveness Monitoring
Effective treatment includes 1) assessment of fire impacts to known populations and assess nearby potential habitat, 2) submission of assessment information (photo-documentation, WNHP submittals, GPS/GIS information, fire effects descriptions, and management prescriptions) to HRNM staff, 3) submittal of supplementary management treatments as needed, and 4) initiate emergency rehabilitation treatment(s) as required to maintain population viability. All information would be added to the FEIS system.

X. LABOR, EQUIPMENT, MATERIALS, AND OTHER COST:

PERSONNEL SERVICES (Grade @ Cost/Hours X # Hours X # Fiscal Years = Cost/Item Do not include contract personnel costs here (see contractor services below).	COST/ITEM
Biologist GS-11 @ (\$21.68/hr.) X 80 hours X 2 years	\$3,469.00
TOTAL PERSONNEL SERVICE COST	\$3,469.00

EQUIPMENT PURCHASE, LEASE, OR RENTAL (Item @ Cost/Hours or Cost/Day or # Days X # Fiscal Years = Cost/Item) Note: Purchase requires written justification that demonstrates cost/item benefits over lease or rental.	COST/ITEM
TOTAL EQUIPMENT PURCHASE, LEASE, OR RENTAL COST	

MATERIAL AND SUPPLIES (Item @ Cost/Each X Quantity X # Fiscal Years = Cost/Item)	COST/ITEM
Stakes, frames, flagging, pin flags, photo developing (from digital) and archiving	\$ 500.00
TOTAL MATERIAL AND SUPPLY COST	\$500.00

TRAVEL COST (Personnel or Equipment @ Rate X Round Trips X # Fiscal Years = Cost/Item)	COST/ITEM
TOTAL TRAVEL COST	

CONTRACT COST (Labor or Equipment @ Cost/Hour X # Hours X # Fiscal Years = Cost/Item)	COST /ITEM
Rare Plant botanist @ \$45/hour x 160 hours X 1year	\$7,200.00
TOTAL CONTRACT COST	\$7,200.00

SPECIFICATION COST SUMMARY

FISCAL YEAR	UNIT	UNIT COST	# OF UNITS	COST	FUNDING SOURCE	METHOD
2006	survey	\$1,861	3	5,584	R	P,C
2007	survey	\$1,861	3	5,585	R	P,C
TOTAL	survey	\$1,861	3	\$11,169		
FUNDING SOURCES		SPECIFICATION TYPE		METHOD OF COMPLETION		
F= Fire Suppression ESR = Emergency Stabilization & Rehab. OP/O = Agency Operating Fund EWP = Emergency Watershed Program		ES = Emergency Stabilization R = Rehabilitation FS = Fire Suppression		P = Agency Personnel Services C = Contract EFC = Emergency Fire Contract FC = Crew Labor Assigned to Fire		

SOURCE OF COST ESTIMATES

Put Letter (P,M,T,C, or F) Next to Appropriate Cost Estimate Source (1-5) Below	
1. Estimate obtained from 2-3 independent contractual sources.	C
2. Documented cost figures from similar project work obtained from local agency sources.	P
3. Estimate supported by cost guides from independent sources or other federal agencies.	
4. Estimates based upon government wage rates and material cost.	
5. No cost estimate required – cost charged to Fire Suppression Account (not tracked in plan)	
P = Personnel Services M = Materials/Supplies T = Travel C = Contract F = Suppression	

XI. RELEVANT DETAILS, MAPS, AND DOCUMENTATION INCLUDED IN THIS REPORT

List Relevant Documentation and Cross-References within ESR Plan
Refer to Plan Vegetation Assessment for Rare Plants, and Appendix V - T&E Plant Species map for potential survey area.

XII. TOTAL COST BY JURSDICTION

JURISDICTION	UNITS TREATED	COST
USFWS-HRNM	3 surveys	\$11,169
TOTAL COST	3 surveys	\$11,169

**BURNED AREA EMERGENCY REHABILITATION PLAN
WEATHER STATION FIRE- HANFORD REACH NATIONAL MONUMENT**

APPENDIX I RESOURCE ASSESSMENTS

- **CULTURAL RESOURCE ASSESSMENT**
- **WILDLIFE RESOURCE ASSESSMENT**
- **VEGETATION RESOURCE ASSESSMENT**
- **T&E PLANTS ASSESSMENT**
- **OPERATIONS RESOURCE ASSESSMENT**



BURNED AREA EMERGENCY REHABILITATION PLAN

WEATHER STATION FIRE

CULTURAL RESOURCE ASSESSMENT

I. OBJECTIVES

Assess damages to known historic and prehistoric cultural resources as the result of fire behavior.

Assess potential risks to known/documented cultural resources as the result of the fire (e.g. erosion, flooding, and exposure to looting and/or vandalism).

Assess potential risks to known cultural resources as the result of emergency stabilization activities.

Coordinate with Federally recognized Tribes.

II. ISSUES

- Identify known/documented resources that have been subject to direct or indirect effects of fire.
- Identify emergency stabilization and/or protection needs for cultural resources within the fire.
- Other resources stabilization measures that may put cultural resources at risk.
- Consultation with appropriate parties to meet legal compliance and tribal consultation.

III. OBSERVATIONS

A. Background

The Weather Station Fire started on July 5, 2005, near the Vernita Bridge in the Saddle Mountain Unit of the Saddle Mountain National Wildlife Refuge, Hanford Reach National Monument. Prior to containment, the Weather Station Fire burned slightly less than 5,000 acres of grass and sagebrush in an area bounded on the west by the "L" SW Road, to the south and east by Washington State Highway 24, and to the north by the Saddle Mountain Wildlife Reserve fence. This area is located approximately 8 miles southeast of Mattawa, Grant County, Washington, just north of where Highway 24 crosses the Columbia River over the Vernita Bridge.

The Monument has a large number of historic and prehistoric sites recorded within its boundaries. Most of the historic properties are related to the Hanford site's Nuclear development, including the Manhattan Project, the Cold War development, and cleanup activities associated with decommissioning the facilities. In addition, there are pre-Hanford homesteads that were displaced in 1943 for the Hanford Site. The prehistoric component is primarily known from earlier work done by a number of archaeologists at large village sites along the Columbia River, as well as other sites located during National Historic Preservation Act, Section 106 compliance surveys.

The prehistoric cultural chronology of the Hanford Site area is taken from the National Register of Historic Places Multiple Property Documentation Form – Historic, Archaeological and Traditional Cultural Properties of the Hanford Site,

Washington (U.S. Department of Energy 1997). As their summary indicates (1997:2-1) states:

The prehistoric Columbia Plateau region has been impacted by basalt flows, catastrophic flooding, and environmental change which has meant that prehistoric regional inhabitants adapted their cultural subsistence systems as necessary to survive. The moist, cool conditions of the early Holocene meant that early peoples [12-15,000 B.P. to 8,000 B.P.] were probably mobile, taking advantage of available resources in an organized fashion.

As the environment became drier after 8,000 years B.P., it is likely that the descendants of these early people developed a more mobile, generalized riverine-based economy. The arrival of a moist and cool environment at approximately 4,500 years B.P. was coupled with year-round residency and a hunter-gatherer subsistence pattern which was modified briefly at 3,800 years B.P.

Approximately four-hundred years later, circa 3,400 years B.P., the climate cooled once again but the sedentary lifestyle did not return to the study area until 3,000 years B.P. After this point, populations increased along the rivers as groups focused on salmon, roots and ungulates. A significant increase in storage and food processing activities were common to many people throughout the Columbia Basin although the mobility of the hunter-gatherer lifestyle remained a strong component into the ethnographic period.

The area of the Weather Station Fire may have been seasonally used for gathering grass seed, roots, hunting and acquisition of silicates and basalt from the glacial gravel deposits. It appears, however, that this area is far enough above the Columbia River and lacks evidence of springs or dry channels that would indicate a nearby water supply. Thus, it is believed that this area did not afford requisite resources for more permanent settlement.

The ethnographic/Contact Period (1805-1943) extends from the first contact until the Native Americans were excluded from settlement or use of the area. This period reflects both a continuity of earlier lifeways and changes towards Euro-American building styles and incorporation of Euro-American materials. During this period the Indians ceded lands and were, for the most part, moved onto reservations. At the present time the Federally recognized Confederated Tribes of the Umatilla Indian Reservation, Yakama Indian Nation, Confederated Tribes of the Colville Indian Reservation, Nez Perce Tribe, and the non-Federally recognized Wanapum have expressed interest in this area (U.S. Department of Energy 1997:3.4-3.35).

Euro-American Resettlement on the Hanford Site (1805-1943): The passage of Lewis and Clark (1805-06) through this area begins the historic period. Subsequent to this were the passage of missionaries, mining, ranching, establishment of trading posts, river travel, and community development (U.S. Department of Energy 1997:4.6-4.21). With the possibility of grazing and possibly limited homestead use, the area included in the Weather Station Fire appears to have been bypassed by historic development in more favorable areas with access to water.

Hanford Development (1943-1990). The history associated with the Hanford Site and its nuclear development is included in David Harvey (n.d. History of the Hanford Site 1943-1990) and U.S. Department of Energy (2002, History of the Plutonium Production Facilities at the Hanford Site Historic District, 1943-1990. Manhattan Project 1943-1946, Cold War Era 1947-1990).

Since the Weather Station Fire occurred on lands that were acquired as a buffer for the Hanford Site, no development occurred there from 1943-1950. Beginning in 1950, Cold War tensions resulted in a military presence at Hanford. In 1950 the first of sixteen anti-aircraft artillery batteries were established to encircle and protect the nuclear reactors at Hanford. The typical layout of a battery covered about 20 acres and had up to 20 buildings and structures associated with them. Beginning in 1954 the Army began supplementing the anti-aircraft artillery guns with Nike surface to air missiles and by late 1957-early 1958 had phased out the artillery sites in the fire area (Harvey 2002:2-93-2-96). At some time after their deactivation these sites were razed.

B. Reconnaissance Methodology and Results

BAER Archaeologist Chuck James arrived on July 8, 2005 at the Hanford Reach National Monument and after orientation went to the field. He spent the remainder of July 8 and July 9 visiting six historic sites within the Weather Station Fire. All dozer (disc) lines were also examined during this time.

C. Findings

Table 1 – Site within the Fire Perimeters

Site	Fire Effects	Notes
HT-93-006	no	Partially burned
HT-93-007	no	Partially burned
HT-93-013	no	Unburned
HT-93-014	no	Partially burned
HT-93-015	no	Partially burned
HT-93-021	no	Unburned
HT-93-024	no	Burned
Total Sites	7	

It is assumed that the above site numbers refer to historic sites. While this could not be confirmed because site records could not be located, only historic material was noted at these locations. It is assumed that the site records are available at the Hanford Facility in Richland. This facility, however, was not open during the time the archaeologist was on site. The Weather Station fire also had low residency time where it did burn onto a site due to the presence of paved areas and sparse on-site vegetation.

Prehistoric Sites

The Weather Station Fire was located on the north side of the Columbia River. It burned uphill, away from the lower terrace and any prehistoric sites that might be located along that landform. One, previously unidentified, sparse lithic site (Field No. WS#1) was located to the south of, and outside the fire perimeter. It does not appear to be in jeopardy from fire related erosion or possible rehabilitation activities. Its locational information has been passed on to the appropriate U.S. Fish & Wildlife authority.

Historic Sites

Since the Weather Station Fire was located on the north side of the Columbia River, it did not involve sites related to the Hanford Historic District. The area involved in the fire, however, contained at least one of the sixteen anti-aircraft artillery positions that encircled the nuclear reactors. It appears the Weather

Station Fire did burn over 7 areas (sites) associated with of these previously removed positions. Since anti-aircraft batteries commonly covered 20 acres, it is assumed several site numbers may refer to different activity areas of the same site.

Due to the removal of above ground features and bulldozing of most foundations, these sites consist of access roads, small mounds of concrete rubble, concrete pads, areas paved with asphalt, a number of black locust trees, and isolated tin cans that appear to date to the 1950-60 period. While an unknown number of the trees were killed by the quick moving fire, most sites only saw partial vegetation consumption. The integrity of the sites has been previously compromised and no impacts to the existing physical characteristics of the sites are attributed to the Weather Station Fire. As these sites are on flats, they will not be subject to erosion.

Additional Risks

Major village sites and historic sites are not found in the Weather Station Fire. Based on the lack of cultural resources noted during transects walked through the heavily burned area in the fire, it does not appear likely that the loss of vegetation will have exposed unknown archaeological sites on the flats. The area involved in the fire is also fenced and excluded from public access.

The primary threat to this area could be trespassing associated with the collection of pebble and cobble-sized chert, jasper and other silicate gravels on the south facing slopes immediately north of Highway 24. This is the same material that prehistoric peoples gathered, and remnants of their activity (primary flakes and lithic reduction sites) may be present. The signed fence is a good deterrent. Further, this area is in full view of Highway 24 which would help deter casual collection.

IV. RECOMMENDATIONS

A. Emergency Stabilization – Fire Suppression Repair

Fire suppression activities did not impact prehistoric or historic sites.

B. Emergency Stabilization

No Emergency Stabilization specifications specific to cultural resources are advanced at this time. If ground disturbing activities are proposed for other resources under emergency stabilization, Section 106 clearance, including appropriate tribal consultation, should be included in that specification.

C. Rehabilitation

No Rehabilitation specifications specific to cultural resources are advanced at this time. If ground disturbing activities are proposed, Section 106 clearance, including appropriate tribal consultation, should be included in that specification.

D. Management Recommendations – Non-Specification Related

Wildland fire has the potential to adversely affect cultural resources, however it also offers the opportunity to perform inventories in areas that were previously inaccessible and in areas where fire has effectively removed ground cover that was obscuring sites. In this case, however, an opportunity exists to inventory the unburned area between the fire and hill slope above Highway 24. Funding for

this suggested activity should come from the unit's operating program or other funding sources. Given these conditions, the following non-specification recommendations are offered:

A systematic and comprehensive cultural resources inventory and site documentation in areas of high site probability should be carried out on hillslope benches and draws, and include the transition from where the steep hill slope levels onto the flat, especially in the areas where silicate gravels are found.

IV. CONSULTATIONS

WA-SHPO - Archaeologist Chuck James initiated contact with the Washington State Historic Preservation Office (SHPO) via telephone on July 11, 2005 to relay there were no fire effects to cultural resources and that Section 106 NHPA procedures would be followed for any treatments that may affect cultural resources.

U.S. Fish & Wildlife Archaeologists. Archaeologist Chuck James contacted Nick Valentine and Anan Raymond, USF&WL Northwest Regional Archaeologists, for site information on July 7 and 8, 2005.

NRCS. Archaeologist. Chuck James contacted Jenna Gaston, Archaeologist, National Resources Conservation Service, Salem, OR, via telephone on July 8, 2005 for survey and site information specific to the Weather Station Fire (Jenna was the previous Hanford Reach National Monument archaeologist).

VI. REFERENCES

David Harvey
History of the Hanford Site 1943-1990. Pacific Northwest National Laboratory. n.d.

D.W. Harvey
Military Operations. In History of the Plutonium Production Facilities at the Hanford Site Historic District, 1943-1990. Manhattan Project 1943-1946, Cold War Era 1947-1990, Chapter 9. Hanford Cultural and Historic Resources Program. 2002.

United States Department of Energy
National Register of Historic Places Multiple Property Documentation Form – Historic, Archaeological and Traditional Cultural Properties of the Hanford Site, Washington. February 1997.

United States Department of Energy
History of the Plutonium Production Facilities at the Hanford Site Historic District, 1943-1990. Manhattan Project 1943-1946, Cold War Era 1947-1990. Hanford Cultural and Historic Resources Program. 2002.

**BURNED AREA EMERGENCY REHABILITATION PLAN
Weather Station Fire**

WILDLIFE RESOURCE ASSESSMENT

I. OBJECTIVES

- Assess effects of fire and suppression actions to Threatened, Endangered, Proposed and other significant agency listed species and their habitat, including birds, mammals, amphibians, reptiles, fish and insects.
- Initiate Emergency Section 7 Consultation as required by the Endangered Species Act.
- Assess effects of fire and suppression action to habitat improvements.
- Assess effects of proposed emergency stabilization actions to listed species and habitat.

II. ISSUES

- 12 agency listed wildlife species occur within the fire area, most of which are dependent on the shrub-steppe plant community.
- Potential effects to these species from the fire, suppression actions and potential post fire effects to shrub steppe obligate species.
- Potential effects to these species from proposed emergency stabilization actions.

