May 2000

WILDLAND FIRE MANAGEMENT PLAN

WHITMAN MISSION NATIONAL HISTORIC SITE

Revised January, 2004

Revised by: _____ _____
Roger Trick Date
Chief, Interpretation & Resources Management

Recommended: _____ _____
Roger Trick Date
Chief, Interpretation & Resources Management

Approved: _____ _____
Francis T. Darby Date
Superintendent

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Revised March, 2003

Prepared by: Amanda G. McAdams, Prescribed Fire Specialist — May 16, 2000 (Date)

Recommended: Roger Trick, Chief of Interpretation & Resources Management — March 25, 2003 (Date)

Approved: Francis T. Darby, Superintendent — 03-25-2003 (Date)

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EXECUTIVE SUMMARY

When approved, this document will become the fire management plan for Whitman Mission. Major components include:

- updated policy for prescribed fires at Whitman Mission.
-
- implementation of current Director's Order # 18 Wildland Fire Management (NPS 1998).
-
- format changes under the direction of RM- 18 (NPS 1999 and 2002).
-
- reinforces updated 1995 Federal Wildland Fire Management Policy and Review.
-
- establishes a Fire Analysis Committee consisting of the Chief of Interpretation/ Resource Management Specialist, Chief of Maintenance, and Prescribed Fire Specialist. The Fire Analysis Committee will meet as needed to review wildland fires, develop alternatives and present them to the Superintendent for approval, following the guidelines established for the Wildland Fire Situation Analysis.

This plan is written to provide guidelines for appropriate suppression and prescribed fire programs at Whitman Mission NHS. Prescribed fires may be used to reduce hazard fuels, restore the natural processes and vitality of ecosystems, remove or reduce non-native species, and/or conduct research into fire effects.

I. INTRODUCTION

A. Reasons for Developing this Plan

This plan is written as an operational guide for managing the site's wildland fire and prescribed fire programs. It defines levels of protection needed to ensure safety, protect facilities and resources, and restore and perpetuate natural processes, given current understanding of the complex relationships in natural ecosystems. It is written to comply with a service-wide requirement that parks with vegetation that can support fire develop a fire management plan and a fire management program reflecting local ecology (Director's Order # 18, Wildland Fire Management, 1 l/ 17/98).

B. Summary of Collaboration

Whitman Mission, with the help of the fire management officer at John Day Fossil Beds National Monument began a draft Fire Management Plan in 1999 during the same time the park was going through the General Management Planning process. The Whitman Mission General Management Plan (GMP) was approved in September, 2000. The GMP provided the general direction for the park as well as the fire management program. Additional assistance has come from the park's close relationship with the Walla Walla Ranger District of the Umatilla National Forest. Their fire management staff has advised and commented on Whitman Mission's plan and program, offering valuable assistance toward meeting the park's fire management goals.

C. Plan Will Implement Fire Management Policies

The Whitman Mission Fire Management Plan follows and fulfills provisions of the Federal Wildland Fire Management Policy and Program Review. Whitman Mission has burnable vegetation and this fire management plan is based upon resource management plans and decisions that flow from the long-range General Management Plan for the park.

The park partnerships with the Walla Walla Ranger District and with the local rural fire protection district are the cornerstones of Whitman Mission's fire management program. Their advice and assistance allows the park to achieve the goals of the 10-Year Comprehensive Strategy to 1)improve prevention and suppression, 2) reduce hazardous fuels, 3) restore fire adapted ecosystems, and 4) promote community assistance.

D. Plan Meets NEPA and NHPA Requirements

This plan will establish a Fire Management Plan for Whitman Mission National Historic Site. It implements the approved course of action described in the Resource Management Plan. An Environmental Assessment for this plan is attached in the Appendix. The Finding of No Significant Impact (FONSI) fulfilled the requirements of the National Environmental Protection Act (NEPA) and the National Historic Preservation Act (NHPA).

E. Authorities

Authority for fire management is found in 16 USC Sec. I (August 25, 1916), which states that the agency's purpose:

> “.. is to conserve the scenery and the natural and historic objects and the wild life therein and provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

This authority was clarified in the National Parks and Recreation Act of 1978:

> "Congress declares that ... these areas, though distinct in character, are united ... into one national park system .... The authorization of activities shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress."

The authority for FIREPRO funding (normal fire year programming) and all emergency fire accounts is found in the following authorities:

Section 102 of the General Provisions of the Department of Interior's annual Appropriations Bill provides the authority under which appropriated monies can be expended or transferred to fund expenditures arising from the emergency prevention and suppression of wildland fire.

P.L. 101-121, Department of the Interior and Related Agencies Appropriation Act of 1990, established the funding mechanism for normal year expenditures of funds for fire management purposes.

31 US Code 665(E)(1)(B) provides the authority to exceed appropriations due to wildland fire management activities involving the safety of human life and protection of property.

Authorities for procurement and administrative activities necessary to support wildland fire suppression missions are contained in the Interagency Fire Business Management Handbook. Authorities to enter into agreements with other Federal bureaus and agencies; with state, county, and municipal governments; and with private companies, groups, corporations, and individuals are cited in NPS-20 (Federal Assistance and Interagency Agreements). These include the Reciprocal Fire Protection Act of May 27, 1955 (42 USC 815a; 69Stat 66).

Authority for interagency agreements is found in "Interagency Agreement between the Bureau of Land Management, Bureau of Indian Affairs, National Park Service, US Fish and Wildlife Service of the United States Department of the Interior and the Forest Service of the United States Department of Agriculture" (1996). Authority for rendering emergency fire or rescue assistance outside the National Park System is the Act of August 8, 1953 (16 USC lb(l)) and the Departmental Manual (910 DM).

II. RELATIONSHIP TO LAND MANAGEMENT PLANNING AND FIRE POLICY

A. NPS Management Policies for Fire

Whitman Mission's Resources Management Plan contains a discussion of the park's enabling legislation and the purpose of the park. To summarize, the purpose of the historic site is to preserve, protect and maintain the historical and inspirational setting relating to the mission era, and interpret the story of the eleven years of the Whitman's activities with the Cayuse Indians and emigrants on the Oregon Trail.

The grounds of the historic site consist of 98.15 acres that are managed as one historic zone. The entire area of the site is listed on the National Register of Historic Places. The park is a mosaic of lawn, pasture, reed creek bottoms, and dry sagebrush slopes, separated and tied together with service roads, trails and an irrigation ditch. Much of the original sagebrush and bunch grass areas surrounding the park is now cultivated.

In addition, direction for management of the park system comes from the National Park Service Organic Act of 1916 (Title 16 USC, Section 1):

> "The service thus established shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations to conserve the scenery and the natural and historic objects and the wildlife therein, and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

NPS fire management policy is expressed in RM- 18, Wildland Fire Management Guidelines (NPS 1999) and Director's Order #18, Wildland Fire Management (NPS 1998). The NPS has taken a lead role in considering fire as a fundamental force in perpetuating natural ecosystems, as stated in Director's Order # 18, "All wildfires may be managed to accomplish resource management goals providing they do not compromise firefighter and public safety."