III. OBSERVATIONS

A. Background

The purpose of this Burn Area Emergency Stabilization (BAER) Wildlife Assessment is to document the effects of the fire, suppression actions, proposed emergency stabilization work, and potential post fire erosion, to all federally listed, agency sensitive and culturally significant mammals, birds, amphibians, reptiles, fish, invertebrates, and their habitats which may occur within or downstream from the fire area. This assessment also includes documentation on Emergency Section 7 Consultation, as required by the Endangered Species Act, with U. S. Fish and Wildlife Service. The species list is included in Appendix V of this report. This species list was developed by David N. Smith, Natural Resources Specialist, and Heidi Newsome, Wildlife Biologist, U. S. Fish and Wildlife Service (FWS), Hanford Reach National Monument/Saddle Mountain NWR. Species occurrence discussed in this assessment is based on formal surveys and habitat inventories conducted prior to the Weather Station Fire, and post fire reconnaissance. Documents, inventory data, sighting records, vegetation maps and other species specific information referenced in this report are on file at the Monument office.

The Hanford Site is located in the Pacific Flyway. Habitats within the fire area serve as resting areas for neotropical migratory birds. The Hanford site includes habitat for many wildlife species, including 40 mammals, 246 birds, 4 amphibians, 9 reptiles, 49 butterfly taxa, 318 species of moths, and 52 taxa of aquatic macro invertebrates. Species diversity on the Handford Site can be attributed to the size, diversity and relatively undisturbed condition of the native shrub-steppe habitat.

B. Reconnaissance Methodology

Information used in this assessment is based on a review of relevant literature, agency management planning documents, agency wildlife sighting and habitat inventory data, communication with FWS, personal communication with agency biologists (listed at end of report), and reconnaissance of the fire area on July 5, 8, and 11, 2005. Habitat information and mapping for the various species is based on

agency records and post fire reconnaissance. Reconnaissance and analysis included review of other fires in the area to assess effects to species and vegetative recovery.

C. Findings

To better understand the species and habitat information discussed in this wildlife assessment, it is important to review the Weather Station Fire BAER Vegetation and Soils Resource Assessments. These reports contain more detailed descriptions of pre-fire vegetation, post-fire vegetative recovery estimates, and effects to the watersheds.

The purpose of this assessment is to discuss the potential effects of the fire, suppression actions and proposed emergency stabilization activities to federally listed and sensitive species which occur within the fire area. Effects to general wildlife species are not discussed. This assessment is not intended to definitively answer the many questions of effects to specific species that are inevitably raised during an incident such as the Weather Station Fire. The focus of this assessment is to determine the potential for immediate, emergency actions that may be necessary to prevent further effects to these species. Because the species discussed in this assessment have ranges or territories which extend beyond the fire area, it may be important to include information at a larger scale, across land ownership boundaries, for species which may require assessment for long term rehabilitation or restoration needs.

BIOLOGICAL EVALUATION

Direct effects as described in this report refer to mortality or disturbance that result in flushing, displacement, harassment or mortality of the animal. Indirect effects refer to modification of habitat and/or effects to prey species.

SHRUB-STEPPE DEPENDENT WILDLIFE SPECIES

The community of plants and animals found in this area represents one of the largest remaining examples of the shrub-steppe ecosystem that once covered the Columbia River Basin. Termed a biological treasure, the monument contains rare, rich and diverse shrub steppe ecosystem flora and fauna that has been lost elsewhere due to habitat conversion, fragmentation and application of pesticides. The shrub-steppe ecosystem supports an unusually high diversity of native plant and animal species, including significant breeding populations of nearly all steppe and shrub-steppe dependent wildlife. This area serves a critical role in contributing to the local, regional, national and international ecological integrity of the shrub-steppe ecosystem. The area provides critical corridor links for shrub-steppe obligate species traveling between the Saddle Mountain National Wildlife Refuge Unit and the Yakima Training Center (YTC) habitat. These corridors represent some of the last remaining intact shrub-steppe communities in the Columbia Basin Ecoregion. Stabilization efforts are needed to maintain these corridors to facilitate movement of terrestrial wildlife. It is critical to the survival of the shrub steppe ecosystem to minimize fragmentation and loss of connectivity between these habitats.

While fire has played an integral role in the history of the shrub-steppe environment, the region's historical fire regime has been greatly altered from socio-political and economic factors. Coupled with the arrival of invasive species and noxious weeds, this has weakened the natural recovery processes of the shrub steppe ecosystem from disturbance events such as fire. Several areas considered sensitive shrub-steppe plant communities were located within the fire perimeter. These vegetation communities provide rare and unique habitat that is critical for meeting FWS regional, national and ecosystem goals and objectives. Managing for biological integrity in this area necessitates that actions be taken to mitigate the ecological effects increasing fire frequency and intensity, and invasion of exotic species.

The Weather Station Fire resulted in significant negative effects to plant communities through removal of approximately 85 percent of the sagebrush and associated plant cover. Sagebrush is either a food source or provides nesting, resting, thermal and escape cover for a wide variety of species. Other value for wildlife includes the thick canopy which protects understory vegetation that can be a valuable food

source for wildlife. Wildlife species in the fire area that are dependent on the sagebrush shrub-steppe and have federal or state listing status include: Ferruginous hawk, burrowing owl, loggerhead shrike, sage sparrow, Washington ground squirrel, pygmy rabbit, black tailed jack-rabbit, sagebrush lizard and striped whipsnake.

Wildlife Species of Concern:

Weather Station Fire Species List

On July 7, 2005, current species lists for the Weather Station Fire area were obtained from U. S. Fish and Wildlife. On June 9, 2000, President Clinton directed the FWS to manage the Hanford Reach National Monument to protect all of the species associated with the shrub-steppe ecosystem. Included in the Memorandum of Understanding between FWS and DOE for management of the Hanford Reach National Monument is, "The primary objective of the FWS is to ensure that the Monument is operated and managed for the protection and preservation of the native shrub-steppe habitat and its associated wildlife species." The federal agencies are also charged with managing for species of importance to the Tribes. Therefore, the following species are included in this assessment. This list was developed by Heidi Newsome, David N. Smith, and Jennifer Meisel. For plant species of concern see Vegetation Assessment.

<u>SPECIES</u>	<u>LISTING STATUS</u>
Ferruginous hawk, <i>Buteo regalis</i>	FSC/ST
Burrowing owl, <i>Athene cunicularia</i>	FSC/SC
Loggerhead shrike, <i>Lanius ludovicianus</i>	FSC/SC
Sage sparrow, <i>Amphispiza belli</i>	FSC/SC
Greater sage grouse, <i>Centrocercus urophasianus</i>	FSC/ST
Washington ground squirrel, <i>Spermophilus washingtoni</i>	C/SC
Pygmy rabbit, <i>Brachylagus idahoensis</i>	E/SE
Black-tailed jackrabbit, <i>Lepus californicus</i>	SC
Striped whipsnake, <i>Masticophis taeniatus</i>	SC
Sagebrush lizard <i>Sceloporus graciosus</i>	FSC
Mule deer, <i>Odocoileus hemionus</i>	TI

The following listed species were identified as occurring, or having habitat within, Grant County. Through post fire reconnaissance and consultation with local experts, it was determined that these species were not affected by the fire because they have no habitat within or adjacent to the fire area, and/or inventories prior to the fire determined absence, or the fire is outside of the species range. For plant species of concern see the Vegetation Assessment.

Bald eagle, <i>Haliaeetus leucocephalus</i>	T/ST
Bull trout (<i>Salvelinus confluentus</i>)	
– Columbia River distinct population segment	T
California floater (<i>Anodonta californiensis</i>), mussel	FSC
Columbian sharp-tailed grouse (<i>Tympanuchus phasianellus columbianus</i>)	FSC
Giant Columbia spire snail (<i>Fluminicola columbiana</i>)	FSC
Kincaid meadow vole (<i>Microtus pennsylvanicus kincaidi</i>)	FSC
Long-eared myotis (<i>Myotis evotis</i>)	FSC
Northern goshawk, <i>Accipiter gentilis</i>	FSC
Sage thrasher, <i>Oreoscoptes montanus</i>	FSC
Long-billed curlew, <i>Numenius americanus</i>	FSC/SM
Pallid Townsend's big-eared bat, <i>Corynorhinus townsendii pallescens</i>	FSC
Northern leopard frog (<i>Rana pipiens</i>)	FSC

Pacific lamprey (<i>Lampetra tridentata</i>)	FSC
Redband trout (<i>Oncorhynchus mykiss</i>)	FSC
River lamprey (<i>Lampetra ayresi</i>)	FSC
Western brook lamprey (<i>Lampetra richardsoni</i>)	FSC
Elk, <i>Cervus elaphus</i>	TI

KEY TO LISTING STATUS:

E	FEDERAL ENDANGERED
T	FEDERAL THREATENED
C	FEDERAL CANDIDATE
FSC	FEDERAL SPECIES OF CONCERN
SC	STATE CANDIDATE
SE	STATE ENDANGERED
ST	STATE THREATENED
SS	STATE SENSITIVE
SM	STATE MONITOR
TI	TRIBAL IMPORTANCE

FERRUGINOUS HAWK

Ferruginous hawks are a federal species of concern, a federal Migratory bird of Conservation Concern (USFWS 2002) and a state Threatened species. Ferruginous hawks are migratory raptors that occur on the Hanford site during the breeding season from early March through August. The incubation period is 28-33 days with fledging at 44-48 days from the date the egg is laid. There is one known historical nest location within the fire area (See Appendix IV). The record of the nest in this area is from 1995, however, nesting raptors are not monitored every year on the Monument, and historic nest locations may be re-used in later years. Ferruginous hawks do demonstrate nest site fidelity, returning to the same nesting territories in subsequent years. The fact that this territory was not used during this season does not mean that it would not be viable in future years. Many territories in Eastern Washington are unoccupied due to the current decline in the population of Ferruginous hawks in Washington. Available nesting territories are not currently thought to be limiting the population and, if the population rebounds, currently unoccupied areas may become occupied (Watson 2003). Ferruginous hawks are sensitive to human presence, and will abandon their nests if subject to human encroachment. Activities (especially noisy ones) near nesting sites should be limited during the breeding and fledging season.

Ferruginous hawks prey on a variety of mammals, birds, reptiles and insects, depending upon local area and prey abundance. These hawks may forage up to 15 km (approximately 9 miles) from their nest site, however, nest success may be greater in areas where abundant forage is in close proximity to the nest location. Areas where prey densities are high, generally have greater successful nesting attempts. The average home range size of Ferruginous hawk in Washington state may be as large as 7,660 acres (31 sq. km = 11 sq. miles), based on hawks traveling considerable distances to forage (WDFW 1996).

FIRE IMPACTS: The entire 4,918 acres of the Weather Station fire can be considered Ferruginous hawk habitat. Impacts to Ferruginous hawks from the Weather Station Fire are indirect and include a reduction of habitat diversity that supports prey for Ferruginous hawks, reduction of habitat for foraging and nesting Ferruginous hawks, and reduced potential for this historic nesting area to be re-occupied in future years. The Washington Department of Fish and Wildlife considers the Ferruginous hawk a priority species for management and recognizes that they benefit from land-use practices that ensure an adequate prey base. WDFW recommends that Landowners/managers should protect shrub-steppe and grassland habitats that harbor significant populations of small mammals and other prey (Richardson et. al. 2004). Further, WDFW recommends reseeding of native plant species after chaining or burning to promote habitat stability and to benefit ferruginous hawk prey populations (Richardson et al. 2004, Olendorff 1993). Therefore, stabilization and rehabilitation of the habitat lost in the Weather Station fire in and around the historic nest location is essential, to support an abundance of prey species, and to develop

critical foraging and nesting habitat for the Ferruginous hawk. Stabilization and rehabilitation of suitable habitat for nesting and foraging around these historic nest sites is likely critical for the recovery of this species in Washington state.

BURROWING OWL

Burrowing Owls are a federal species of concern, a Migratory bird of Conservation Concern (USFWS 2002), and a state candidate species, and a state priority species. Although, there are no known active burrows within the fire area, there is one historic location of Burrowing owl adjacent to the fire area (Appendix V- Maps). Prior to the fire, this area was considered potential habitat for burrowing owls, and although the fire area had not yet been systematically surveyed for burrowing owls, the Monument biology staff had a planned call survey route through the area (BUOW Route -33- see Appendix V).

Burrowing owls are small ground-dwelling species associated with dry, open, shortgrass, or desert and are often linked with burrowing mammals. Foraging areas are typically short grass dominated habitats, food items include predominately invertebrates and small mammals, and occasionally small birds and reptiles. Within the Columbia Basin, Western burrowing owls are primarily migratory and are present from February through early August, although a few individuals over-winter. The Western burrowing owl is thought to be declining throughout central Washington and much of its range in North America. It is also apparently declining at the Hanford Site. Once thought relatively common, they are now rarely observed. The regional decline of ground squirrels, which provide nesting sites for these owls, is possibly linked with the apparent decline in owl populations. The potential decline in population is not unique to the Monument/ Refuge and may be characteristic of the species population trend throughout eastern Washington. The Weather Station fire burned some areas of very sandy soils that are not likely burrowing owl habitat, however, approximately 2600 acres of the fire area can be considered habitat for Burrowing owls.

FIRE IMPACTS: Impacts to Burrowing Owls from the Weather Station Fire are indirect and include; impacts to invertebrate and small mammal prey populations, a reduction of habitat diversity that supports prey for burrowing owls, and reduction of habitat for foraging burrowing owls. The elimination of shrubs effectively reduces almost all natural perch locations for burrowing owls. Shrubs are also important to burrowing owls as thermal cover, adults and juvenile owls seek thermal cover in the shade of shrubs during mid-day periods. Further, elimination of shrub cover may expose small mammals to higher predation rates and consequently may reduce the local abundance of small mammals. Burrowing owls are also prey for other raptor species. Reduced plant biomass, and loss of cover could result in a higher predation rate on individual burrowing owls within the burn area. Clearly, stabilization of the grassland and shrubland habitat that supports burrowing owls will make this area more viable as burrowing owl habitat in the future. Without stabilization and rehabilitation, it is unlikely that burrowing owls would use this area in the future.

LOGGERHEAD SHRIKE

The Loggerhead shrike is a neo-tropical migrant species that breeds on the Monument. Loggerhead shrikes are a federal species of concern, listed as a Migratory bird of Conservation Concern (USFWS 2002), and are a state Candidate for listing as a Threatened species. There are documented sightings of shrike in the fire area during the breeding season (See Map XX). Further, it is likely that there were additional breeding territories in the fire area based on habitat prior to the fire and the fact that this area has not been systematically surveyed for shrikes.

Loggerhead shrikes are common on the Hanford site from early March until the end of August. After August numbers are reduced but individuals have been sited through early November. Loggerhead shrikes require mature sagebrush, or other shrubs, for breeding and foraging habitat. Shrikes are most abundant in habitats of relatively high horizontal and vertical structural diversity (Poole 1992). This species builds its nest within shrubs, and requires some sort of shrub or other habitat feature when foraging for "impaling" its prey. The species is well known for its unusual and complex behavior of impaling prey on sharp objects in conspicuous places or wedging prey in narrow V-shaped forks (Yosef, R. 1996). The primary prey items of this species are insects (beetles, grasshoppers, etc.), although small mammals, small birds, and lizards also taken as prey. (Yosef, R. 1996). Loggerhead shrikes are highly territorial, and they exhibit a high level of nest site/territory fidelity. Poole (1992) found that shrikes defended territories averaging 34.4 acres (\pm 4.9 ac) on the Hanford Site in Washington. Also on the Hanford Site, 113 territories studied, 96% were reoccupied the following season (Poole 1992). Shrikes remain in breeding territories as fledglings for 3-4 weeks after leaving the nest. This post fledging period is the time of highest mortality for shrikes, when young birds are weak fliers and are vulnerable to predation (Poole 1992).

The loggerhead shrike is one of the few North American passerines whose populations have declined continent wide in recent decades (Yosef, R. 1996), and in Washington Breeding Bird Survey data for the Columbia River Basin shows a significant decline in the shrike population over the last 26 years (Vander Haegen 2004). Burning and wildfires may create the greatest risk to local shrike populations because the damage is immediate and regeneration to pre-burn condition may take up to 30 years (Harniss and Murray 1973).