The Department Manual, DM 9 10 (USDI 1997) states the following regarding wildland fires:

> "Wildfires may result in loss of life, have detrimental impacts upon natural resources, and damage to or destruction of man-made developments. However, the use of fire under carefully defined conditions is to be a valuable tool in wildland management. Therefore, all wildfires within the Department will be classified either as wildfire or as prescribed fires.
>
> Wildfires, whether on lands administered by the Department or adjacent thereto, which threaten life, man-made structures, or are determined to be a threat to the natural resources or the facilities under the Department's jurisdiction, will be

considered emergencies and their suppression given priority over normal Departmental programs.

Bureaus will give the highest priority to preventing the disaster fire - the situation in which a wildfire causes damage of such magnitude as to impact management objectives and/or socioeconomic conditions of an area. However, no wildfire situation, with the possible exception of threat to human survival, requires the exposure of firefighters to life threatening situations.

Within the framework of management objective and plans, overall wildfire damage will be held to the minimum possible giving full consideration to (1) an aggressive fire prevention program; (2) the least expenditure of public funds for effective suppression; (3) the methods of suppression least damaging to resources and the environment; and (4) the integration of cooperative suppression actions by agencies of the Department among themselves or with other qualified suppression organizations.

Prescribed fires ... may be used to achieve agency land or resource management objectives as defined in the fire management plans. Prescribed fires will be conducted only when the following conditions are met:

- Conducted by qualified personnel under written prescriptions.
- Monitored to assure they remain within prescription.
- Prescribed fires that exceed the limits of an approved prescribed fire plan will be reclassified as a wildfire. Once classified a wildfire, the fire will be suppressed and will not be returned to prescribed fire status."

The legislative language states that the site will "...conserve the scenery and the natural and historic objects and the wild life therein…" The utilization of fire as a management tool will aid in accomplishing these objectives by returning a natural process to the system.

B. Significance and Purpose of Whitman Mission NHS

The enabling Act of 1936 identified the purpose of Whitman Mission as a "...public national memorial to Marcus Whitman and his wife, Narcissa Prentiss, who here established their Indian mission and school…"

The work that was done by the Whitmans at their mission included supporting emigration over the Oregon Trail and the establishment of United States sovereignty over the Oregon Territory. Committee reports and National Park Service studies conducted prior to the enabling Act recognize this aspect of Whitman's work.

All land surrounding Whitman Mission is privately owned, except along the south boundary, which is managed by the Washington State Department of Fish and Wildlife.

Currently, surrounding land use is agricultural. The Union Pacific Railroad does border the northern boundary, but this does not detract from the historic scene as the railroad line is not visible from most of the park. As long as the land use in the immediate vicinity of Whitman Mission National Historic Site remains essentially the same--that is, growing wheat, hay and alfalfa--no adverse use is anticipated.

Walla Walla County has established a comprehensive zoning ordinance (Title 17, Jan. 1990). All land surrounding Whitman Mission National Historic Site is classified as agricultural-general. Minimum parcel size, according to this classification, is 10 acres and requires a 30' setback between the front property line and any structure.

The Walla Walla basin has a dry climate; average annual precipitation is 14 inches; summers are dry and hot. The average maximum temperature in the summer is near 90 degrees Fahrenheit, with temperatures rising from 100 to 110 degrees for about ten days in July and August. Prevailing winds are from the southwest.

Cultural Resources

The enabling legislation created Whitman Mission as a public national memorial to Marcus and Narcissa Whitman. The entire park is on the National Register of Historic Places. As detailed in the Landscape Study and Management Alternatives for Revegetation, and in the Resources Management Plan for the park, the management objective for all treatment areas is to create a sense of the historic scene. Fire management, and in particular, prescription burning of the tall gasses at Whitman Mission is outlined in the park's Resources Management Plan.

Fish and Wildlife

The Bald eagle (*Haliaeetus leucocephalus*) is a listed species for Whitman Mission NHS. This species winters in the area (November 1 - March 3 1; USFWS correspondence April 9, 1999). There are no proposed or candidate species currently identified for the Whitman Mission area.

Several species of concern, as identified by the USFWS, are identified for the area including: pale western big-eared bat (*Corynohinus (=Plecorus) townsendii pallescens*), small-footed myotis (bat) (*Myotis ciliolabrum*), fringed myotis (bat) (*Myotis thysanodes*), Yuma myotis (bat) (*Myotis yumanensis*), ferruginous hawk (*Buteo regalis*), Columbia spotted frog (*Rana luteiventris (=pretiosa*, eastern population)), loggerhead shrike (*Lanius ludovicianus*), northern sagebrush lizard (*Sceloporus graciosus graciosus*), and western burrowing owl (*Athene cunicularia hypungea*).

Vegetation

Most of the 98.15 acres of Whitman Mission National Historic Site is flat bottomland covered with grasses and scattered trees. One hill rises approximately 100 feet above the plain to an elevation of 720 feet. Soils are silt-loams, poorly drained and strongly

alkaline. The park lies within Section 32, Township 7N, Range 35E, Willamette Meridian. It is at latitude 46 degrees, 2 minutes, 29 seconds North and longitude 118 degrees, 27 minutes, 33 seconds West. The bedrock of the Walla Walla Basin is the Columbia River Basalt. Above this are continental deposits of clay and gravel of Pleistocene age. Overlying the gravel is a mantle of silt and loess, the Palouse formation, constituting the predominant parent material for the soil.

The Walla Walla basin is in the Steppe Region and the vegetative zone is Agropyron-Fescue. Historically, the poorly drained valley fill soils supported wild rye (*Elymus* sp.), with an understory of alkali saltgrass (*Distichlis* sp.) and alkali bluegrass (*Poa* sp.). The hill where the monument is located was an association of bluebunch wheatgrass (*Agropyron spicata*) and Idaho fescue, (*Festuca idahoensis*) with a scattering of rabbitbrush (*Chrysothamnus* sp.) and big sagebrush (*Artemisia tridentata*).

C. Objectives from the General Management Plan

The park's General Management Plan was completed in 2000. It will guide park management for the next fifteen or more years in efforts to preserve and protect the historic and cultural resources while providing for the use prescribed by enabling legislation, planning documents and Park Service policy. One effort by all of the park staff is to maintain, as nearly as possible, the visual aspect of the historic period commemorated (1840s).

The General Management States:

> Current fire management activities include fire suppression and the application of prescribed fire. Management of natural ignitions for resource benefit is not feasible on the NHS because of the small size of the site and the number of sensitive resources. It would be difficult to contain a natural fire within the boundaries of the NHS.
>
> All unplanned ignitions, both lightning-caused and human-caused, are suppressed in the site to protect sensitive park resources, as well as to prevent damage to neighboring private lands. The park has the responsibility for fire suppression but carries it out through agreements with the local county fire district and the U.S. Forest Service.
>
> Prescribed burns are presently conducted at the NHS on an annual basis at different areas of the park to maintain, to the extent possible, the role of fire in the ecosystem. The purpose of the burns is to promote the health and vigor of the grasses and to reduce the spread of noxious weeds. Most burns are conducted in the late fall or early spring. This timing allows the fire to consume previous year's dead, dried grass stems and leaves, but not damage the grass plants' roots.