FIRE IMPACTS: The entire 4,918 acres of the Weather Station fire can be considered habitat for Loggerhead shrike. Impacts from the Weather Station Fire to the shrikes are both direct and indirect and include; loss of nests with nestlings, potential greater mortality to fledgling young in the fire area due to loss of hiding cover, loss of prey base, loss of habitat for nesting and foraging, loss of structural diversity of habitat required for shrike utilization of the area. Because shrikes exhibit fidelity to nesting territories, individuals that attempt to return to former territories in subsequent breeding seasons will find them void of nesting cover and structure. Additionally, displacement of individual breeding pairs into other areas may increase inter- and intraspecific competition for nesting territories. If suitable habitat areas were already occupied by breeding pairs, displaced pairs may not be able to locate territories, or will be forced to utilize marginal habitat types. Breeding success would likely decline for pairs that have been displaced by fire impacts to their breeding habitat. Three individual Loggerhead shrikes were observed during post-fire reconnaissance.

The Washington Department of Fish and Wildlife considers the shrike a priority species for management and provides the following management recommendations for loggerhead shrike habitat; retain shrub-steppe communities-especially big sagebrush and mixed shrub communities, avoid wildfires and activities that may increase invasion by exotic vegetation, avoid management activities that increase cheatgrass invasion or increase risk of wildfire (Vander Haegen 2004, Leu and Manuwal 1996). Stabilization and rehabilitation of the habitat within the fire area is critical for Monument management of this declining species.

SAGE SPARROW

Sage sparrows are a federal Migratory bird of conservation concern (USFWS 2002), and a state Candidate for listing as a threatened species. Sage sparrows are a migratory sparrow present in the Columbia Basin during the breeding season from early February until the end of September. Sage sparrows prefer semi-open habitat with evenly spaced shrubs 1-2 meters high (Martin, J. W., and B. A. Carlson. 1998). This species is associated with sagebrush throughout its range. Sage sparrows forage on the ground for seeds and invertebrates. On the HRNM/SMNWR, sage sparrows are abundant in areas that retain big sagebrush communities. The Hanford Site, along with the Yakima Training Center to the west, supports the largest contiguous habitat patches in Washington for this state Candidate species. Exceptional habitats with apparent high densities of Sage Sparrows are found in big sagebrush stands along the base of the Saddle Mountains, throughout sagebrush habitats on the Columbia River plains, and within Central Hanford. Sage sparrows are confirmed breeders on the site, and they frequently raise more than one brood per season. They are territorial and exhibit site fidelity to nesting territories. Flocks of juveniles are frequently observed along roadsides from late May throughout the beginning of August.

FIRE IMPACTS: Adult sage sparrows had probably initiated their second or third nesting effort, these nests were probably destroyed by the fire. Although sage sparrows are mobile animals, their individual behavioral site fidelity to their nesting territories may have increased their susceptibility to direct loss during the fire. Large flocks of juvenile sage sparrows are generally observed during this time period. These recently fledged birds may have been displaced due to the fire. The entire 4,918 acres of the Weather Station fire can be considered sage sparrow habitat. The big sagebrush vegetation within the burn area experienced mortality of 85 percent of the sagebrush plants. Therefore, virtually the entire available sage sparrow habitat in the fire area was lost due to the fire. Due to the loss of shrub cover, adult birds with established territories probably returned to a highly altered habitat condition. These birds were probably displaced due to the fire. Because sage sparrows exhibit fidelity to nesting territories, individuals that attempt to return to former territories in subsequent breeding seasons will find them void of nesting cover and structure. Additionally, displacement of individual breeding pairs into other areas may increase inter- and intraspecific competition for nesting territories. If suitable habitat areas were already occupied by breeding pairs, displaced pairs may not be able to locate territories, or will be forced to utilize marginal habitat types. Breeding success would likely decline for pairs that have been displaced by impacts to their breeding habitat from the fire.

The increasing frequency and intensity of range fires in Great Basin pose significant threat to native grasses and shrubs. Historically, fires were infrequent, and perennial grasses and shrubs were not adversely affected. With increased fire frequency, native plants are killed and seed reservoirs of grasses and shrubs are depleted and replaced with exotic annuals, such as cheatgrass (*Bromus tectorum*). Sage Sparrows abandon former habitats once invaded by cheatgrass (Martin, J. W., and B. A. Carlson. 1998). Thus, replacement of native vegetation by cheatgrass in areas disturbed by the fire will decrease the available habitat for sage sparrows. Because sage sparrows require open areas and bare ground for foraging, changes in vegetation structure and loss of sagebrush due to the fire will impact foraging by sage sparrows. Stabilization and rehabilitation of this area to prevent the spread of cheat-grass and to replace lost shrub habitat is essential to maintain this area for sage-sparrows.

SAGEBRUSH LIZARD

The sagebrush lizard is a federal species of concern and a state candidate species for listing as a threatened species. There are known locations of sagebrush lizard within the fire area (Appendix V). These sightings are near the only road within the fire area, and therefore it is likely that there is additional habitat, and greater numbers of sagebrush lizards were present within the fire area. Sagebrush lizards emerge from hibernation in April, mating occurs in April and May and females lay their eggs in June, burying them in loose soils at the base of a shrub. Hatching normally occurs in August (Storm, R. M. and W. P. Leonard, 1995) Recent research in Oregon suggests that the Sagebrush Lizard is limited to habitats that have sandy soils. In Washington, all recently confirmed sites are associated with sand dunes or other sandy habitats (Hallock, L.A. and McAllister, K.R. 2005) The Washington Department of Fish and Wildlife recommends that any activities that alter these habitats, such as conversion to agriculture and/or activities that promote the invasion of cheat grass (*Bromus tectorum*), are likely detrimental to Sagebrush Lizard populations (Hallock, L.A. and McAllister, K.R. 2005). Therefore, preventing encroachment by cheat grass post fire is important in maintaining the habitat for sagebrush lizard within the fire area. Stabilization of the area to native grass species will be important for management of this species in the area.

FIRE IMPACTS: The entire 4,918 acres of the Weather Station fire can be considered sagebrush lizard habitat. The lizard eggs were probably not yet hatched, it is likely that any eggs, and young of the year were lost during the Weather Station fire within the fire area. Adult lizards may have also been lost in the fire because they would seek shelter within shrubs. Shrubs have longer fire residency times and burn hotter than surrounding grasses, and therefore lizards likely experienced direct mortality. Those adult lizards that survived the burn, are probably now exposed to predation, as removal of the shrubs would remove any hiding cover. Greater predation by avian and other predators post-fire is expected, which will reduce the population of sagebrush lizards in the fire area. Because little detail is known about the life history and habitat requirements of this species, protecting the lizard's habitat is important to managing for the population on the Monument. Preventing the invasion of cheat grass post-fire is essential for maintaining the population of sagebrush lizards within the fire area.

STRIPED WHIPSNAKE: Striped whipsnakes occur in the Columbia Basin of Central Washington up to 1,985 feet elevation. This is a long slender snake that is dark above with alternating light and dark stripes down the length of the body. Adults range in size from 90 to 180 cm total length. The belly is white and the underside of the tail is pinkish or coral colored. The eyes are large and the pupil is round. The scales are smooth with 15 rows at mid-body. This species is rare throughout most of the Washington portion of its range. Striped whipsnakes have been documented in Washington only 26 times. In the last decade, only 3 observations have been reported. Habitat for this species is low elevation arid regions with scattered vegetation and open rocky areas. Mating

occurs in the spring with eggs being deposited in June. Eggs hatch in the late summer or early fall. This species has been documented to occur at the Hanford site and on SMNWR. Little is known about the habitat requirements in Washington. The areas of Grant County where they occur have relatively undisturbed shrub-steppe habitat with a low cover of cheatgrass.

FIRE IMPACTS: The entire 4,918 acres of the Weather Station fire can be considered striped whipsnake habitat. If present during the fire, striped whipsnakes could have experienced mortality if unable to move quickly or find a burrow. Those that survived would experience temporary displacement. Eggs exposed to heat would have been rendered unviable. Suppression actions which included blading of soils to remove vegetation may have exposed nest sites, thus exposing eggs to environmental conditions and predators. Prey species are primarily lizards, but may include rodents, bats, frogs, birds and other snakes. Habitat for any of these types of species within the fire area was greatly reduced. Therefore, prey species may be less available for the striped whipsnake until the habitat recovers and is repopulated by the various prey species. Invasion of cheat grass into the fire area will reduce the likelihood that this area would recover into habitat that could support striped whipsnakes.

WASHINGTON GROUND SQUIRREL

This area is also potential habitat for the Washington Ground Squirrel, a federal and state candidate for listing as a Threatened species. The Washington ground squirrel is a brownish-gray squirrel with conspicuous white spots on the dorsum. This species occurs only in Washington east of the Columbia River. It prefers sandy soils in dry, open, sagebrush and grassland habitats. This species hibernates 7-8 months per year from June/July through January/February. These squirrels eat succulent vegetation and bulbs in early spring and seeds in the early summer. Burrows are usually about ≤ 3 inches in diameter and entrances are often hidden under bushes or rocks (Yensen, E. And P. W. Sherman. 2003.). There are no known burrows within the fire area however this area has not been thoroughly surveyed to date.

FIRE IMPACTS: Any Washington ground squirrels within the fire area would have been hibernating during the fire. However, depending upon heat and fire intensity, animals may have suffered mortality within their burrows. The removal of shrub cover will impact the habitat for Washington ground squirrels which require shrubs for hiding cover as protection from predation. Further, the potential conversion of native bunch grass areas to annual grasses (cheat grass) will impact the habitat for Washington ground squirrels. Habitat degradation of rangelands and shrub-steppe areas is recognized as a major cause of decline in this species (Yensen, E. and Pp. W. Sherman. 2003). Stabilization and rehabilitation of the area is important to maintain the potential for the area to eventually support Washington ground squirrels.

COLUMBIA BASIN PYGMY RABBIT

This species is extremely rare in Washington only in the Great Basin portion of the Lower Columbia Basin and was emergency listed as a Federally endangered species in November of 2001. The pygmy rabbit is limited to habitat types which contain tall dense sagebrush, and specific soils with limited content of sand for constructing it's burrows. Field observations of the pygmy rabbit indicate heavy reliance on sagebrush, primarily the seed heads and vegetative leaders. Pygmy rabbit diet is comprised of 99% sagebrush in winter and 51% in summer.

FIRE IMPACTS: Prior to the fire, this area of the SMNWR supported approximately 1200 acres of potential habitat for Columbia basin pygmy rabbit, based on a GIS analysis of soils and vegetation (Meisel unpublished data, 2005). The stabilization of sagebrush cover in this area is critical to developing the potential habitat for pygmy rabbit. This area may be important for the eventual recovery of pygmy rabbit in Washington.

BLACK-TAILED JACK RABBIT

The entire 4,918 acres of the Weather Station fire can be considered black-tailed jackrabbit habitat. The black-tailed jackrabbit was once abundant throughout the Columbia Basin. Recent precipitous declines in populations of these hares have raised concerns regarding its distribution and status throughout the region. This species is closely associated with the sage brush steppe ecosystem. Black-tailed jackrabbits rely on sage brush structure for breeding sites and hiding cover, and require sage-brush vegetation as forage during winter months. Hares, unlike rabbits, do not use burrows. They place their young in shallow depressions in the soil called "forms". Jackrabbits are generally solitary and primarily nocturnal. They are vulnerable to predators including, coyotes, bobcats, foxes, hawks, owls, and snakes. Loss of habitat due to agricultural and human development has impacted jackrabbit populations. The fragmentation and isolation of populations residing within remnant habitat areas, has probably increased their vulnerability to stochastic events (e.g. severe weather, disease, fire, etc.) and has limited the re-colonization of areas that could potentially support jackrabbit populations.

FIRE IMPACTS: Black-tailed jackrabbits are known to be relatively fast moving animals. Because these animals are highly mobile, it is anticipated that they would have been able to move out of the way of the fire. Young rabbits, however, if present may have been overwhelmed by the fast moving fire. The loss of sage brush structure and cover reduces the amount of hiding cover for this species, and will increase the vulnerability of jackrabbits to predation. Additionally, the loss of a significant continuous stands of sage exacerbates this effect, because smaller patches do not provide escape cover. If jackrabbits are chased out of the remaining small patches of cover, they will be forced into the open burned over areas and be easily captured and consumed. Impacts to the local jackrabbit population will also affect those animals that prey on jackrabbits, as jackrabbit numbers decrease, there will be less forage for other animals that prey upon jackrabbits.

MULE DEER

Mule deer are a common resident ungulate of the Hanford area. The area of highest density is along the Columbia River. The deer population in the Hanford area is relatively stable. Deer frequently move offsite and are killed by hunters on adjacent public and private lands. Mule deer are primarily browsers and rely on riparian vegetation and bitterbrush for browse. Hunting has not been allowed on any Hanford lands exclusive of the former Wahluke slope wildlife recreation area north of the Columbia River, and there is only limited public use consisting primarily of research activities. Many of the mule deer on the SMNWR reach unusual size, with many animals in older age classes due to the sanctuary that the area provides.

FIRE IMPACTS: Mule deer are highly mobile animals, and it is anticipated that they were able to move out of the affected area during the fire. Recently born fawns, however, may not have been able to move out of the way of the fire, although no mortality of deer fawns was documented during post fire reconnaissance. The greatest impact to mule deer within the burn area is loss of available forage. Regrowth of grasses in upland areas is not anticipated until fall rains begin, possibly in November. Mule deer may forage off of the burn area on private lands, however, because deer are more solitary than herding ungulates (e.g. elk) agricultural depredation is not usually an issue with deer. However, vulnerability to hunting mortality will be increased if deer remain off of the burn area into the late summer and fall hunting season. Private lands adjacent to the burn area are open to hunting. Additionally, deer may also experience some nutritional stress due to loss of forage due to the fire. Lactating does may be at the greatest risk of this type of stress because of the energy demands that lactation produces.

IV. RECOMMENDATIONS

A. Fire Suppression:

Determinations of effect: The fire, suppression actions and proposed emergency stabilization had no affect to the federally listed species, due to the fact that no listed species occur within the fire area. Therefore there is no need for emergency Section 7 Consultation for the Weather Station Fire stabilization and emergency rehabilitation.

B. Emergency Stabilization:

Recommendations with Specifications:

- #2 - Non-native Invasive species control, Native seeding. This specification is critical, as mentioned above in wildlife species assessments, to stabilize the ecological integrity and condition of the burned area and to create a trajectory of recovery that will eventually result in viable habitat conditions for all 12 of the listed species addressed above.
- #3 - Non-native Invasive species control, Native plantings. This specification is critical, as mentioned above in wildlife species assessments, to stabilize the ecological integrity and condition of the burned area and to create a trajectory of recovery that will eventually result in viable habitat conditions for all 12 of the listed species addressed above

C. Management recommendations (Non-Specification Related):

- Permanent photo points and monitoring plots should be established in key wildlife habitat locations to monitor habitat recovery. This should be coordinated with the vegetation monitoring as recommended in the Weather Station Fire BAER Vegetation Report.

- Small mammal monitoring should be conducted using existing trapping grids and should be expanded as needed to determine prey species abundance for the various fire affected species. Reptile monitoring should be conducted and should be expanded as needed to determine potential effects of the fire and associated habitat loss on reptiles.
- The Swainson's hawk nest within the fire area should be checked every few days to determine if the young in the nest have been abandoned by their parents due to the disturbance from the fire. If so, there is the possibility that the fledglings will die of starvation. The juvenile birds should be taken to a wildlife rehabilitator to be raised and then released into the wild, if they appear to be weak or sick.

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BURNED AREA EMERGENCY REHABILITATION PLAN

Weather Station Fire

VEGETATION RESOURCE ASSESSMENT

OBJECTIVES

- Evaluate and assess fire and suppression impacts to vegetation resources and identify values at risk associated with vegetation losses.
- Determine emergency stabilization and monitoring needs supported by specifications to aid in vegetation recovery and soil stabilization.
- Evaluate potentials for invasive species encroachment into native plant communities within the fire area.
- Provide management recommendations to assist in vegetation recovery, watershed stabilization, site productivity and species habitat protection and rehabilitation.

II. ISSUES

- Protection and enhancement of other resource values including site productivity, wildlife habitat, vegetation resources, cultural resources and watershed stability.
- Management strategies which provide for the stabilization, natural regeneration and recovery of impacted areas.
- Immediate stabilization of denuded (i.e. vegetation has been removed) soils that may cause a safety hazard due to blowing dust
- Monitoring of the planting/seeding effectiveness of emergency stabilization efforts.
- Monitoring of impacted lands for the early detection and control of invasive and noxious weed species.

III. OBSERVATIONS

This report identifies and addresses known and potential impacts to vegetation resources within the Weather Station Fire area, Saddle Mountain National Wildlife Refuge (SMNWR). The burned area consists of approximately 4,918 acres of contiguous area, all of which were within the boundaries of the Hanford Reach National Monument (Monument). The vegetation resources can be described as Columbia Basin shrub-steppe plant communities, many of which are considered high-quality or sensitive vegetation. These vegetation resources provide forage and cover for a variety of wildlife species, aesthetic values, watershed stability, and biologically diverse plant associations. Findings and recommendations contained within this assessment are based upon field reconnaissance of the fire area, interviews with local resource specialists, local land managers, and review of relevant documents and literature.

This report will detail the known damage to the vegetation and soil resources; will discuss re-vegetation processes and future monitoring criteria, and will outline management considerations for recovery of vegetation resources.

B. Reconnaissance Methodology and Results

Ground reconnaissance was conducted on July 6, 8 and 11, 2005. Photographs were taken and are in the photo documentation section of this plan. The fire burned in a mosaic pattern on approximately 20 % of the fire area. Vegetation resources were significantly reduced over the remainder of the fire area. The fire consumed 75% of the standing biomass of shrubs, grasses, forbs or killed remaining shrubs through heat scorch over approximately

85 % of the fire area. Blowing dust and ash was observed in areas where all vegetation had been burned and the soils are no longer stabilized by the vegetation.

Literature and GIS data available at the Monument headquarters relating to vegetation resources in the area was consulted for baseline data relating to pre-fire conditions on the burned area.

1. Soils:

Soils within the fire area consist of slackwater fines from Pleistocene floods, sandy clay, sandy loam, and previously stabilized eolian dune systems. The Pasco Basin, and the entire region, is underlain by Miocene-aged basalt that is thousands of feet thick. While the basalt is exposed along the margins of the basin along uplifted anticlines, outcrops in the study area occur only near the crest of the Saddle Mountain anticline, which forms the northern edge of the basin. At lower elevations, the basalt is deeply cloaked beneath ancient sediments deposited by lakes and rivers that flowed into the basin between 8.5 and 3.4 million years ago (Ringold Formation, Late Miocene to Pliocene) and then by loads of sediment deposited during cataclysmic floods that occurred over a period of more than 1.5 million years (Hanford Formation, Pleistocene; Bjornstad and others 2001).

The Ringold Formation is comprised mostly of sand, silt and clay in its upper layers, some of which are cemented by calcium carbonate (Lindsey 1996). At its maximum level, Ringold sediments filled the basin to at least approximately 275 meters elevation. Remnant uplands at this elevation are the Overlook, NIKE and Simmons benches¹, which are located near the east margin of the study area. Between these three benches and Saddle Mountain, the Ringold was carved into a drainage basin by an ancestral river as it flowed west across the study site to join the Paleo-Columbia River (Fecht and others, 2004). The lowest, incised channel(s) of this ancestral river was filled with sand-dominated sediments (Fecht and others, 2004). The sediments in the channel are equivalent in age to the Ringold lacustrine deposits and/or to Ringold paleosols.

Subsequently, between 3.4 and 2.0 million years ago a major drop in the base level occurred, which caused regional downcutting (Baker and others 1991). As a result, the Columbia River migrated eastward and began incising the Ringold Formation to create the White Bluffs and expanded the flood channelways (Baker and others 1991). Along the White Bluffs, the incised, sediment-filled Paleo-river channel was exposed at three sites: north of Saddle Mountain Lake, above Locke Island, and south of the Wiehl ranch (Fecht and others, 2004). The sand-dominated sediment in these exposures has less integrity than the surrounding White Bluffs matrix, and it is currently the primary source of material for active dune sets in the study area. The sediments north of Saddle Mountain Lake are equivalent in age to Ringold lacustrine deposits, while the sediments exposed above Locke Island and south of the Wiehl ranch are filled with laminated glacio-fluvial sands and massive eolian sands (Fecht and others, 2004).

At the Saddle Mountain Lake site, sediment from the exposed Paleo-drainage, together with eolian sediments, cloaks the west end of White Bluffs and fingers onto the gravel-dominated flood channelways. The sandy substrate is typically stabilized to some extent by vegetation, except locally along dune ridges and in blowout dunes. The effectiveness of vegetation to stabilize sandy sites likely fluctuates over time in response to precipitation patterns, fire, physical disturbance, herbivory, and other changes in species dominance.

The Weather Station fire has removed approximately 75% of all vegetative cover within the fire area leaving the sandy soils exposed to wind erosion. High winds are prevalent within this area and wind speeds of 20 MPH plus are common. During field investigations it was noted that all ash had blown off of the sandy soils and dust clouds were visible moving soils and ash onto adjacent private agricultural lands.

High wind warnings are commonplace within the Monument and dust storms often suspend work within the Hanford Nuclear Site. State Highway 24 is adjacent to the fire area and reduced visibility during high wind events is a concern for Monument managers. Dust storms from the fire area now threaten life and property of the general public traveling on Highway 24 through the fire area. Emergency stabilization actions are required to reduce soil erosion, protect site productivity and protect life and property in and around the fire zone.

2. Vegetation:

The Weather Station fire burned approximately 4,918 acres of federal lands north and east of the Vernita Bridge, on the western portion of the SMNWR. The area is part of the recently designated Hanford Reach National Monument. The Monument area was identified as unique and deserving of full protection by Presidential proclamation in 2000. One of the unique features of the Monument that contributed to its establishment is the diversity and vast size of native plant communities. The area has been surveyed by The Nature Conservancy of Washington and the Washington Natural Heritage Program. These surveys have identified a total of 17 terrestrial, native plant community types (or elements) that occurred as 48 separate element occurrences on the Monument. These elements are unique in the state for their character and plant associations. Additionally, 112 populations/occurrences of 28 rare plant taxa were located across the Hanford Site.

Primary plant communities impacted by the fire included the following plant associations:

Needle and Thread Grass/Antelope Bitterbrush/Wyoming Big Sagebrush: Big sagebrush is the dominant shrub, although bitterbrush (*Purshia tridentata*) commonly occurs at varying levels. Thickspike wheatgrass (*Agropyron dasystachum*) may occur in the understory.

Antelope Bitterbrush/Sandberg's bluegrass/Cheatgrass: Wyoming big sagebrush (*Artemisia tridentata*) is frequently present and sometimes co-dominant. This cover type sometimes occurs in interdunes with sorted fine-textured substrate, often with significant cover from Gray and green rabbit brush (*Chrysothamnus nauseosus*, *C. viscidiflorus*) and snow buckwheat (*Eriogonum niveum*), and with some cover from Needle and thread grass and Indian Rice grass (*Stipa comata*, *Oryzopsis hymenoides*). Some areas with this cover type have a high cover of microbiotic crust, which is facilitated by north and neutral aspects, deposition of loess and slightly higher elevations. *Purshia tridentata* currently persists best in areas that don't burn regularly, probably due to low fuel loads or more protected positions in the landscape relative to ignition sources. Where *Eriogonum niveum* co-occurs, some open sand is indicated. Another phase of this cover type occurs on gravel and cobble along the south-facing upper slope of Priest Rapids Bar, where *Salvia dorrii* and occasionally *Grayia spinosa* also occur (Easterly, R. and D. Salstrom. 2004.)

Spiny Hopsage/ Wyoming Big Sagebrush/Sandberg's bluegrass: This community type is characterized by spiny hopsage (*Grayia spinosa*) Wyoming big sagebrush, Sandberg's bluegrass, and low forb diversity. The plant community type is generally confined to locations with soils that are finer-textured than is typical for needle-and-thread associations.

Big Sagebrush/Sandberg's bluegrass/Cheatgrass: This community is primarily composed of Big sagebrush with an understory dominated by Sandberg's bluegrass (*Poa secunda*) mixed with cheatgrass (*Bromus tectorum*). While they often commingle, *P. secunda* and *B. tectorum* are frequently ecologically separated on a fine scale (Easterly, R. and D. Salstrom. 2004.). With Sandberg's bluegrass dominant over cheat grass in the interdune areas, areas with specific microclimates with slightly higher moisture, for example, in specific micro-topographic areas, or in areas under shrubs.

Winterfat/Sandberg's bluegrass: This plant community is primarily composed of winterfat (*Eurotia lanata*) and Sandberg's bluegrass. The abundance of winterfat maybe much reduced from what is was historically with these few areas representing remnant pockets of this vegetation type. Winterfat likely has been locally extirpated from large areas of the site in which it was historically abundant (Easterly, R. and D. Salstrom. 2004.).

Purple sage/cheatgrass: *Salvia dorrii/Bromus tectorum*. The structure is generally open, with little cover by grass. This type generally occurs on coarse, gravelly substrates.

Species diversity within each of the major community types has been altered in some areas due to the activities of neo-European people that entered the region beginning 200 years ago. In more recent history, alien plants were introduced and established a foot-hold in the shrub-steppe communities with the advent of livestock grazing in the mid-1800's and through agricultural cultivation and urbanization later in the century. More recently, this area has been extensively impacted by grazing activities administered by the Washington Department of Fish and Wildlife during the 1970's and 80's.

Vegetation within this area has also been altered through the establishment of cheatgrass within sage communities and the shortening of the natural fire return interval. Historically, fire return intervals were between 50-100 years in the shrub-steppe region. Fires burned in a mosaic fashion across the landscape leaving many healthy remnant stands of bunchgrass and sage. The mosaic fire patterns allowed for the survival of healthy sage communities and habitat for wildlife species.

Within the Big sagebrush community, cheatgrass provided ladder fuels for fire to quickly spread into and throughout these stands. In areas where native bunchgrass dominated the understory, fire impacts to some shrub stands were greatly reduced.

3. Vegetation/Structural Impacts

Vegetation resources were directly impacted by the Weather Station Fire and by suppression tactics utilized to control the fire. Documented impacts to vegetation resulted from:

- a) Construction of diskline on previously undisturbed sites.
- b) Impacts to native microbiotic crust, shrub and grass species during line construction, suppression and mop-up activities
- c) Reduction of fuels and vegetation ahead of the fire-front (backfire operations).
- d) Vegetation losses due to fire intensity. Most sagebrush and grassland communities were completely consumed and/or scorched. Some additional loss is expected within remaining shrub communities.
- e) Loss of the organic litter layer on approximately 90 percent of the fire area.
- f) Damage to structural improvements, (e.g. boundary fence) by suppression actions. Fences were cut or damaged.

Generally speaking, most sagebrush and bunch grass communities experienced greater than 75% vegetation loss of above ground cover. On approximately 80% of the fire area, complete consumption of vegetation resources was observed. Most shrub, grass and forb species and organic material on the soil surface was consumed indicating extreme fire intensity.

A mosaic burn pattern was observed and mapped on approximately 20% of the fire area. However, in these areas some loss of shrubs is still predicted to occur due to mortality from heat produced by the fire and seasonally dry weather conditions.

Most of the forb species were consumed. Although the fire burned at varying intensities across the landscape, in most cases the residency time of the fire was short enough so as not to damage the soil, existing root systems, or reduce native seed banks in the known habitats of these plants (however, see T & E plant assessment). Burying of native seeds through wind deposition of soils now threatens the natural regeneration of native species in sandy soil types.

Negative impacts resulting from vegetation losses include a significant reduction in wildlife habitat, forage for wildlife species, visual quality degradation, increased non-native species invasion, bare soils, and reduced species diversity. The loss of wildlife habitat, and potential impacts to Threatened and Endangered Species are discussed further within the Wildlife Assessment.

Ground disturbing impacts to SMNWR property came in the creation of fire breaks using bull dozers and disks. A complete inventory was conducted of disked lines and dozerlines on the fire area and emergency stabilization needs assessed (see Operations assessment).

Additional losses surveyed during field reviews were fire impacts on boundary fences. Boundary fence between SMNWR and private lands were negatively impacted. Stretch posts and wire were damaged by the fire and will require repair. (See Operations Assessment).

B. Vegetation Recovery

Revegetation of the fire area through natural processes will take between 7-30 years to visually represent pre-fire conditions. However, due to the presence of non-native plants and noxious weeds, the site is at risk of becoming dominated by non-native annuals, in particular, cheatgrass. Without active restoration it is unlikely that the site will recover to its pre-fire characteristics. Some impacted plant communities will take decades to re-establish back to pre-fire levels. Most research indicates that fire will eliminate spiny hopsage altogether and sagebrush for at least several years. Because big sagebrush reproduces by seed and not by sprouting, recovery can be very prolonged on many sites. Concern has been expressed about the re-establishment of critical sagebrush communities for agency listed T&E wildlife habitat and the protection of the ecological integrity of the shrub-steppe community.

During the course of the fire, backfires were set (see Suppression Impact Map- Appendix III) to slow or stop the advancing fire front. In initiating this type of suppression action, native shrub-steppe habitat was lost thereby creating potential short and long-term impacts to T&E plant and wildlife species.

Other direct impacts to vegetation include the loss of shrub lands previously occupied by dense vegetation which are now open and traversable. Although the fire area is within a closed section of the SMNWR, increased trespass use into areas might be expected and could have negative impacts to wildlife, microbiotic crusts, government property, vegetation recovery, and cultural resources. Impacts to natural regeneration process and the protection of cultural resources will be jeopardized if travel/ trespass within the fire area is not monitored for the remainder of this calendar year.

1. Noxious Weed Establishment

Invasive alien plant species pose one of the most serious threats to the native biodiversity, wildlife habitat, and scenic values which the Hanford Reach National Monument was declared to protect, and for which the entire Hanford Site is well known (Soll et al. 1999). At Hanford, as elsewhere in western North America, invasive and noxious alien plant species compete against and reduce habitat available for rare plant taxa and native plant species in general. Weeds alter ecosystem structure and function, disrupt food chains and other ecosystem characteristics vital to wildlife (including rare and endangered species), and can dramatically alter key ecosystem processes such as hydrology, productivity, nutrient cycling, and fire regime. Conditions created by wildfire favor the spread of many noxious weed species (Evans, J.R., J.J. Nugent, and J.K. Meisel, 2003).

The establishment of invasive species and noxious weeds which will compete with native vegetation recovery is likely. During field assessment inventories, the vegetation specialist recorded sightings of diffuse, and Russian knapweed; bull thistle and kochia. Diffuse knapweed (*Centaurea diffusa*), kochia (*Kochia scoparia*), bull thistle (*Convolvulus arvensis*) and Russian thistle (*Salsola kali*) infestations are located near the fire area (Appendix V-Maps). These noxious weeds spread vigorously, and are a threat to the burned area. Each of these species is currently located along existing road systems and/or in areas near the fire. Most of the knapweed species are beginning to blossom and will set seed by the end of July. It is imperative to treat known populations prior to seed-set in order to reduce the expansion potentials of these populations into the fire area. Immediate treatment of these populations is recommended.

Additionally, the fire area is considered a disturbed site, and is at risk of invasion from non-native species.. Upon the discovery of new noxious weed populations, accurate population information should be collected through the use of Global Positioning Systems (GPS) to determine infestation size, original source and potential control

methods. Control efforts will be implemented in accordance with the Invasive species management plan guidelines and protocols.

The U.S. Fish and Wildlife Service will utilize an Integrated Pest Management (IPM) approach to treat targeted invasive plant species on the Hanford Reach National Monument. Manual, mechanical, biological, cultural (e.g., prescribed fire, competitive plantings), and chemical treatment methods will be utilized to achieve prioritized weed control objectives. Invasive species managers will draw upon the full range of appropriate control technologies to develop integrated treatment plans for target species at selected priority sites. Treatment methodologies will be based upon the best information available from weed management literature and professional experience, tailored to the characteristics of the particular species and site.

2. Revegetation

Concern has been expressed concerning the loss of vegetation cover on the sandy soils of the Weather Station fire area along Highway 24. Natural re-vegetation of the sand dunes will be slow and will take many years to stabilize these areas. Stabilization and re-vegetation of those areas as needed to protect public safety along the road way. Revegetation should be conducted in order to protect soils in the area, and reduce ecological change due to further erosion and degradation. Wind erosion is highly likely in this area. Additionally, because the site is at risk from non-native species and noxious weeds, re-vegetation must be completed to protect the plant community and ecology of the site. As stated above, it is unlikely that the fire area will recover without some intervention and active restoration effort.

IV. RECOMMENDATIONS

A. Fire Suppression Rehabilitation:

Suppression account -Dozer/Disc line Rehabilitation- Reseed all disturbed areas resulting from suppression actions with native seed species to protect the ecological integrity of the area. Seeding will be postponed until fall of 2005 or until such time as adequate moisture provides a firm seedbed for stabilization actions.

B. Emergency Stabilization : (specification related)

The following recommendations are offered to assist in the timely recovery of the Weather Station Fire:

-1 Non-Native Invasive Species Control- Integrated Pest Management- Identify and treat non-native invasive species within the Weather station fire area, and control infestations in areas adjacent to the Weather Station Fire area utilizing integrated pest management techniques.