D. Objectives in Resources Management Plan

Whitman Mission's Resources Management Plan contains the following discussion and objectives pertaining to the Fire Management Plan. Current activities described in this plan are mandated, are designed to reduce the hazard of uncontrolled fire on the park, or are part of the effort of restoring a sense of the historic scene of 150 years ago.

The cultural landscape is gradually approaching the appearance of the historic scene. Using native grasses in some areas, and grasses that appear very similar to natives in other areas, the park has converted approximately 60 acres to grass. Working under the direction of the Oregon State University CPSU with Dr. Larry Larson, professor of rangeland sciences at Eastern Oregon State College, the park revegetated approximately seven acres in 1993, three acres in 1998, and has another fifty acres in a cyclic maintenance program.

The historic scene is mentioned in almost every planning document for the park. The landscape management (revegetation) project has converted 60% of the park from exotic grasses and weeds to grasses that grew here during Whitman's era, or to grasses that have the same appearance as natives. These native-appearing grasses did not grow here during Whitman's era. They are an intermediate step between a noxious weed patch and native grasses. The native-appearing grasses will gradually be replaced with native species. As this project continues, it becomes as much a cyclic maintenance of established grass stands as it is a project to eradicate weeds and exotics.

E. Fire Management Plan Meets GMP and Resource Management Objectives

The historic scene is mentioned in almost every planning document for the park. One effort by all of the park staff is to maintain, as nearly as possible, the visual aspect of the historic period commemorated (1840s). The landscape management (revegetation) project has converted 60% of the park from exotic grasses and weeds to grasses that grew here during Whitman's era, or to grasses that have the same appearance. The cultural landscape is gradually approaching the appearance of the historic scene.

Current fire management activities include fire suppression and the application of prescribed fire. Management of natural ignitions for resource benefit is not feasible on the NHS because of the small size of the site and the number of sensitive resources. The park has the responsibility for fire suppression but carries it out through agreements with the local county fire district and the U.S. Forest Service. Prescribed burns will be conducted at the NHS on an annual basis at different areas of the park to maintain, to the extent possible, the role of fire in the ecosystem. The purpose of the burns is to promote the health and vigor of the grasses and to reduce the spread of noxious weeds, as well as reduce a build-up of dead, dried grass stems and leaves. Periodically reducing the dead biomass per this plan and a prescribed burn plan will allow the park staff to control targeted non-native plants much more effectively.

III. WILDLAND FIRE MANAGEMENT STRATEGIES

A. General Management Considerations

The *Whitman Mission National Historic Site Fire Management Plan* was updated in May, 2000. Current fire management activities include fire suppression and the application of prescribed fire. Management of natural ignitions for resource benefit is not feasible on the NHS because of the small size of the site and the number of sensitive resources. It would be difficult to contain a natural fire within the boundaries of the NHS. All unplanned ignitions, both lightning-caused and human-caused, are suppressed in the site to protect sensitive park resources, as well as to prevent damage to neighboring private lands. The park has the responsibility for fire suppression but carries it out through agreements with the local county fire district and the U.S. Forest Service.

Prescribed burns are presently conducted at the NHS on an annual basis at different areas of the park to maintain, to the extent possible, the role of fire in the ecosystem. The purpose of the burns is to promote the health and vigor of the grasses and to reduce the spread of noxious weeds. Most burns are conducted in the late fall or early spring. This timing allows the fire to consume previous year's dead, dried grass stems and leaves, but not damage the grass plants' roots.

The chief of interpretation and resource management and other qualified staff coordinate with the Umatilla National Forest and local fire departments to plan and implement all prescribed burns. Prescribed burning activities usually last only a few days a year. Between 10 and 20 acres are burned each year, and most areas of the park are burned every 3 to 5 years. The park only burns on county "Burn Days" to facilitate smoke dispersal.

B. Wildland Fire Management Goals

The overall objectives for fire management are to promote a program to ensure firefighter and public safety, aimed at reducing human-caused fires, to ensure appropriate suppression response capability to meet expected wildland fire complexity, and to increase use of prescribed fire for restoration of fire dependent ecosystems. Specific fire management objectives are:

1. Protect human life, property, and the cultural resources of the Park from wildfire.

2. Employ strategies to suppress all wildland fires, which minimize costs and resource damage, consistent with values at risk.

3. Prevent unplanned human-caused ignitions.

4. Promote public understanding of fire management programs and objectives.

5. Use prescribed burning in accordance with this plan to accomplish resource

management objectives in the approved Resources Management Plan.

6. Replace or replicate natural process to the greatest extent practicable.

7. Preserve and restore the historic scene.

8. Protect natural and cultural resources and intrinsic values from unacceptable impacts attributable to fire and fire management activities.

9. Reduce the numbers and spread of noxious exotic weeds in the Park and onto adjacent lands.

10. Maintain a weed-free irrigation ditch to allow for unobstructed water flow to adjacent landowners, in compliance with State of Washington water rights law.

11. Conduct fire management programs in a manner consistent with applicable laws, policies and regulations.

Fire history at Whitman Mission National Historic Site is not well documented. Generally, the fire season runs from June 1 through mid-September. During drier years, the fire season may last from early May until early October.

Fire was a natural process in the steppe region of Washington. Prescribed fire will restore and perpetuate the natural systems of the park while suppressing exotic, noxious weeds. In all potential treatment areas, fire needs to consume at least 80% of the dead or cured grasses and weeds. This will consume seeds still on the stems, and will release nutrients to promote vigorous re-growth.

C. Wildland Fire Management Options

Whitman Mission NHS is best characterized by a frequent, low-severity fire regime. Generally, the fire season runs from June 1 through mid-September. During drier years, the fire season may last from early May until early October.

The prescribed fire season at the site is expected to be from late December to early April, depending upon weather conditions for any given fire season. The ideal burning conditions at the site are when burn prescriptions are in the appropriate range during the daytime, but evening and nighttime relative humidity increases beyond the moisture of extinction (i.e., when a fire will no longer continue to spread). These types of prescriptions will lessen the need for fireline construction and potential escape outside contingency boundaries.

Wildland Fire

All unplanned wildland fires will be suppressed in a prompt, safe, aggressive, and cost-effective manner to produce fast, efficient action with minimum damage to resources.

Although resource impacts of suppression alternatives must always be considered in selecting a fire management strategy, resource benefits will not be the primary consideration at Whitman Mission NHS. Appropriate suppression action will be taken to ensure firefighter safety, public safety, and protection of the resources.

Critical protection areas, such as historic structures, site facilities, and private residences near boundaries will receive priority consideration in fire control planning efforts. In all cases, the primary concerns of fire suppression personnel shall be the safety, and if needed, all individuals not involved in the suppression effort may be evacuated.

Suppression strategies should be applied so that the equipment and tools used to meet the desired objectives are those that inflict the least impacts upon the site resources. The fire suppression strategy by its very nature is a response to an emergency situation. It is in these situations that an Incident Commander's decisions can have long-term negative implications on natural and cultural resources.

Minimum impact suppression strategies will be employed to protect all resources. Natural and artificial barriers will be used as much as possible for containment. If necessary, fire line construction will be conducted in such a way as to minimize long-term impacts to site resources.