#-2 Ecological Stabilization- Native Grass Seeding- Apply native seed mix in burned area to stabilize ecological integrity of native shrub steppe community, prevent invasion by noxious weeds and non-native species, stabilize soils and reduce erosion that threatens public safety and site degradation.

-3 Ecological Stabilization - Native shrub planting - Collect native seed, grow out in nursery setting, and plant seedlings within the Weather Station fire area to re-establish shrub species within fire area.

#- 6 Effectiveness Monitoring- Monitor non-native invasive species control treatments and seeding treatment in first year following native grass seed planting to determine success of revegetation efforts and to determine if additional treatments are required to protect and maintain ecological integrity of the site.

C. Rehabilitation (non-specification related treatments)

- Submit long-term rehabilitation plan as required to stabilize soils, control non-native invasive species and protect ecological integrity of the site.

D. Management Recommendations (non-specification related)

- Coordinate emergency stabilization needs with the Department of Energy to ensure public safety is protected along State Highway 24.
- Re-establish boundary fences and Refuge closure signs along irrigation rights-of-way to protect stabilization treatments and reduce trespass potentials.
- Increase law enforcement patrols through the fire area until vegetation is re-established

VI. References:

- Easterly, R. and D. Salstrom. 2004. Current vegetation map of Saddle Mountain, Wahluke and Ringold Units, Hanford Reach National Monument. SEE botanical consulting, Report to the U.S. Fish and Wildlife Service.
- Evans, J. R., J.J. Nugent, and J. K. Meisel. 2003. Invasive Plant Species Inventory and Management Plan for the Hanford Reach National Monument. Report to U.S. Fish and Wildlife Service, The Nature Conservancy of Washington, Seattle, Washington.
- The Nature Conservancy of Washington. 1999. Biodiversity Inventory and Analysis of the Hanford Site. Final Report. 1994-1999.
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- Washington State Department of Natural Resources, 2000. Field Guide to Washington's Rare Plants.
- Fire Effects Information System (FEIS)- National Interagency Fire Center Web Site
- Proclamation 7319 of June 9, 2000. Establishment of the Hanford Reach National Monument.
- National Wildlife Refuge System Improvement Act of 1997.
- USFWS. Fire Management Handbook. Emergency Fire Rehabilitation Standards.
- Joel G. Peterson. 1995. Ecological Implications of Sagebrush Manipulation.
- C.A. Brandt et al. 1999. Plant Reestablishment After Soil Disturbance: Effects on Soil, Treatment, and Time.
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- David N. Smith, Natural Resources Specialist, and Heidi L. Newsome, Wildlife Biologist - Hanford Reach National Monument 509-371-1801

BURNED AREA EMERGENCY REHABILITATION PLAN

Weather Station Fire

THREATENED AND ENDANGERED PLANT RESOURCES ASSESSMENT

I. OBJECTIVES

- Identify and locate threatened and endangered plant species impacted by fire and/or suppression actions.

II. ISSUES

- Determine impacts of fire to three state listed threatened, endangered and sensitive plant species and/or habitat.

III. OBSERVATIONS

Emergency consultation was held with the U.S. Fish and Wildlife Service (USFWS) on July 7, 2005 for threatened and endangered (T&E) species known to occur within the Weather Station Fire area in Grant, County, Washington. A current USFWS species list for the county and GIS data layers for the Monument were consulted. No federally listed plant species were identified, however, one previously inventoried state listed species, and two state sensitive species had been previously documented to occur within the fire area.

Washington State listed species known to occur within the fire area will be discussed within this assessment due to management guidelines and policies administered by the USFWS for the impacted lands. All planning documents covering the Monument focus on the preservation and protection of the shrub-steppe as a primary management goal. Current management direction provides for the protection, monitoring and recovery of federally listed and state listed threatened, endangered, and sensitive species. T&E plants will be discussed separately in order to better document current information regarding habitat and fire effects to each species.

B. Reconnaissance Methodology and Results

On July 7, 2005 emergency consultation was initiated with the USFWS field office in Wenatchee, Washington to verify documented T&E species (flora and fauna) within the fire area. A current species list was obtained for Grant County, Washington. At that time it was confirmed that the list contained two federally listed T&E plant species and three known species of concern that occur in Grant County, Washington. Vegetation layers within the Monument GIS system were reviewed and no locations of the federally listed plants were discovered. However one state threatened species and two state sensitive species do have records showing occurrence within the fire area (Appendix V).

The sensitive plant species that were identified within the fire area include:

<i>Camissonia pygmaea</i> (dwarf evening primrose)	SS
<i>Camissonia minor</i> (small-flower evening primrose)	SS
<i>Eatonella nivea</i> (white eatonella)	ST

The following listed species were identified as occurring, or having habitat within, Grant County. However, through post fire reconnaissance and consultation with local experts, it was determined that these species were **NOT** affected by the fire because they have no habitat within or adjacent to the fire area, and/or inventories prior to the fire determined absence, or the fire is outside of the species range.

<i>Spiranthes diluvialis</i> (Ute ladies'-tresses), plant	T/SE
<i>Artemisia campestris</i> sp. <i>borealis</i> var. <i>wormskioldii</i> (Northern wormwood), plant	C/SE
<i>Cryptantha leucophaea</i> (Gray cryptantha), plant	FSC/SS
<i>Lomatium tuberosum</i> (Hoover's desert-parsley), plant	FSC/SS
<i>Oxytropis campestris</i> var. <i>wanapum</i> (Wanapum crazyweed), plant	FSC/SE

KEY TO LISTING STATUS:

E	FEDERAL ENDANGERED
T	FEDERAL THREATENED
C	FEDERAL CANDIDATE
FSC	FEDERAL SPECIES OF CONCERN
SC	STATE CANDIDATE
SE	STATE ENDANGERED
ST	STATE THREATENED
SS	STATE SENSITIVE
SM	STATE MONITOR
TI	TRIBAL IMPORTANCE

A review was also conducted using the Fire Effects Information System (FEIS) at the National Interagency Fire Center to determine known effects on these species. A review of the FEIS system was conducted on July 12, 2005 and showed that no current information is recorded within this data base pertaining to known fire effects. To date, no known comprehensive studies have been conducted to document fire effects on the currently listed T&E species within these shrub-steppe plant communities.

Outlined below is a brief synopsis of the associated habitat(s) for the listed species and potential fire impacts to each:

Dwarf evening primrose (*Camissonia pygmaea*):

Habitat: *Camissonia* is a perennial forb that favors dry, open habitats, occurring on stony soils, basalt blocks, cobbles with silt, sand and caliche fragments. The surrounding plant community is bitterbrush/Sandberg's bluegrass.

Findings: This species is known to occur in the fire area on south-facing slopes. During the Weather Station incident, fire intensity was low and vegetative losses were minimal as the fire burned in a mosaic fashion. Southerly slopes within the fire are burned at a very low intensity. Monitoring of post-fire populations will be needed in order to determine any detrimental impacts to the species.

Camissonia minor (small-flower evening primrose)

Habitat: On the Hanford Site, *C. minor* generally occurs on very dry, often barren, and sometimes disturbed sites. Populations grow in conjunction with a number of rare plant species including: *Eriogonum codium*, *C. pygmaea*, *Astragalus columbianus*, *Oenothera caespitosa* subsp. *caespitosa*, *Erigeron piperianus*, *Gilia leptomeria*, *Loeflingia squarrosa* var. *squarrosa*, and *Calyptidium roseum*.

Findings: This species is known to occur in the fire area on south-facing slopes. During the Weather Station incident, fire intensity was low and vegetative losses were minimal as the fire burned in a mosaic fashion through the area where the plant occurs. Southerly slopes within the fire are burned at a very low intensity. Monitoring of post-fire populations will be needed in order to determine any detrimental impacts to the species.

Eatonella nivea (white eatonella):

Habitat: Occurs on poorly developed soils in dry, sandy or volcanic desert areas. Known Washington occurrences are located in fine, pea-sized gravel that is derived from basalt and is deep red in color. Sites that support the taxon are rather sparsely vegetated, usually with no apparent cryptogam layer. Shrubs are often present, with cover values of 5-20%. Species that have been listed as associates of *E. nivea* in WA include big

sagebrush (*Artemisia tridentata*), antelope bitterbrush (*Purshia tridentata*), grayball sage (*Salvia dorii*), matted cryptantha (*Cryptantha circumscissa*), threadleaf scorpionweed (*Phacelia linearis*), blazingstar (*Mentzelia laevicaulis*), snow buckwheat (*Eriogonum niveum*), and cheat grass (*Bromus tectorum*).

Findings: This species is known to occur in the fire area on south-facing slopes. During the Weather Station incident, fire intensity was low and vegetative losses were minimal as the fire burned in a mosaic fashion through the area where the plant occurs. Southerly slopes within the fire are burned at a very low intensity. Monitoring of post-fire populations will be needed in order to determine any detrimental impacts to the species.

III. Indirect Effects

Indirect effects are those that may occur or are anticipated to occur which may be beneficial or detrimental to the species. As discussed above, monitoring of T&E species will be required in order to better quantify the effects of the Weather Station Fire on each species and its related habitat.

Indirect detrimental effects to these species could result from competition from invasive plant species, potential loss of soil productivity due to wind erosion, loss of seed viability when exposed to the elements.

However, it is important to note that beneficial effects may assist some species in their recovery or provide opportunities for species enrichment. In those areas where fire intensity was low and the fire burned in a mosaic fashion, some benefits to T&E species may be derived. These benefits may result from: the release of nutrients back into the soil profile; a reduction in competition for soil nutrients, sun, and soil moisture from other perennial species for the first 1-2 years during the recovery period; and the re-establishment of plants from roots and soil seedbanks. It was noted that all of the state listed T&E species are forbs which had completed their life cycle for this growing season. Although the fire burned at varying intensities across the landscape, in most cases the residency time of the fire was short enough so as not to damage the soil, existing root systems, or reduce native seed banks in the known habitats of these plants.

Close monitoring of the known sites of T&E species with careful documentation of effects will be important to gain a better understanding of the fire effects to these species within the affected plant associations. Monitoring work is also needed to comply with FWS and Monument mandates for the protection and prevention of unacceptable degradation of T&E species. Information collected should be added into the existing FEIS system to ensure that fire effects data is available in the future for these species.

IV. RECOMMENDATIONS

A. Emergency Stabilization (specification related)-None

B. Rehabilitation :

1. Monitor T&E Plant Species Recovery: Conduct short-term monitoring (2 years) on known locations of *Cammissonia pygmaea*, *Cammissonia minor*, and *Eatonella nivea* within the fire area to determine fire effects on these species. Surveys should be conducted in cooperation with the Washington State natural heritage program to determine fire effects on these species and their post-fire recovery potentials.

V. LITERATURE REVIEWED:

July 7, 2005. USFWS T&E Species List for Grant County, Washington State.

USDI-DOI. *Effects of Fire on Threatened and Endangered Plants: An Annotated Bibliography.*

The Nature Conservancy of Washington. 1999. Final Report. 1994-1999. *Biodiversity Inventory and Analysis of the Hanford Site.*

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BURNED AREA EMERGENCY REHABILITATION PLAN

Weather Station Fire

OPERATIONS ASSESSMENT

I. OBJECTIVES

- Identify, inventory, and map fire suppression impacts on jurisdictions affected by the fire.
- Specify rehabilitation measures to mitigate fire suppression impacts.
- Coordinate with local agencies so that specification recommendations are consistent with agency objectives.
- Protect natural and cultural resource values during rehabilitation efforts.

II. ISSUES

- Potential impacts to critical natural and cultural resources from suppression actions.
- Extensive soil disturbance on highly erodible soils from fire suppression activities.
- Damage to fences within fire perimeter associated with fire suppression actions.

III. OBSERVATIONS

A. Background

Please refer to fire history summary.

B. Reconnaissance Methodology and Results

On July 6, 2005 HRNM staff began evaluating resource impacts caused by the suppression effort on lands and physical improvements with the Weather Station fire area. Team members did reconnaissance from the ground and obtained information from suppression forces. Information was also gathered from interviews with Division Supervisors, and from engine crews assigned to the fire.

C. Findings

The Weather Station fire burned approximately 4,918 acres on the Hanford Reach National Monument. Approximately 3.0 miles of diskline was created to stop the fire. Approximately 7 miles of fence was impacted by suppression crews and backfiring operations along the HRNM boundary to prevent fire spread onto adjacent private lands and across State Highway 24.

Rehabilitation of suppression line is necessary to protect habitats from noxious weed infestation, ORV intrusion on the landscape and to minimize fragmentation of ecological areas. Monitoring of suppression lines is necessary to determine the need for future noxious weed mitigation needs. Disklines within the burned area on lands managed by FWS will be treated according to methods described in the Hanford Site Biological Resource Management Plan (HSBRMP, 1996). A complete cultural resources assessment has been completed on all suppression lines within the fire (refer to Cultural Resources Assessment). Private land owners to the north of the fire have not requested rehabilitation assistance to date.

There are four types of suppression impacts to be considered:

- Diskline built on FWS which require restoration and revegetation. This will require adequate soil moisture to establish a firm seedbed prior to reseeding actions.
- Repair of the boundary fence and interior fence on the HRNM.
- Access roads to the fire area that were used for suppression actions are now impassible due do the amount of lose powdery soils resulting from the destruction of soil structure in the upper horizons. These roads will be rehabilitated as weather permits (accumulation of adequate moisture).

IV. RECOMMENDATIONS

A. Fire Suppression- (non-specification related-charged to suppression account)

- **Diskline and Road Rehabilitation.** Rehabilitate disklines and other sites directly or indirectly impacted by fire suppression activities. Diskline rehab should be done at a later date due to the degraded soil conditions at this time. This activity should take place in the late fall or early winter when soil moisture content is higher.
- **Fence Repair-** Repair suppression damaged fence around perimeter of the fire between HRNM boundary and other private lands.

B. Management (non-specification related)

- Continue to review rehabilitation specifications with operators and other personnel associated with implementation of the BAER Plan to insure suppression rehabilitation specifications are clearly understood for protection of sensitive resources and land productivity. Ensure proper accounting procedures are followed in the repair of suppression related impacts through suppression accounts.
- Guarantee safety of personnel assigned to rehab operational assignments in the fire area.
- Monitor suppression related damage on dirt roads following fall and winter moisture events to see if additional rehab measures are necessary.

V. CONSULTATIONS

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Heidi Newsome, Wildlife Biologist, FWS
Eric Hagen, Fire Management Officer, FWS
Mike Ritter, Deputy Project Leader, FWS
David N. Smith, Natural Resource Specialist, FWS

VI. REFERENCES

USDI, 1995. BAER Field Team Leader Reference Book
DOE, 1996. Hanford Site Biological Resource Management Plan

BURNED AREA EMERGENCY REHABILITATION PLAN
WEATHER STATION FIRE-HANFORD REACH NATIONAL MONUMENT

APPENDIX II ENVIRONMENTAL COMPLIANCE

- **Environmental Compliance Considerations and Documentation**
- **NEPA Environmental Screening Checklist and Categorical Exclusion**



APPENDIX II - ENVIRONMENTAL COMPLIANCE

ENVIRONMENTAL COMPLIANCE CONSIDERATIONS, DOCUMENTATION, AND CONSULTATIONS

Weather Station Fire Burned Area Emergency Stabilization Plan

FEDERAL, STATE, AND PRIVATE LANDS ENVIRONMENTAL COMPLIANCE RESPONSIBILITIES

All projects proposed in the Weather Station Fire Burned Area Emergency Rehabilitation (R) Plan that are prescribed, funded, or implemented by Federal agencies on Federal, State, or private lands are subject to compliance with the National Environmental Policy Act (NEPA) in accordance with the guidelines provided by the Council on Environmental Quality (CEQ) Regulations (40 CFR 1500-1508); Department of the Interior Manual, Part 516, U.S. Fish and Wildlife Service, NEPA Guidelines, Part 516 DM 6, Appendix 1; and DOE, NEPA Regulations (10 CFR Part 1021). This Appendix documents the BAER Team considerations of NEPA compliance requirements for prescribed rehabilitation and monitoring actions described in this plan for all jurisdictions affected by the Weather Station Fire burned area emergency stabilization.

B. RELATED PLANS AND CUMULATIVE IMPACTS ANALYSIS

Draft Hanford Biological Resources Management Plan and Final Hanford Comprehensive Land-Use Plan Environmental Impact Statement: The BAER Team Environmental Protection Specialist reviewed the Draft Hanford Biological Resources Management Plan (1996) and Final Hanford Comprehensive Land-Use Plan Environmental Impact Statement (September 1999) and determined that actions proposed in the Weather Station Fire BAER Plan within the boundary of the Hanford Reach National Monument are consistent with the management objectives established in the Land-Use Plan. The EIS incorporates the management plan by reference. The EIS/management plan specifically addresses bulldozer lines and provides NEPA compliance for bulldozer line rehabilitation under NEPA.

Cumulative Impact Analysis: Cumulative effects are the environmental impacts resulting from the incremental impacts of a proposed action when added to other past, present, and reasonably foreseeable future actions, both Federal and non-Federal. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time. The emergency protection and stabilization treatments for areas affected by the Weather Station Fire, as proposed in the Weather Station Fire ES Plan, do not result in an intensity of impact (i.e. major ground disturbance, etc.) that would cumulatively constitute a significant impact on the quality of the environment. The treatments are consistent with the above jurisdictional management plans and associated environmental compliance documents and categorical exclusions listed below.

C. APPLICABLE AND RELEVANT CATEGORICAL EXCLUSIONS

U.S. Fish and Wildlife Service: The individual actions proposed in this plan for Hanford Reach National Monument are Categorically Excluded from further environmental analysis as provided for in the Department of the Interior Manual Part 516 and U.S. Fish and Wildlife Service, NEPA Guidelines, Part 516 DM 6, Appendix 1. All applicable and relevant Department and Agency Categorical Exclusions are listed below. Department exceptions (516) DM 2.3 do not apply to any of the individual actions proposed. Categorical Exclusion decisions were made with consideration given to the results of required emergency consultations completed by the BAER Team and documented in Section E below.

Applicable Departmental Categorical Exclusions

516 DM2 App. 2, 1.6	Non-destructive data collection, inventory (including field, aerial, and satellite surveying and mapping), study, research and monitoring activities.
516 DM 6 App. 4.4 A	Operations, maintenance, and replacement of existing facilities (includes road maintenance).
516 DM 6 App. 4.4 L(5)	Emergency road repairs under 23 U.S.C. 125.
516 DM 6 App. 7.4 C(3)	Routine maintenance and repairs to non-historic structures, facilities, utilities, grounds and trails.
516 DM 6 App. 7.4 C(19)	Landscaping and landscape maintenance in previously disturbed or developed areas.

Applicable U.S. Fish and Wildlife Service Categorical Exclusions

516 DM 6 App. 1.4B (1)	Research, inventory, and information collection activities directly related to the conservation of fish and wildlife resources which involve negligible animal mortality of habitat destruction, no introduction of contaminants, or no introduction of organisms not indigenous to the affected ecosystem.
516 DM 6 App. 1.4B (3) i	The installation of fences.
516 DM 6 App. 1.4B (3)iii	The planting of seeds or seedlings and other minor revegetation actions.
516 DM 6 App. 1.4B (3)v	The development of limited access for routine maintenance and management purposes.
516 DM 6 App. 1.4B (5)	Fire management activities, including prevention and restoration measures, when conducted in accordance with Departmental and Service procedures.516 DM 6 App. 1.4B (6). The reintroduction or supplementation (e.g. stocking) of native, formerly native, or established species into suitable habitat within their historic or established range, where no or negligible environmental disturbances are anticipated.

D. STATEMENT OF COMPLIANCE FOR THE WEATHER STATION FIRE BURNED AREA EMERGENCY STABILIZATION PLAN

This section documents consideration given to the requirements of specific environmental laws in the development of the Weather Station Fire BAER Plan. Specific consultations initiated or completed during development and implementation of this plan are also documented. The following executive orders and legislative acts have been reviewed as they apply to the Weather Station Fire BAER Plan:

- 1. National Historic Preservation Act (NHPA).** The BAER Team archeologists have initiated necessary consultation with the Washington State Historic Preservation Office (SHPO) and the Yakama, Umatilla, Nez Perce, and Wanapum Tribes regarding treatments proposed in the Weather Station Fire BAER Plan.
- 2. Executive Order 11988. Floodplain Management.** No treatments are proposed within the 100-year floodplain.
- 3. Executive Order 11990. Protection of Wetlands.** No treatments are proposed within jurisdictional wetlands.

4. Executive Order 12372. Intergovernmental Review. Coordination and consultation is ongoing with affected Tribes, Federal, State, and local agencies. A copy of the BAER Plan will be disseminated to all affected agencies.
5. Executive Order 12892. Federal Actions to Address Environmental Justice in Minority and Low-Income Populations. All Federal actions must address and identify, as appropriate, disproportionately high and adverse human health or low-income populations, and Indian Tribes in the United States. The BAER Team Environmental Protection Specialist has determined that the actions proposed in this plan will result in no adverse human health or environmental effects for minority or low-income populations and Indian Tribes.
6. Endangered Species Act. The BAER Team wildlife biologist and vegetation specialists have consulted with the Service and Washington Department of Fish and Wildlife regarding actions proposed in this plan and potential affects on Federally and State listed species. Individual agencies are responsible for continued consultations during plan implementation.
7. Secretarial Order 3127. Although contaminated sites are known to occur on properties owned by the Hanford National Laboratory, no treatments are proposed that would affect contaminated sites. There are no known contaminated sites on other jurisdictions affected by the Weather Station Fire.
8. Clean Water Act. No treatments are proposed within jurisdictional wetlands.
9. Clean Air Act. Federal Ambient Air Quality Primary and Secondary Standards are provided by the National Ambient Air Quality Standards, as established by the U.S. Environmental Protection Agency (EPA) (Clean Air Act, 42 U.S.C. 7470, et seq., as amended). The BAER Team Environmental Protection Specialist has determined that treatments prescribed in the Weather Station burned area will have short-term minor impacts to air quality that would not differ significantly from routine land use practices for the area. Long-term, treatments proposed in this plan would be expected to have a beneficial impact to air quality through stabilization of ash and soils within the Weather Station Fire burned area.

E. CONSULTATIONS

Department of Energy, Hanford National Laboratory

Tom Ferns, Program Manager, Richland Operations Office

NEPA Checklist: If any of the following exception applies, the ESR Plan cannot be Categorically Excluded and an Environmental Assessment (EA) is required.

(Yes) (No)

- (X) Adversely affect Public Health and Safety
- (X) Adversely affect historic or cultural resources, wilderness, wild and scenic rivers aquifers, prime farmlands, wetlands, floodplains, ecologically critical areas, or Natural Landmarks.
- (X) Have highly controversial environmental effects.
- (X) Have highly uncertain environmental effects or involve unique or unknown environmental risks.
- (X) Establish a precedent resulting in significant environmental effects.
- (X) Relates to other actions with individually insignificant but cumulatively significant environmental effects.
- (X) Adversely effects properties listed or eligible for listing in the National Register of Historic Places
- (X) Adversely affect a species listed or proposed to be listed as Threatened or Endangered.
- (X) Threaten to violate any laws or requirements imposed for the "protection of the environment" such as Executive Order 1 1 988 (Floodplain Management) or Executive Order 1 1 990 (Protection of Wetlands).

National Historic Preservation Act

Ground Disturbance:

- None
- Ground disturbance did occur and an archeologist survey, required under section 110 of the NHPA has been prepared. Findings have been documented in Appendix I- Cultural Resources Assessment.

A NHPA Clearance Form:

- Is required because the project may have affected a site that is eligible or on the national register. The clearance form is attached. SHPO has been consulted under Section 106 (see Cultural Resource Assessment, Appendix I).
- Is not required because the ESR Plan has no potential to affect cultural resources (initial of cultural resource specialist).

Other Requirements

(Yes) (No)

- () Does the ESR Plan have potential to affect any Native American uses? If so, consultation with affiliated tribes is needed.
- () Are any toxic chemicals, including pesticides or treated wood, proposed for use? If so, local agency integrated pest management specialists must be consulted.

I have reviewed the proposals in the Weather Station Fire Burned Area Emergency Stabilization Plan in accordance with the criteria above and have determined that the proposed actions would not involve any significant environmental effect. Therefore it is categorically excluded from further environmental (NEPA) review and documentation. ESR Team technical specialists have completed necessary coordination and consultation to insure compliance with the National Historic Preservation Act, Endangered Species Act, Clean Water Act and other Federal, State and local environment review requirements.

ES Team Environmental Protection Specialist

Date

Project Leader, Hanford Reach National Monument

Date

**BURNED AREA EMERGENCY REHABILITATION PLAN
WEATHER STATION FIRE- HANFORD REACH NATIONAL MONUMENT**

APPENDIX III: PHOTO DOCUMENTATION

- Soil Erosion Issues
- Vegetation Resources Issues
- Public Safety Issues
- Wildlife Resource Issues
- Suppression impacts





Pre-fire vegetation within Weather Station Fire Area. Photos taken Summer 2004.

POST FIRE PHOTOS



Photo 1



Photo 2

Photos 1 & 2: Wind erosion (ablation) occurring on the Weather station fire area. Note all of the ash from the burn has already blown away, leaving only exposed sand.



Photo 9

Photo 9: Suppression impacts, disc line along south fire boundary.



Photo 10

Photo 10 and 11: Very few small patches of shrub remain post-fire. Less than 15% of the fire area had unburned refugia. Many of the shrubs in these areas will die off due to the heat stress from the fire and also due to the dry seasonal weather

pattern.



Photo 11



Photo 12

Photo 11: More scorched area, very little vegetation survived burning.

**BURNED AREA EMERGENCY REHABILITATION PLAN
WEATHER STATION FIRE- HANFORD REACH NATIONAL MONUMENT**

Appendix IV Supporting Documentation

- **Section 7 Consultation Letter**
- **Cost/Risk Analysis**





United States Department of the Interior

FISH AND WILDLIFE SERVICE

Central Washington Field Office
215 Melody Lane, Suite 119
Wenatchee, Washington 98801



July 7, 2005

MEMORANDUM

To: Heidi Newsome, Hanford Reach National Monument/Saddle Mountain NWR

From: Mark G. Miller, Project Leader, Central Washington Field Office

Subject: Species List for the Weather Station Fire (HUC 17-02-00-16; USFWS reference 1-09-2005-SP-W0315)

Attached is the species list you requested on July 7, 2005, for the Weather Station Fire. In our telephone conversation, you described that the primary purpose of the species list was for use in the fire rehabilitation plan as no listed species are present; as such, emergency consultation is not required. Below are our general recommendations regarding assessment of the proposed action to listed, proposed, and candidate species, as well as species of concern.

COMMENTS

Major concerns that should be addressed in your biological assessment of project impacts to listed threatened, endangered, or proposed animal species are:

1. Level of use of the project area by listed species.
2. Effect of the project on listed species' primary food stocks and foraging areas in all areas influenced by the project.
3. Impacts from project construction and implementation (e.g. increased noise levels, increased human activity and/or access, loss or degradation of habitat) which may result in disturbance to listed species and/or their avoidance of the project area.

Major concerns that should be addressed for listed or proposed plant species are:

1. Distribution of taxon in project vicinity.
2. Disturbance (trampling, uprooting, collecting, etc.) of individual plants and loss of habitat.
3. Changes in hydrology where taxon is found.

Candidate species are those species for which the U.S. Fish and Wildlife Service has sufficient information to propose for listing as threatened or endangered under the Act. Species of concern (some of which are former Category 1 and Category 2 candidates) are those species whose conservation standing is of concern

to the Service, but for which status information is still needed. Conservation measures for species of concern and candidate species are voluntary but recommended. Protection provided to these species now may preclude possible listing in the future.

For information regarding species listed by NOAA Fisheries, please visit the following website <http://www.nwr.noaa.gov/1salmon/salmesa/index.htm> or call (509) 962-8911 in Ellensburg, Washington.

If you have any questions regarding this letter or your responsibilities under the Act, please contact Jeff Krupka at the Central Washington Field Office in Wenatchee at (509) 665-3508, extension 18, or via e-mail at jeff_krupka@fws.gov.

Attachment

Attachment

GRANT COUNTY

LISTED

Endangered

Pygmy rabbit (*Brachylagus idahoensis*) – Columbia Basin distinct population segment

Threatened

Bald eagle (*Haliaeetus leucocephalus*)

Bull trout (*Salvelinus confluentus*) – Columbia River distinct population segment

Spiranthes diluvialis (Ute ladies'-tresses), plant

PROPOSED

Critical habitat for the Columbia River distinct population segment of bull trout

CANDIDATE

Washington ground squirrel (*Spermophilus washingtoni*)

Artemisia campestris ssp. *borealis* var. *wormskioldii* (Northern wormwood), plant

SPECIES OF CONCERN

Animals

Burrowing owl (*Athene cunicularia*)

California floater (*Anodonta californiensis*), mussel

Columbian sharp-tailed grouse (*Tympanuchus phasianellus columbianus*)

Ferruginous hawk (*Buteo regalis*)

Giant Columbia spire snail (*Fluminicola columbiana*)

Greater sage grouse (*Centrocercus urophasianus*) – Columbia Basin distinct population segment Kincaid meadow vole (*Microtus pennsylvanicus kincaidi*)

Loggerhead shrike (*Lanius ludovicianus*)

Long-eared myotis (*Myotis evotis*)

Northern goshawk (*Accipiter gentilis*)

Northern leopard frog (*Rana pipiens*)

Pacific lamprey (*Lampetra tridentata*)

Pallid Townsend's big-eared bat (*Corynorhinus townsendii pallescens*)

Redband trout (*Oncorhynchus mykiss*)

River lamprey (*Lampetra ayresi*)

Sagebrush lizard (*Sceloporus graciosus*)

Western brook lamprey (*Lampetra richardsoni*)

Vascular Plants

Cryptantha leucophaea (Gray cryptantha)

Lomatium tuberosum (Hoover's desert-parsley)

Oxytropis campestris var. *wanapum* (Wanapum crazyweed)

WEATHER STATION FIRE
Cost/Risk Analysis – Vegetation

PART 1. TREATMENT COST

Treatments	Cost
#1R -Native seed collection and processing	\$10,361.00
#2R Non-native invasive species control – native plantings	\$237,081.00
#3R – Monitor State Listed Plant Species	\$11,169.00
TOTAL	\$258,611.00

PART 2. PROBABILITY OF STABILIZATION TREATMENTS SUCCESSFULLY MEETING REHABILITATION OBJECTIVES

Treatments	Units	%
#1R -Native seed collection and processing	5 Lots	95
#2R Non-native invasive species control – native plantings	600 acres	75
#3R – Monitor State Listed Plant Species	3 Surveys	95

Risk of Resource Value Loss or Damage

No Action-Treatment Not Implemented (check one)

Resource Value	None	Low	Medium	High
Lives			X	
Residential & Commercial Property				X
Wildlife				X
Cultural Resources			X	

Proposed Action – Treatments Successfully Implemented (check one)

Resource Value	None	Low	Medium	High
Lives	X			
Residential & Commercial Property			X	
Wildlife			X	
Cultural Resources			X	

PART 3. SUMMARY

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

Proposed Action Yes No Rational for answer:

Monitor State Listed Plant Species. The stabilization of high priority shrub steppe habitat plant communities within the fire perimeter of the Weather Station Complex as defined by field assessments and monitoring will not present any risks to cultural resources or private property.

Non-Native Invasive Species Control. The detection, control and monitoring of non-native invasive species in burned areas and the prevention of the expansion of known populations into newly disturbed areas will present no risk to cultural resources and will prevent the spread of non-native invasive species to private property.

Exclusion Fences. The repair of existing fence and the construction of additional fence to exclude livestock and burros from burn area is necessary for the exclusion of livestock and burros until native vegetation can be reestablished. This will benefit cultural resources as livestock and burros cause considerable damage to cultural resources. Exclusion of livestock and burros from the burn will also prevent livestock trespass on private property.

No Action Yes No Rational for answer:

No the risks to cultural resources and private property are not acceptable. Non-native invasive plants and unacceptable soil erosion could significantly impact private property. Cultural resources will incur additional damage if exclusion fences are not constructed.

Alternative(s) Yes No Rationale for answer: **None**

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

Proposed Action Yes No Rational for answer:

Protection of sensitive shrub-steppe habitat and obligate wildlife species will not only benefit these resources but will improve their condition as regrowth occurs.

No Action Yes No Rational for answer:

Failure to protect and stabilize this area would impact nationally significant resources. Failure to prevent the spread of non-native plants will increase the long term costs of managing these lands, increase fire risks, reduce critical habitat for many wildlife species, and reduce potential reintroduction sites for listed species. Loss of viable populations of state listed plants could result in significant future costs to reestablish populations elsewhere.