Vehicle access to normally closed areas of the site will be made using existing fire roads when possible. When off-road travel is determined to be necessary, vehicle access will be permitted except in the “No Drive Zones” of the Mission Grounds, Pioneer Cemetery, and Whitman Memorial Shaft. A park map of the “No Drive Zones” will be included in the Pre-Attack Plan, Prescribed Burn Plan, and Limited Delegation of Authority.

Heavy equipment such as crawlers, tractors, dozers, or graders will not be used in the site unless their use is necessary to prevent a fire from destroying privately-owned and/or government buildings and historic resources.

Sites impacted by fire suppression activities or by the fire will be rehabilitated as necessary, based on an approved course of action for each incident.

Prescribed Fire

Prescribed fire will be used to reduce hazard fuel accumulation, restore fire to fire-dependent ecological communities, and to maintain cultural/ historic scenes where appropriate. All prescribed fire activity will comply with applicable Federal, state, and local air quality laws and regulations.

All prescribed fire projects will have a burn plan approved by the Superintendent after review by regional or peer group staff. Each burn plan will be prepared using a systematic decision-making process, and contain measurable objectives, and predetermined prescriptions. The Appendix contains the Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) associated with this Fire Management Plan. Should prescribed fire activities exceed the scope of this EA and FONSI, additional compliance needs to be completed as part of the burn plan. Additionally, contingency actions must be described in the event the prescribed burn prescription is exceeded. All burn plans will address the need for alerting neighbors and appropriate public officials to the timing and the planning of the burn.

Fire monitoring will be used to evaluate the degree to which burn objectives are accomplished. Long-term monitoring is required to document that overall programmatic objectives are being met and undesired effects are not occurring. Evaluation of fire effects data will be the joint responsibility of fire management and natural resources management personnel.

D. Wildland Fire Management Strategies by Fire Management Unit

1. FMU Identifier

a. Description

Most of the 98.15 acres of Whitman Mission National Historic Site is flat bottomland covered with grasses and scattered trees. One hill rises approximately 100 feet above the plain to an elevation of 720 feet above sea level. The grounds of the historic site are managed as one historic zone. The entire area of the site is listed on the National Register of Historic Places. The park is a mosaic of lawn, grassland, reed creek bottoms, and dry sagebrush slopes, separated and tied together with service roads, trails, and an irrigation ditch. Much of the original sagebrush and bunch grass surrounding the park is now cultivated.

Location: Township 7N, Range 35E, Willamette Meridian, section 32
Latitude 46° 2’ 29” N
Longitude 118° 27’ 33” W

Size: 98 acres

Elevation Range: 620 – 720’

Slopes: 0-100%, average 5%

Aspects: flat, except north, west , and south aspects of hill

Description of Project Boundaries:

Outside the north boundary fence is Union Pacific Railroad land. Park staff mows the fence line inside the park, which is part of Area D1. Problem species such as poison hemlock, cheatgrass, and teasel grow on both the park side and the railroad side of the fence. Park staff does not mow along the boundary fence in the extreme northwest corner of the park, northwest of Mill Creek. Poison hemlock is the dominant species in D4 up to the boundary fence. Outside the fence, on railroad land, the park neighbor mows between his property line fence and the tracks in an effort to keep weeds such as thistles, quack grass, and field bindweed controlled. He mows the railroad land adjacent to D4b at the same time.

Land adjacent to the west boundary is used for pasture or for commercial wheat production, and is on a lifetime lease to the former owner. When the current lessee (former owner) and his spouse are deceased, which may be 20 years from now, the land will belong to Whitman Mission National Historic Site. The park staff does not mow along the fence line in Areas D or F, but does mow along the fence in Area B along the west boundary. Poison hemlock, cheatgrass, and Canada thistle are the predominant weeds along the park's west side, and they put some pressure on the adjacent private land for weed control. The pasture areas adjacent to Area B, D4, and part of D3 are so closely cropped that there is little chance for thistle or poison hemlock to grow. The park neighbor replants the wheat field adjacent to Area D3 every year.

The Washington State Fish and Game Department administers the land along the Walla Walla River adjacent to the park's south boundary as a wildlife habitat. Since 1989, the park staff mows an 8-foot strip along the entire south boundary fence within the park. Weed control is difficult, especially for poison hemlock, which grows on both sides of the south boundary fence. A variety of weed seeds probably enters and leaves the park through the south boundary.

The east boundary of the park is more complex because it includes the Memorial Shaft Hill as well as agricultural land. All the adjacent land is privately owned and produces wheat or onions except where the hill slope is too steep or where the land is too wet near Doan Creek. Non-native plants that spread from the park include Canada thistle, yellow starthistle, cereal rye grass, and cheatgrass. Weeds enter the park along the steep slopes of the Memorial Shaft Hill. The most common ones are cheatgrass and yellow starthistle. Aquatic weeds come into the park along Doan Creek.

Sub-unit descriptions

B. Area B, approximately 28 acres at the southern end of the park, has a well-established grass stand and has approximately 20% of it covered in poison hemlock or Canada thistle. Approximately 10 acres were planted in November, 1987 and the rest in March 1988, with native and non-native grasses. The area south of Area B, south of the park, is heavily infested with noxious weeds. Irrigated pasture or cultivated farmland borders

Area B to the east and west. Now that a new stand of grass is well established, this area will benefit from a prescribed fire every few years.

C. Area C is approximately 15 acres and has been subdivided into three sub-units coinciding with the northern, western, and southern aspects of the 100-foot high hill. Use of prescribed fire during revegetation efforts will reduce the cheatgrass and yellow starthistle populations. A hot backfire burning downslope is necessary to kill as many seeds and plants as possible. The burn can be timed so the sagebrush, rabbitbrush, and buckwheat are not killed by fire, even if most of their aboveground growth is consumed. When burning is complete, the site should be almost entirely devoid of vegetation. Parts of Area C are undergoing revegetation at this time. The combined use of herbicides, prescribed fire and mechanical treatment may be necessary to prepare the seedbed for revegetation in future years. The south line of Area C is the paved county road and the Oregon Trail.

D. Area D occupies approximately 31 acres in the northern and western part of the park. It supported very few native species until revegetation efforts began. Native and non-native grasses were planted in November, 1987 on approximately 10 acres. Another 15 acres were seeded in the fall of 1988. Approximately 5 acres in the northeastern corner of Area D support reed canary grass. Now that the new stands of grass are well established, this area will benefit from periodic prescribed fire.

E. Area E lies between the park residence and the Visitor Center. Bordered on the south by the paved walk to the Great Grave, this area was seeded with Great Basin wildrye and Sherman big bluegrass. It should benefit from periodic prescribed fire. Area E is approximately 2 acres. The Sherman big bluegrass did not compete against exotic weeds as well as the Great Basin wildrye did, and very little of the Sherman variety has survived.

F. Area F1, approximately 8 acres, lies between the Visitor Center, Memorial Shaft Hill, and the Oregon Trail. Vegetation is primarily wheatgrass, bunchgrasses, quackgrass, and cheatgrass. Most of the area's grasses are dense enough to suppress annual weeds. Small patches of teasel, poison hemlock, and thistles grow within it. Periodic burning or fertilization will maintain or increase the vigor of the perennial grasses.