Alternative(s): Yes No Rationale for answer: **None**

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

Proposed Action Yes No Rationale for answer:

It is highly likely that the no action alternative would result in substantial damage to nationally significant cultural and biological resources of The Hanford Reach National Monument. The proposed actions have a high probability of protecting soil, vegetation, and wildlife resources at risk and achieve the emergency stabilization objectives established in DOI policy and therefore are recommended for implementation.

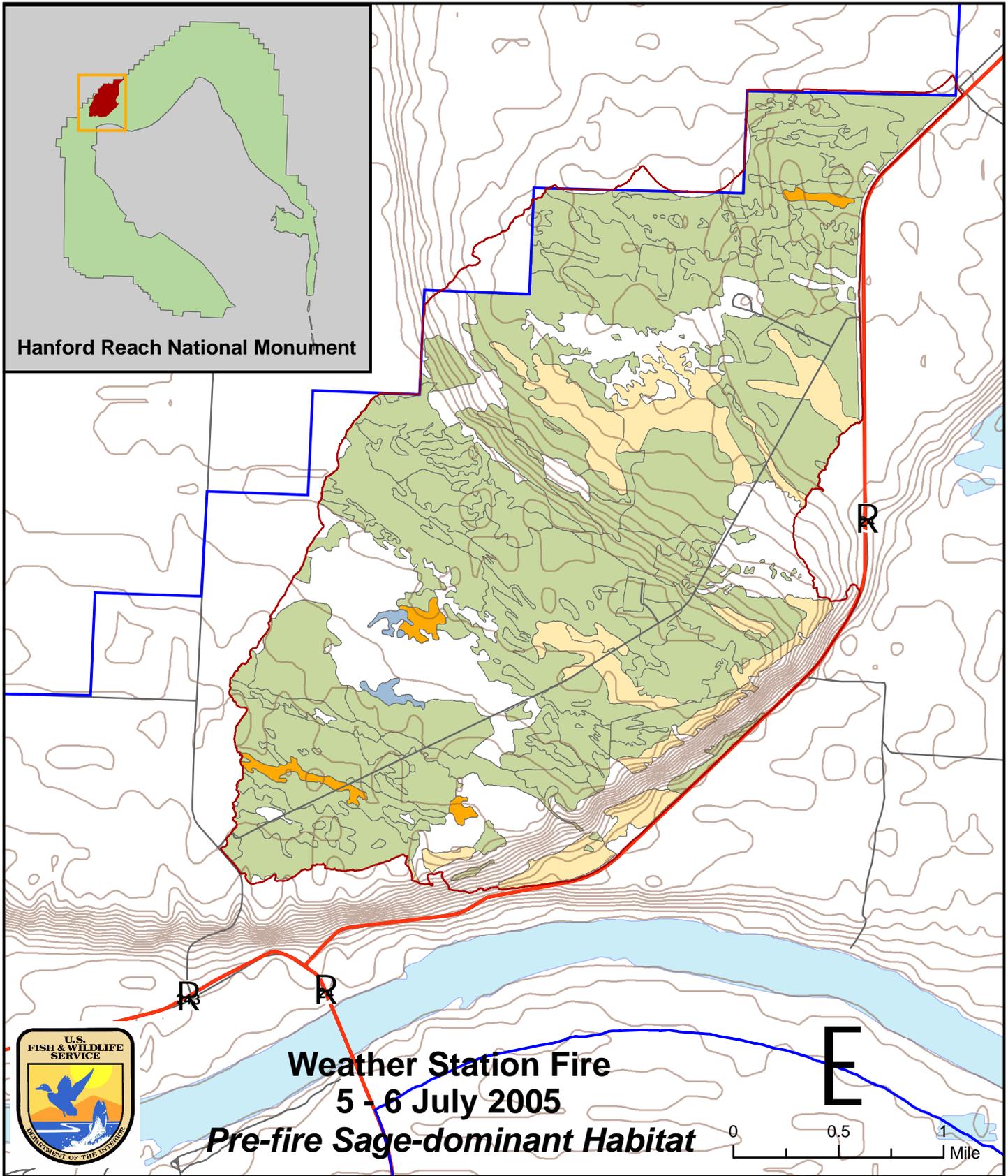
**BURNED AREA EMERGENCY REHABILITATION PLAN
WEATHER STATION FIRE- HANFORD REACH NATIONAL MONUMENT**

Appendix V

Maps

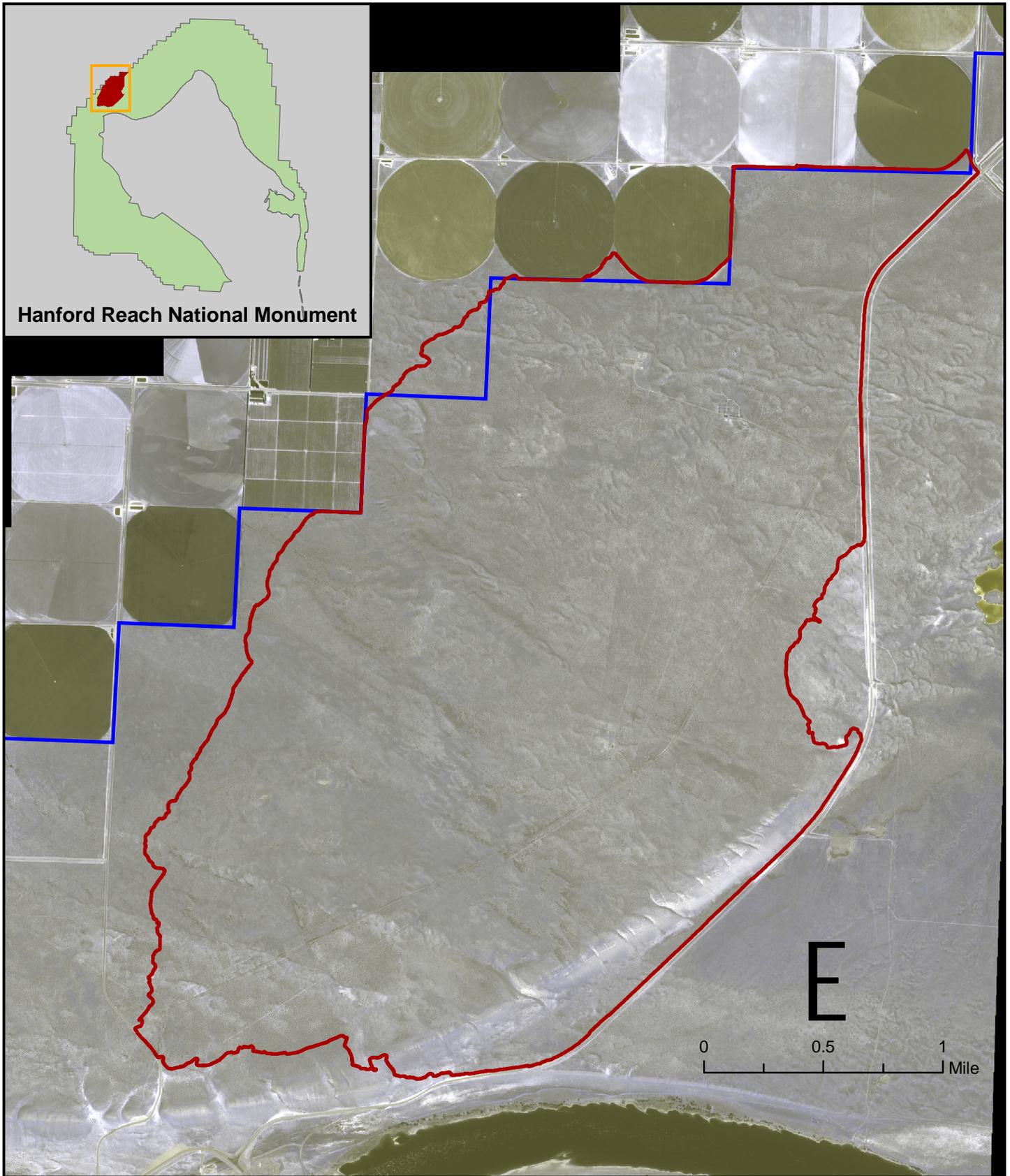
- **Pre-fire sage dominant habitat**
- **Pre-fire vegetation**
- **Vegetation Mortality**
- **Fire location and ownership**
- **Rare Plant Occurrences**
- **Sensitive Wildlife**
- **Non-native invasive species occurrences**
- **Sensitive Plant Communities**





- burn area
- HRNM boundary
- highway
- other roads
- ARTR-GRSP/[POSE][BRTE]
- ARTR/ORHY
- ARTR/STCO
- ARTR/[POSE]BRTE

Key to abbreviations:
 ARTR sagebrush
 BRTE cheatgrass
 GRSP spiny hopsage
 ORHY Indian rice grass
 POSE Sandberg's bluegrass
 STCO needle-and-thread grass



Hanford Reach National Monument

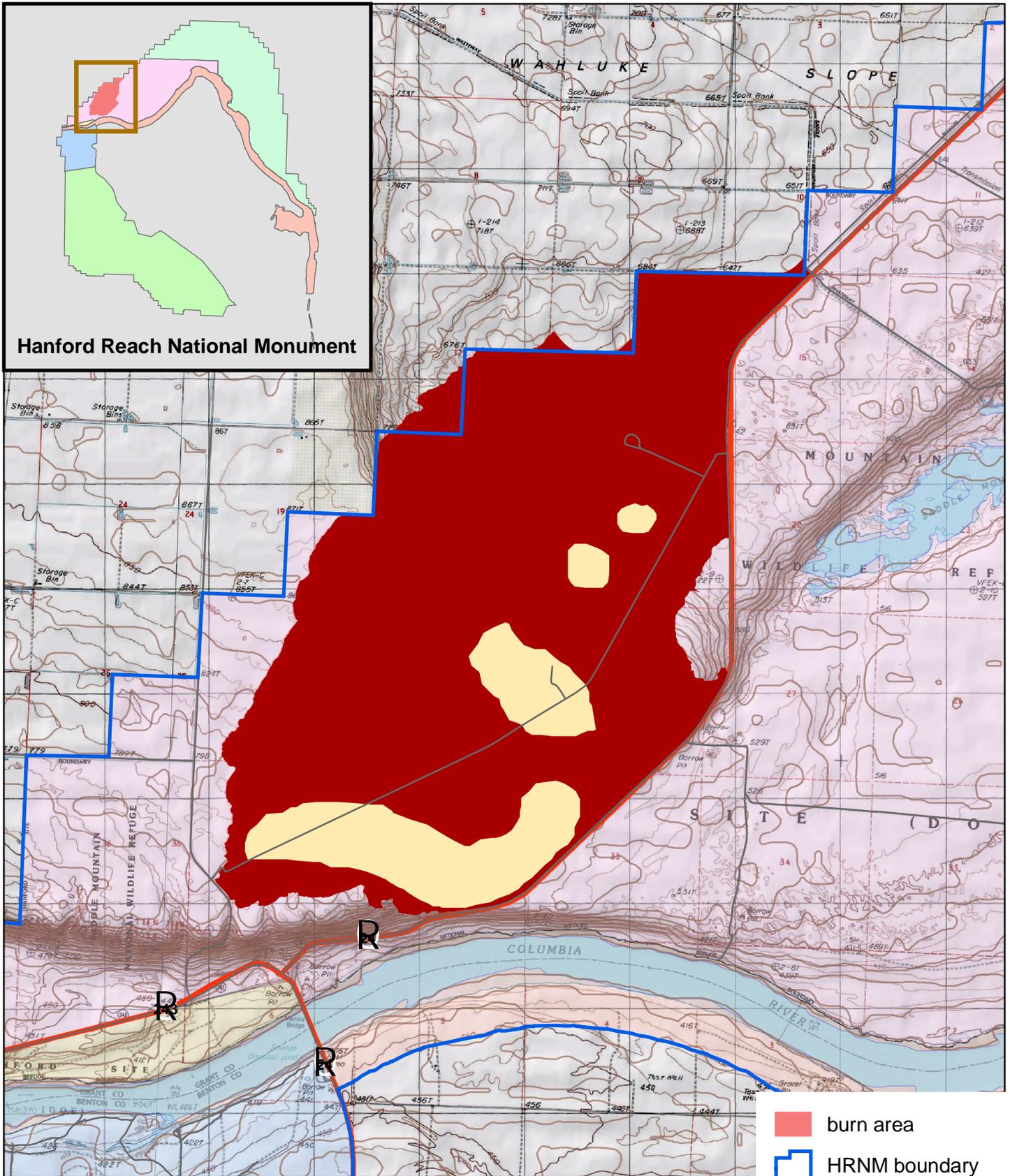


Weather Station Fire 5 - 6 July 2005 *Pre-fire Vegetation*

IKONOS-2 satellite image
acquisition date: 30 April 2004

 burn area

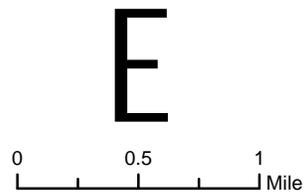
 HRNM boundary

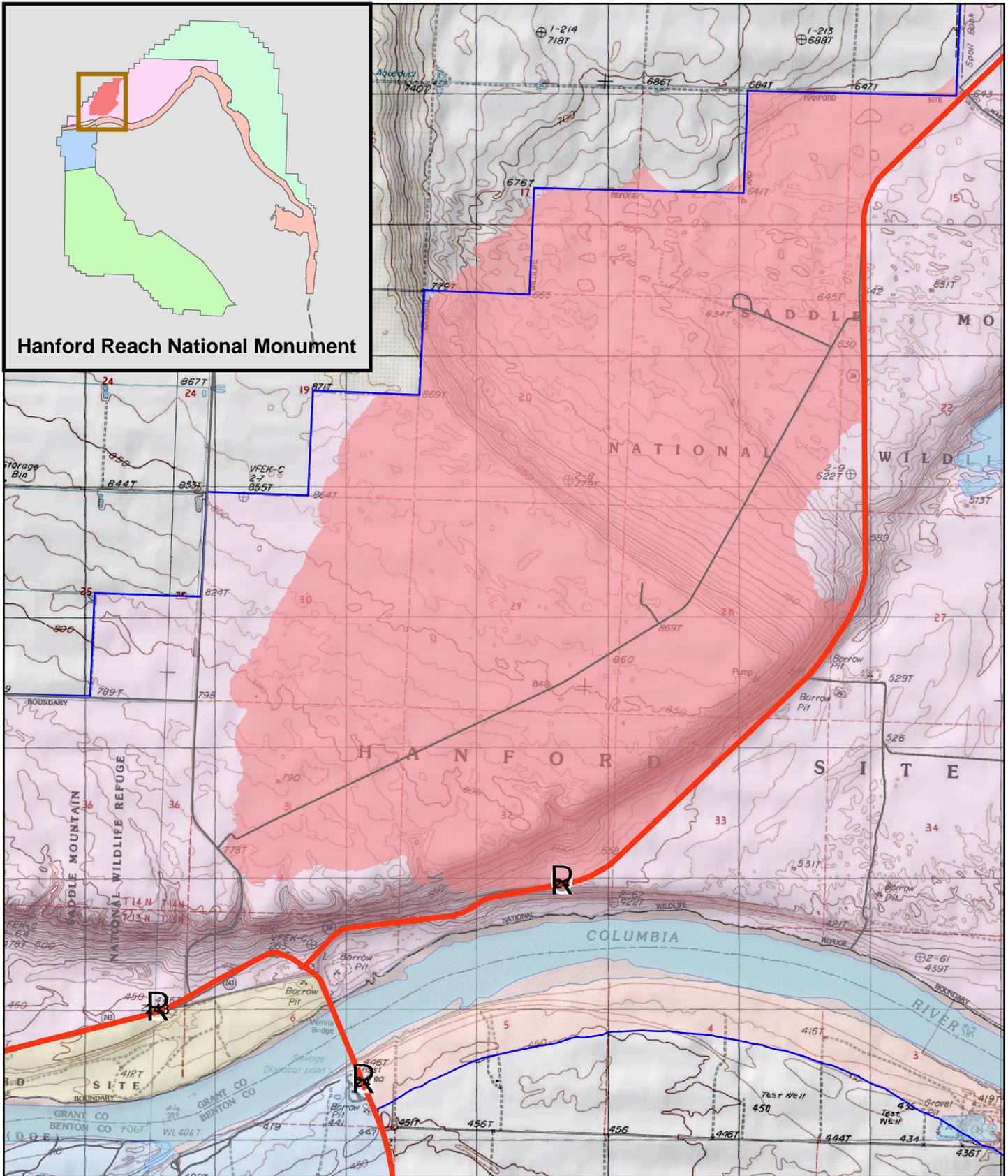


- burn area
- HRNM boundary
- 50 - 75 % mortality
- 75 - 100 % mortality
- highway
- other roads