G. Area F2, the Mission site itself, is covered almost entirely with an irrigated Class A turf. It will not be subjected to prescribed fire except along the strip between Whitman's irrigation ditch and the Oregon Trail.

Vegetation Types and NFFL Fuel Model including Fuel Loading and Dead Fuels:

B. Area B contains big bluegrass, wheat grasses, canary grass and other native and non-native grasses. Some grasses are growing six feet tall. It is NFFL Fuel model L, and approximately 28 acres. Control lines will be the park's south boundary, east boundary, north boundary of area B, and the general course of the old river oxbow as the

northwestern limit of the burn, with the park's west boundary as the western limit of the burn.

The west, south, and east boundaries have an eight foot wide strip of vegetation mowed along the inside of the boundary fence. Outbuildings along the west boundary adjacent to the park's boundary fence are the nearest neighbor's buildings. The mowed strip will need to be wetted inside the park near those buildings. South of Area B is fuel model 8, east of Area B is an agricultural field, usually planted in alfalfa, winter wheat, or onions. Along the north boundary of Area B is the mowed Oregon Trail, the irrigation ditch and Millpond, and the Old River Oxbow. The Oregon Trail cannot carry fire across it, while the irrigation ditch and Millpond are water barriers. West of the Millpond, along the northwest boundary of Area B (Old River Oxbow) is fuel model 8 where holding forces would have to wet the area boundary and then fire off of the wet line, backing the fire into the wind.

C. Area C is an unirrigated mixture of small shrubs, weeds and grasses including rabbitbrush, buckwheat, and bluebunch wheatgrass. Approximately 15 acres, it is NFFL Fuel Model L. Area C control lines will be the park boundary and plowed fields on the east. Hand line and wet line along the steeper slopes of part of the eastern boundary will consist of suppressing the fire with flappers, foam, and backpack hand water sprayers. Ignition along this side must be slow enough that holding personnel can keep pace with firing personnel.

The west control lines will be the pedestrian trail at the base of the hill beside the Doan Creek irrigation ditch. The south boundary is the mowed Oregon Trail. The north boundary is the Doan Creek Irrigation ditch, then the steeper part of the north aspect that is fuel model 8. Next to the trees of fuel model 8, firing should take off from a wet line put in along the Area boundary. Near the base of the north aspect of Area C, next to the irrigation ditch, a swath of tall grasses will have to be mowed and wetted to form a wet line approximately 25 feet long by 12 feet wide.

D. Approximately 5 acres in the northeastern corner of the area are lower and moister, supporting a dense stand of reed canary grass. Most of the area has established grass stands of wheatgrasses and blue grasses at this time. Approximately 31 acres, it is NFFL Fuel Model L. Area D control lines will be the park boundary and railroad tracks on the north, the park boundary and cultivated field on the east, a combination of the irrigation ditch, service road, and the utility area on the south, and the park boundary and cultivated field on the west.

The east and north boundaries of Area D have a mowed strip inside the boundary fence that will slow fire enough so firing can be done from the mowed strip and back into the wind. Holding crewmembers can wet the short vegetation in the mowed strip or use flappers to hold the fire next to the firing personnel. The west boundary is fuel model 8 next to Mill Creek. Fire should be stopped before it enters the fuel model 8 area to ensure that all fire is out be 6:00 p.m. A strip in front of the trees will be mowed and holding personnel with flappers or hand sprayers can stop the fire as it enters the mowed

strip. The rest of the west boundary is the park fence line and a mowed strip along the inside of the fence will be mowed before Area D is burned. Outside the boundary fence is a closely cropped pasture and an agricultural field that usually is planted in winter wheat. The south boundary of Area D is the irrigation ditch, the mowed strip around the maintenance facility, and the park service road. Around the maintenance facility, the mowed vegetation strip may need to be wet with water from an engine or the nearby fire hydrant.

E. Predominately Great Basin wildrye, with Canada thistle scattered within it, Area E is 5 acres and NFFL Fuel Model L. Area control lines will be the paved walk leading to the Great Grave on the south, the irrigated lawn on the west, and either wet line or hand line along the north and east. The north and east lines can be reached with hose from a fire hydrant. West of the park residence, the Area boundary is the edge of a grove of trees that are fuel model 8. An engine may have to create a wet line for approximately 50 feet to prevent any fire from entering the heavier fuels.

F. NFFL Fuel Model L, Area F1 contains native and non-native grasses and scattered thistle and teasel. Control lines will be the Oregon Trail on the south, and hand line construction using flappers along the west side at the edge of the irrigated, mowed lawn. The paved walk from the Visitor Center to the Great Grave is the northern control line. A mowed strip of vegetation around a grove of trees in the northeast corner of Area F1 will keep fire out of the fuel model 8 area. Given the prevailing winds, firing personnel will probably begin strip fires off the northeast corner of F1. The irrigation ditch along the base of Memorial Shaft Hill is the eastern control line. The Oregon Trail is the southern control line, and the west and northwest control lines are the edge of the mowed and irrigated lawn.

G. In Area F2, the 30-foot wide strip between the Oregon Trail and Whitman's irrigation ditch contains Great Basin wildrye grass and scattered poison hemlock and teasel. It is NFFL Fuel Model L. The irrigation ditch is the southern control line, while the Oregon Trail is the northern one. Fire will be held at the split rail fence that runs beside the Oregon Trail using a combination of foam, backpack hand sprayers, and flappers. The east and west ends of Area G is the irrigation ditch.

b. Fire Management goals and objectives for the FMU

Goals

Hazard Fuel Reduction- A low to moderate intensity burn will reduce dead, brown vegetation and reduce non-native vegetation by allowing restoration of native vegetation. As the vegetation regrows, the park staff may treat areas of non-native vegetation according to the park's Integrated Pest Management Plan.

Restore Natural Processes- Prescribed fire will reintroduce fire back into a fire-dependent ecosystem. This is part of a plan that continues to use prescribed fire as it historically occurred at Whitman Mission. Fire was used periodically by the Cayuse people to burn

areas as a way to increase the production of wild forage and accessibility of plant foods, to facilitate hunting and travel by burning away underbrush, and to encircle game. How often the park's 98 acres was burned historically cannot be determined, but frequent cultural burning of any particular area was probably rare.

Specific Objectives

Reduce dead grass vegetation by at least 80% over at least 60% of the area. Retain at least 75% of the shrub cover in the burn unit. Retain at least 95% of standing trees within the burn unit.

Range of Acceptable Results Expected Across the Project Area

Based on experience with past fires at the park, between 80% and 90% of a planned burn area would be blackened by fire. The burned area would exhibit a variety of fire effects. The effects would range from small patches of total mortality of bunch grasses to low severity surface fires that consume only a thin layer of the dead grass stems.

c. Management Considerations and Fire Complexity

The entire burn project is located within the boundary of Whitman Mission National Historic Site. All parts of the project (Area B, C, D, etc.) have vehicular access except the steep slopes of the hill. Vehicles can access the base of the slopes as well as the flat top of the hill, so wet lines can be put in along the east boundary of the park, up and/or down the hill side on the south and north aspects. Because of the small size of the project, all ignitions will be by hand. Although this may be somewhat slow on the slopes and next to the park's boundaries, no major obstacles should be encountered in the execution of the project. Safety of all personnel involved in a prescribed fire operation is the most important concern at the park. The tall grass fuel at Whitman Mission is the most volatile of any of the fuel models, with a large surface to volume ratio that makes it highly affected by wind speed and changes in fuel moisture. High rates of spread and flame lengths could be quickly achieved in areas of dense fuel. The prescribed fire organization, the fire prescription, scheduling, and ignition and holding actions must take into account the tall grass fuel.

Protection from slop overs and spot fires is a significant concern that the park must mitigate in the burn plan. The Burn Boss must make that concern one of the highest priorities during the burn. If either a prescribed fire goes out of prescription through a spot fire in another area of the park, or weather conditions change, it may be prudent to pull all personnel back to the fire area boundary, rather than face high flame lengths and rates of spread within any one burn unit. A fire within the park that is out of prescription will be much easier to contain at a burn unit boundary that uses natural fuel breaks or man-made ones inside the park.

The worse case scenario is to have a National Park Service fire escape the park. The Adequate Holding Forces Worksheet, in the Prescribed Burn Plan, takes into account a spot fire out of the park. Most of the area around the park is either agricultural land in wheat or onions, or pasture and is not burnable during our prescription season. The rest of it is fuel model 8, and the worksheet shows that adequate holding forces are present at the park during a prescription burn to contain any spot fire in that fuel model. Park management will be in a much better position to work cooperatively with park neighbors on weed control and hazardous fuels once the park has completed successful burns for a few years with the help of the local USFS ranger district fire personnel.

d. Historic Role of Fire

Fire was used periodically by the Cayuse people to burn areas as a way to increase the production of wild forage and accessibility of plant foods, to facilitate hunting and travel by burning away underbrush, and to encircle game. How often the park's 98 acres was burned historically cannot be determined, but frequent cultural burning of any particular area was probably rare.

e. Weather, Fire Season, and Fuel

Whitman Mission has operated a weather observation station for over 40 years, keeping temperature, precipitation, and evaporation readings. Records show that the fire season is from early June through mid-September, peaking in late summer when fuel moisture conditions are extremely dry. Depending on the specific weather of any particular year the seasons may be shorter or longer and, therefore, may start earlier or last longer. Most of the park is covered in tall native and native-appearing grass that is NFFL Fuel Model L. In late summer and fall, these grasses can become very fire-prone, with high fire intensity and fast rate of spread if pushed by the wind. With the success of the park's revegetation program, the vegetation is approaching the historic condition of the early 1800s. With periodic prescribed burns to maintain the grass stand, Whitman Mission will have the potential for a condition class 1 fire regime. It is now closest to condition class 2.

IV. WILDLAND FIRE MANAGEMENT PROGRAM COMPONENTS

A. General Implementation Procedures

All unplanned wildland fires will be suppressed in a prompt, safe, aggressive, and cost-effective manner to produce fast, efficient action with minimum damage to resources. Due to staff limitations, relatively small land management parcels, long response times, valuable resources, and values at risk on neighboring lands, this plan does not recommend wildland fire managed for resource benefit as an option for any of the units. Wildland fires will be suppressed using the appropriate suppression response. Prescribed fires will be used to reduce hazardous fuels and to meet resource management objectives.

B. Wildland Fire Suppression

1. Range of Potential Fire Behavior

Fire program management describes the operational procedures necessary to implement fire management at Whitman Mission NHS. Program management includes: fire prevention, preparedness, emergency preparedness, fire behavior predictions, step-up staffing plan, fire detection, fire suppression, minimum impact suppression, minimum impact rehabilitation, and documentation. All fires not classified as prescribed fires are wildland fires and will be appropriately suppressed.

Records show that the fire season is from early June through mid-September, peaking in late summer when fuel moisture conditions are extremely dry. Slight amounts of fire activity occur at the ends of this period, extending the season from mid-May to October 1. Depending on the specific weather of any particular year the seasons may be shorter or longer and, therefore, may start earlier or last longer.

2. Preparedness Actions

Preparedness is the work accomplished prior to fire occurrence to ensure that the appropriate response, as directed by the Fire Management Plan, can be carried out. Preparedness activities include budget planning, equipment acquisition, equipment maintenance, equipment inventory, personnel qualifications, and training. The preparedness objective is to have a well-trained and equipped fire management organization to manage all fire situations within the site.

Preparedness activities are outlined in RM- 18 and are covered by normal site operating funds and FIREPRO funding. Preparedness efforts are to be accomplished in the periods outside the normal fire season dates. When periods of high fire danger occur outside the normal fire season dates, the appropriate action will be taken and the Regional FMO will be notified by telephone for approval of the preparedness actions.

The following preparedness actions will be taken to ensure adequate fire preparedness.

a. Fire Prevention Program/Education and Information

An active fire prevention program will be conducted in conjunction with other agencies to protect human life and property, and prevent damage to cultural resources or physical facilities. Partnering with the USFS at the Walla Walla Balloon Stampede and/or the County Fair are two examples.

A program of public education regarding potential fire danger will be implemented. Visitor contacts, bulletin board materials, handouts and interpretive programs will be utilized to increase visitor and neighbor awareness of fire hazards at the park.

It is essential that employees be well informed about fire prevention and the objectives of the site's fire management program. Further, employees must be kept informed about changes in existing conditions throughout the fire season.

Trained employees need to relate to the public the beneficial effects of prescribed fires as opposed to unwanted human-caused fires, with emphasis on information, essential to understanding the potential severity of human-caused wildland fires and how to prevent them.

During periods of extreme or prolonged fire danger, fire prevention messages will be included in interpretive programs. Emergency restrictions regarding fires or area closures may become necessary. Such restrictions, when imposed, will usually be consistent with those implemented by cooperators. The Fire Analysis Committee will recommend to the Superintendent when such restrictions are necessary. Closures will be authorized by the Superintendent.

When prescribed fires are burning in the site, signs at Visitor Centers and park unit bulletin boards will be used to supplement visitor contacts. These signs will be used to direct, inform, guide and caution visitors about existing fire conditions and prescribed burn activities.

b. Training

Departmental policy requires that all personnel engaged in suppression and prescribed fire duties meet the standards set by the National Wildfire Coordinating Group (NWCG). The National Park Service wildland fire qualification system meets or exceeds all NWCG standards. Whitman Mission NHS will conform strictly to the requirements of the NPS wildland fire management qualification and certification system.

Basic wildland fire training refreshers are offered annually for red-carded firefighters through the Umatilla National Forest. Additional training is available from surrounding agencies in pump and engine operation, power saws, firefighter safety, fire weather and fire behavior, helicopter safety and prescribed fire objectives and activities. On-the-job training is encouraged and will be conducted at the field level. Whenever appropriate, the use of fire qualification task books will be used to document fire experience of trainees. The Collateral FMO will coordinate the site's fire training needs with those of other nearby parks, cooperating agencies, and the SSO.

The site supports the development of individual Incident Command System (ICS) overhead personnel from among qualified and experienced site staff for assignment to overhead teams at the local, regional, and national level.

Fire suppression is an arduous duty. On prescribed fires, personnel may be required to shift from monitoring activities to suppression. Poor physical condition of crewmembers can endanger safety and lives during critical situations.