Weather Station Fire
5 - 6 July 2005
Vegetation Mortality

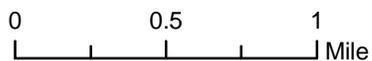




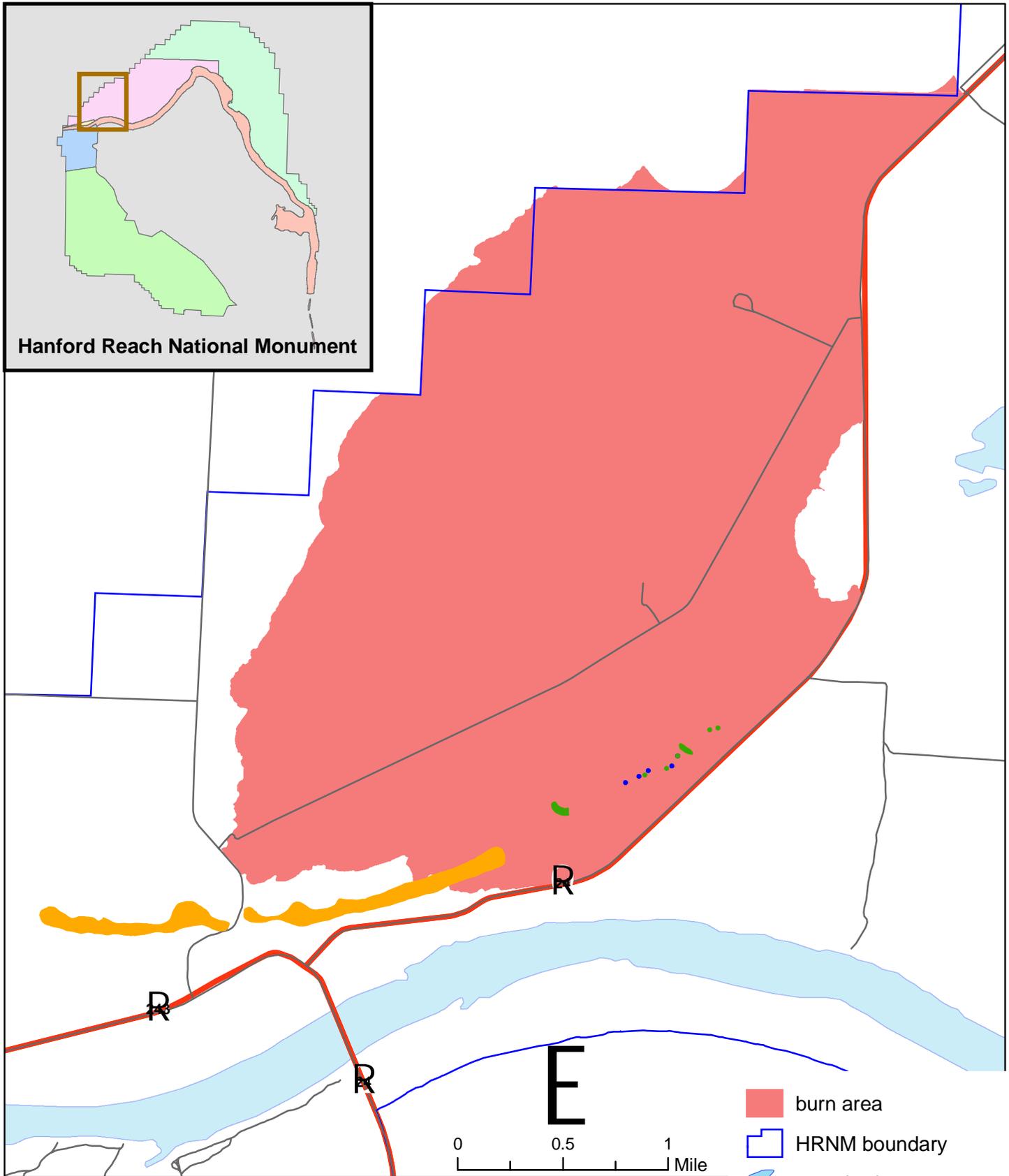
Hanford Reach National Monument



Weather Station Fire 5 - 6 July 2005



- burn area
- HRNM boundary
- highway
- other roads

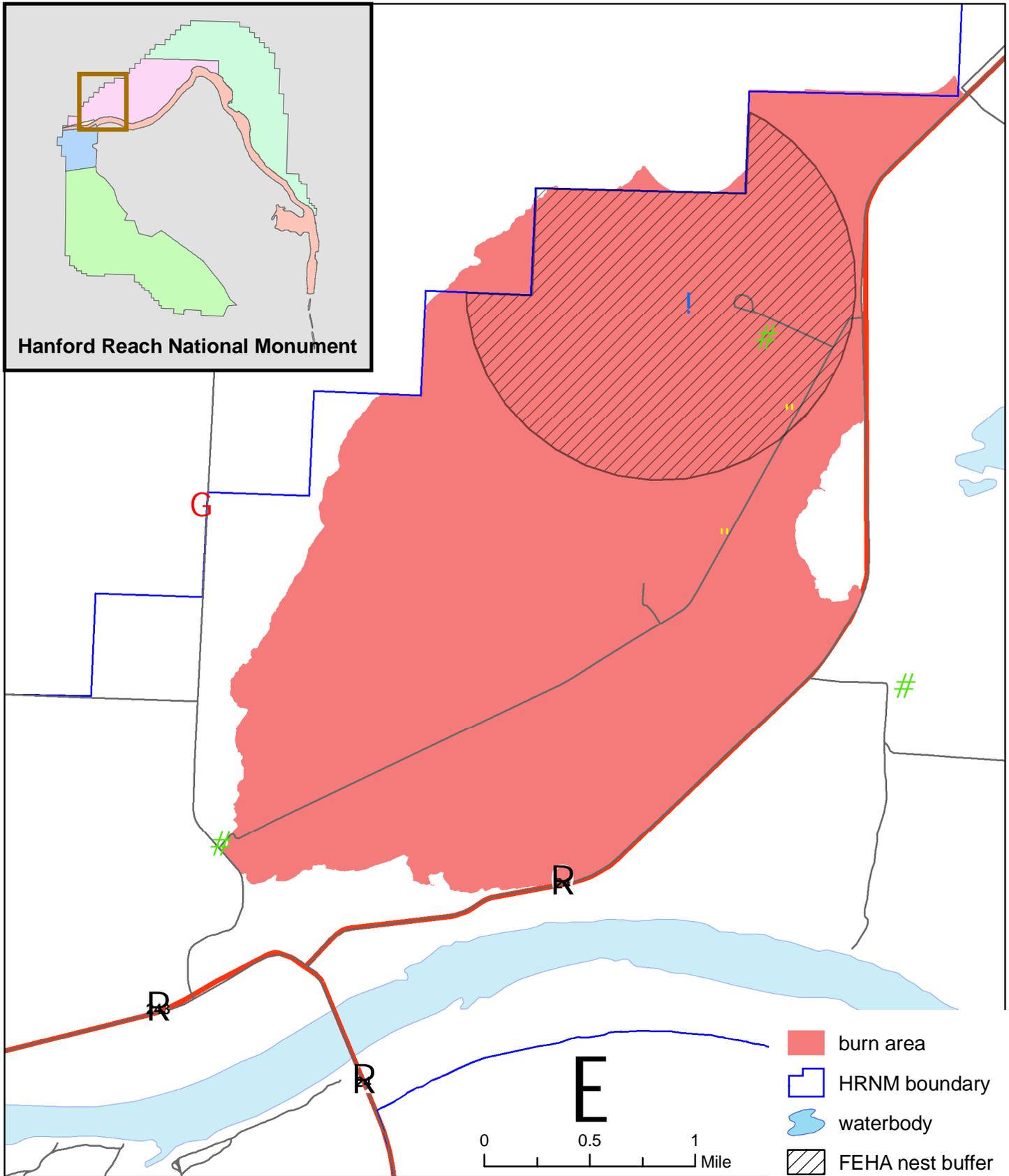


Hanford Reach National Monument

- burn area
- HRNM boundary
- waterbody
- Camissonia minor*
- Camissonia pygmaea*
- Eatonella nivea*

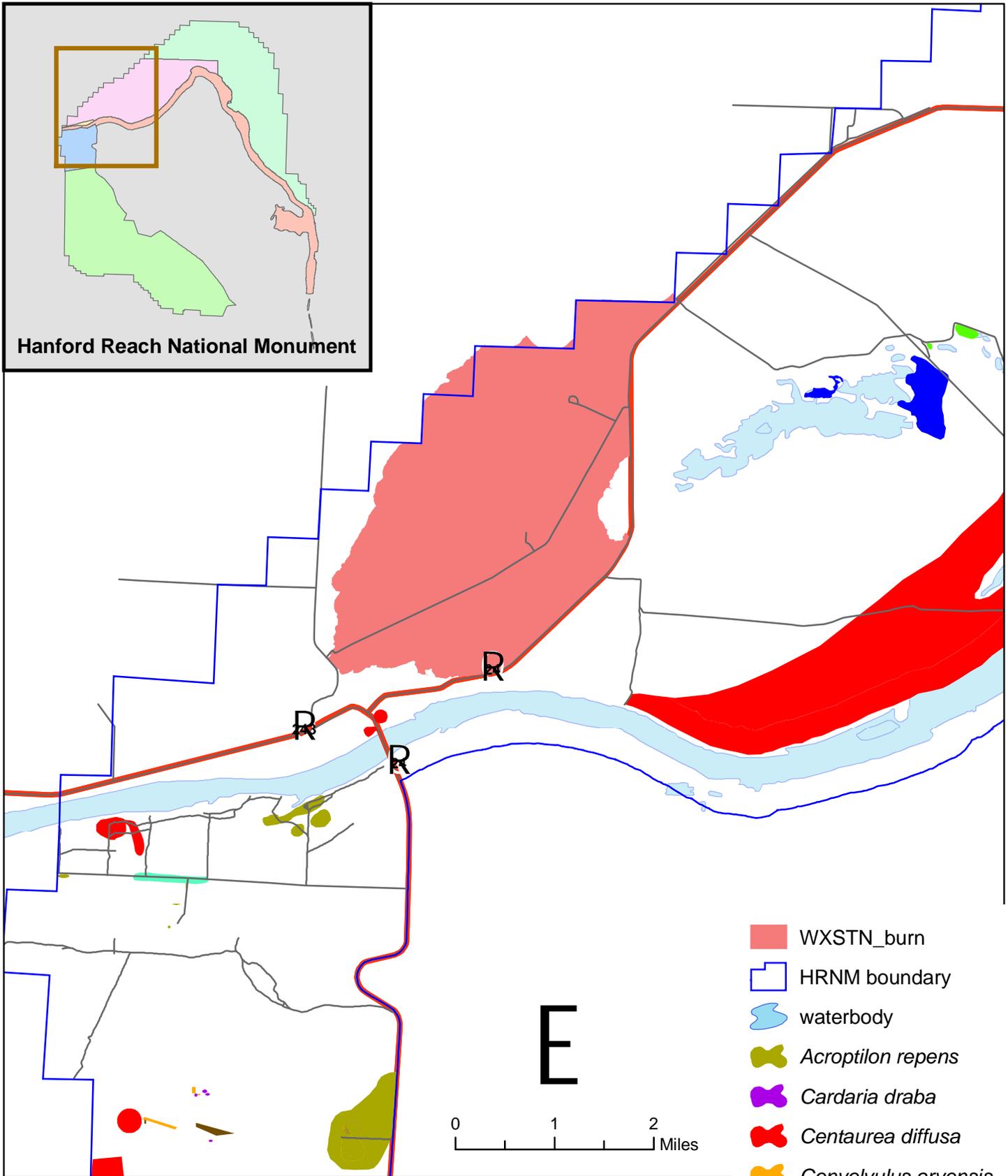


Weather Station Fire
5 - 6 July 2005
Rare Plants



Weather Station Fire
5 - 6 July 2005
Sensitive Wildlife

- burn area
- HRNM boundary
- waterbody
- FEHA nest buffer
- ! FEHA
- # LOSH
- G BUOW
- " sagebrush lizard



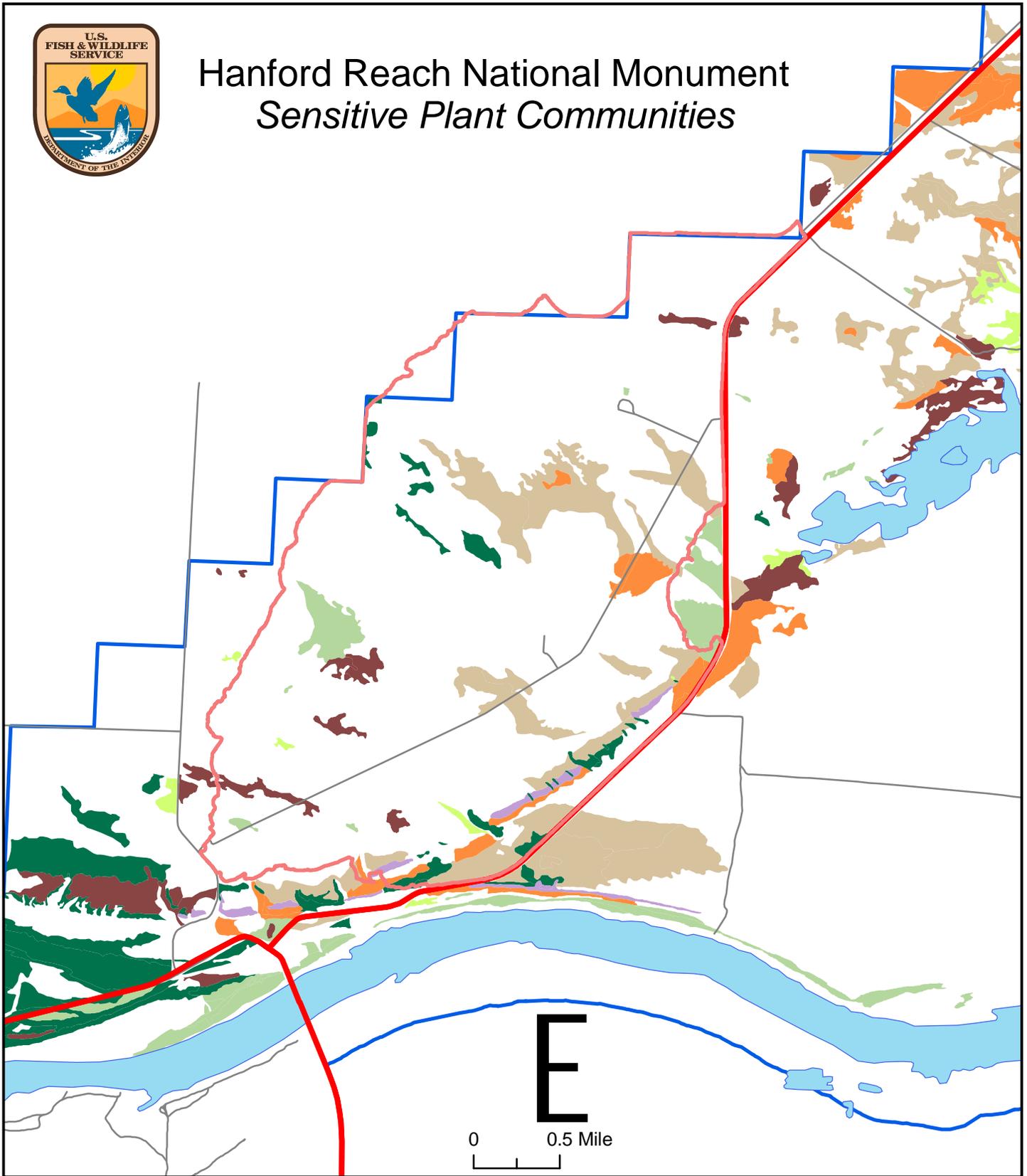
Weather Station Fire
 5 - 6 July 2005
Non-native Invasive Species
 (Noxious Weeds)





Hanford Reach National Monument

Sensitive Plant Communities



- | | | | |
|-------------|------------------------------------|---------------------------------------|----------|
| burn area | Sensitive Plant Communities | Spiny Hopsage | Riparian |
| HRNM_CCP | Bitterbrush | Three-tip Sagebrush | |
| highway | Grass | Winterfat | |
| other roads | Purple Sagebrush | Wyoming Big Sagebrush | |
| waterbody | Rabbitbrush | Wyoming Big Sagebrush - Spiny Hopsage | |
| | Rabbitbrush - Snow Buckwheat | Wetlands and Deep Water | |