Personnel performing fire management duties will maintain a high level of physical fitness. This may require successful completion of a fitness pack test as outlined in NPS-57 (Health fitness guidelines).

c. Supplies and Equipment

A fire cache is maintained within the site, located in the maintenance facility. The cache contains hand tools, firefighter line packs, project fire packs, and personal protective equipment. The Collateral FMO is responsible for inventorying, resupplying and stocking cache items prior to the onset of the fire seasons or prescribed burns. A list of WHMI fire equipment is included in the Appendix.

Additional equipment and supplies are available through cooperators and the interagency cache system. Requests for additional personnel and equipment are made through the Dispatch for the area. The contact list can be found in the Appendix.

d. Fire Weather and Fire Danger

The NPS operates a National Weather Service weather station but does not operate a fire weather station. Whitman Mission follows the fire danger determinations of the Umatilla National Forest.

e. Staffing Priority Levels

This staffing assessment will be used in the event of any fire and carry over to prescribed burns. The Prescribed Burn Plan, ICS-214 Unit Log, or Case Incident Report will serve as record of decision for documenting appropriate action taken on fires. This could include allowing prescribed burns to continue to burn if within prescription, or a decision for suppression. Available personnel/resources, fire situation, and predicted fire behavior will determine the response level to maintaining, or curtailing normal Park operations. Minimum staffing levels will be considered annually in the Fire Management Plan and the Prescribed Burn Plan. Table I identifies the Readiness Class levels. Fire danger will be determined in cooperation with the Walla Walla District Office, Umatilla National Forest, and the fire weather forecaster in Pendleton, Oregon.

Table 1:Readiness Class levels for Whitman Mission NHS.

I. No activity necessary. Normal eight (8) hour tours of duty. Currently the park does not have personnel with fire fighting Red card qualifications. If the park obtains Red-carded employees these Red-carded employees are available to respond and take necessary action on any fire reported.

II. Normal eight (8) hour tours of duty. Fire equipment and supplies serviced and prepared for use.

III. Normal eight (8) hour tours of duty. Site is totally prepared to respond to a fire. If the park has Red-carded wildland firefighters the locations of red-carded personnel are known to all relevant personnel. Red-carded personnel have fire tools and personal protective equipment immediately available in their work

vehicles or at their worksite. In the current situation of the park having no Red-carded wildland firefighters the park will continue to work with other agency firefighting cooperators to provide wildland firefighting coverage to the park.

IV. All activities in Readiness Class III are continued. Approval for expenditure of PWE-381 funds is obtained from the SSO FMO. The Superintendent is notified of conditions. In the event that the parks has Red-carded wildland fire fighters on staff, tours of duty for Whitman Mission employees who are red-carded may be extended to 7 days per week, ten (10) hours per day with the Superintendent's approval. Increased prevention and detection patrols are conducted. Cooperators are contacted and activities coordinated in an effort to have a minimum of two engines available for dispatch to a park fire during the burning period (to at least 1800 hours). Longer hours of coverage may be initiated for certain key positions (Collateral FMO, prescribed fire specialist). Lieu days and leave may be canceled for any red-carded firefighters that are park employees. Cooperators are contacted and activities coordinated (federal, state and county fire departments) in an effort to provide consistent information to the public and site neighbors. High Fire Danger notices will be posted in the Visitor Center and at site bulletin boards.

V. All activities in Readiness Class IV are continued. All fires are prohibited including the use of fire grates, grills, and stoves. Restrictions and closures of site areas may be deemed necessary. Interpretive activities will include a fire safety message.

Cooperators

Whitman Mission NHS currently benefits from the Cooperative Fire Protection Agreement signed between the Bureau of Land Management, the National Park Service, the US Forest Service, and the states of Washington and Oregon and an agreement with Walla Walla County Fire District 4 (Copy is included in the Appendix). These cooperative relationships are fundamental to the success of the fire program and must continue to receive emphasis.

3. Pre-Attack Plan

Initial attack on site fires may be provided by NPS, USFS, Walla Walla County Fire District No. 4, or Washington Department of Natural Resources (WDNR) employees, depending on size and location of the fire. Qualified fire personnel within the site are limited and initial and extended attacks on a fire may be impractical by site employees. Interagency overhead teams may be called upon to manage or assist the site with initial attack, project fires, or monitoring prescribed burns. The NPS subscribes to the "closest forces concept", and all contingency plans are jointly formulated at the regional level. The Collateral FMO is responsible for ensuring that interagency agreements are reviewed annually and will schedule preseason meetings with cooperators as required.

Detection

The site relies on fire reports from visitors, employees, neighbors, and other agencies. Visitors, adjacent landowners, and permittees may notify local agencies with fire suppression responsibilities.

Upon detection of a fire, the following steps will be taken:

1. Employee will notify the Superintendent and the Fire Coordinator.

2. Superintendent will telephone Walla Walla County Fire District #4, telephone number 529-1513 or 911, and request assistance.

3. In the event the fire has the potential for spreading onto neighboring private lands, landowners will be notified of the Park's fire suppression activity by the Superintendent or person designated.

4. All trained personnel will be dispatched to the maintenance building for issuance of fire equipment.

The Fire Management Plan does not discriminate between human-caused and lightning caused fire. All wildland fires will be suppressed. However, detection shall include a determination of fire cause. Moreover, human-caused fires will require an investigation and report by law enforcement personnel. For serious human-caused fires, including those involving loss of life, a qualified arson investigator will be requested.

Communications

The Collateral FMO's office is the center for all in-park communications. An emergency 911 telephone exchange is operational for alerting cooperating fire suppression agencies, local county fire departments, police, and emergency medical services.

All fires will be reported to the Collateral FMO. The Collateral FMO will maintain a log of events and communication to and from the park concerning the fire, begin a fire report, and handle requests for outside assistance and resource order forms. The Collateral FMO will assure that a daily situation report is posted on the WFMCS system at the regional office (telephone notification to the SSO FMO is acceptable); that fire weather data is entered; and that the national situation report and fire weather forecasts are collected.

If the fire can be controlled by personnel on the scene, they will be dispatched and the Collateral FMO notified. Initial attack assistance can be requested from local county fire departments. In brief, the principal of closest forces will guide dispatching, both within the site and in its relationship to cooperators.

The Collateral FMO will maintain a roster of employees with red-cards. During Readiness Class IV the Collateral FMO will know the whereabouts of red-carded employees for possible call-out. The Appendix lists the site’s personnel fire qualifications.

4. Initial Attack

Upon discovery of a fire, all subsequent actions will be based on the following:

a. The Incident Commander (IC) will locate, size-up, and coordinate suppression actions. The IC will complete the pre-attack planning checklist as listed in the Appendix.

b. Provide for public safety.

c. Considering the current and predicted fire conditions, the Incident Commander will assess the need for additional suppression resources and estimate the final size of the fire. The potential for spread outside of the site should be predicted, as well as the total suppression force required to initiate effective containment action at the beginning of each burning period.

d. The Incident Commander will assess the need for law enforcement personnel for traffic control, investigations, evacuations, etc. and make the request to the Collateral FMO.

e. Document decisions and complete the fire report (DI- 1202).

f. Should a wildland fire move into an extended attack, a Delegation of Authority would be invoked. Once a Delegation of Authority has been authorized, the Incident Commander will make the final decisions pertaining to the fire. A copy of Delegation of Authority follows.

In accordance with RM- 18, wildland fires will be suppressed in a prompt, safe, aggressive, and cost effective manner to produce fast, efficient action with minimum damage to resources. Suppression involves a range of possible actions from initial attack to final suppression. All wildland fires will be suppressed.

Personnel and equipment must be efficiently organized to suppress fire effectively and safely. To this end, the Collateral FMO assists the delegated command function on major or multiple fire situations, assisting in setting priorities for the use of available resources and establishing a suppression organization.

There will be only one Incident Commander responsible through the Collateral FMO to the Superintendent. The Incident Commander will designate all overhead positions on fires requiring extended attack. Reference should be made to a Delegation of Authority required by RM-18, which follows.

5 and 6. Extended Attack and Wildland Fire Situation Analysis

For fires that resist initial suppression action or resist an extended attack, a WFSA must be prepared. In most cases, the Collateral FMO will be responsible for submitting the WFSA. In the case of a wildland fire, the Incident Commander, in conjunction with the Collateral FMO, will prepare the WFSA. Approval of the WFSA resides with the Superintendent. Because of the NFFLS fuel model L, tall grasses, a wildfire would be extinguished within 12 hours at Whitman Mission.

Public safety will require coordination between the Collateral FMO, Chief Ranger, and interpretive personnel. Notices should be posted to warn visitors, trails might be closed; traffic control will be necessary where smoke crosses roads, etc. Where wildland fires cross roads, the burned area adjacent to the road should be mopped up and dangerous snags felled. Every attempt will be made to utilize natural and constructed barriers, including changing fuel complexes, in the control of wildland fire. Rehabilitation efforts will concentrate on the damages done by suppression activities rather than on the burned area itself.

Aircraft Operations
Aircraft may be used in all phases of fire management operations. All aircraft must be Office of Aircraft Services (OAS) or Forest Service approved. A complete list of OAS approved aircraft will be supplied by the SSO FMO. An OAS Aviation Policy Department Manual will be provided by OAS.

As in all fire management activities, safety is a primary consideration. Qualified aviation personnel will be assigned to all flight operations.

7. Minimum Impact Suppression Tactics

Minimum impact suppression strategies will be employed to protect all resources. Natural and artificial barriers will be used as much as possible for containment. Fuel conditions, fast burning grasses, and cultural resources of the site are concerns, which increase the difficulty of suppressing fires in the site. Ground forces with hand tools and engines are the primary suppression method.

Portable pumps, backpack pumps, flappers, rakes, leaf blowers, shovels, pulaskis, and chainsaws may be used with due consideration for cultural resource values. Limitations have been placed on the types of mechanized equipment, which may be used in the site. Dozers shall not be used within the site boundaries, unless authorized by the Superintendent.

Portable pumps and hose lays can be used in lieu of or to supplement constructed firelines. Engines are utilized where roads currently exist. These engines are designed to be self-contained and can supply water. Off-road driving will be permitted during a fire, during mop-up, and during patrol, but will not be permitted in the “No Drive Zones” of the Mission Grounds, Pioneer Cemetery, and Whitman Memorial Shaft. A park map of the “No Drive Zones” will be included in the Pre-Attack Plan, Prescribed Burn Plan, and Limited Delegation of Authority.

Mop-up and patrol should be methodically planned and executed in control situations. Fires can burn into the duff. Reburn following containment to the extent that firelines are threatened is possible.

8. Rehabilitation

When suppression action is taken, rehabilitation is appropriate. The most effective rehabilitation measure is prevention of impacts through careful planning and the use of minimum impact suppression techniques.

Rehabilitation will be initiated by the Incident Commander or the Collateral FMO. Rehabilitation will be directed toward minimizing or eliminating the effects of the suppression effort and reducing the potential hazards caused by the fire. These actions may include:

1. Backfill control lines, scarify, and seed.

2. Install water bars and construct drain dips on control lines to prevent erosion.

3. Install check dams to reduce erosion potential in drainages.

4. Restore natural ground contours.

5. Remove all flagging, equipment and litter.

6. Completely restore camping areas and improved helispots.

7. Consider and plan more extensive rehabilitation or revegetation to restore sensitive impacted areas.

If revegetation or seeding is necessary, only native plant species will be used. If emergency rehabilitation measures are needed or if rehabilitation is needed to reduce the effects of a wildland fire then the site can request appropriate funding through the Burned Area Emergency Rehabilitation (BAER) fund. The BAER fund is administered through the NPS representative at the National Interagency Fire Center and national BAER team leader.

Rehabilitation plans for each fire will be reviewed by the Fire Analysis Committee. A final plan will be submitted to Region for establishing an account. Rehabilitation should be initiated prior to complete demobilization or early the following season.

9. Records and Reports

The IC will be responsible for documenting decisions and completing the fire report (DI-1202). The Case Incident Report, 10-343, is also the responsibility of the IC and documents all personnel and equipment costs involved in the burn. The Collateral FMO will be responsible for any additional required reports.

Fire Investigation

Fire management personnel will attempt to locate and protect the probable point of origin and record pertinent information required to determine fire cause. They will be alert for possible evidence, protect the scene and report findings to the fireline supervisor.

Prompt and efficient investigation of all suspicious fires will be carried out. However, fire management personnel should not question suspects or pursue the fire investigation unless they are currently law enforcement commission qualified.

Personnel and services of other agencies may be utilized to investigate wildland fire arson or fire incidents involving structures.

Information obtained will be documented on a Case Incident form 10-343. Evidence discovered will be protected and left in place until an investigator can collect it properly.

C. Wildland Fire Use

All unplanned wildland fires will be suppressed in a prompt, safe, aggressive, and cost-effective manner to produce fast, efficient action with minimum damage to resources. Due to staff limitations, relatively small land management parcels, long response times, valuable resources, and values at risk on neighboring lands, this plan does not recommend wildland fire managed for resource benefit as an option for any of the units. Wildland fires will be suppressed using the appropriate suppression response. Prescribed fires will be used to reduce hazardous fuels and to meet resource management objectives.

D. Prescribed Fire

1. Planning and Documentation

The prescribed burns will be conducted at the NHS on an annual basis at different areas of the park to maintain, to the extent possible, the role of fire in the ecosystem and to reduce the build-up of hazardous fuels. The result of the burns will promote the health and vigor of the grasses and reduce the spread of noxious weeds. The burns are conducted in the late winter or early spring. This timing allows the fire to consume previous years’ dead, dried grass stems and leaves, but not damage the grass plants' roots.

The Chief of Interpretation and Resource Management and other qualified staff coordinate with the Umatilla National Forest and local fire departments to plan and implement all prescribed burns. Prescribed burning activities will last only a few days a year, and usually will last only one afternoon per year. Between 10 and 20 acres would be burned each year, and most areas of the park would be burned every 3 to 5 years. The park only burns on county "Burn Days" to facilitate smoke dispersal. There are no future management changes anticipated. However, if more land area within the park is planted with native grasses, fire will probably play a part in its maintenance.

The Burn Boss may order additional resources to ensure better attainment of objectives. All non-park resources will be ordered and committed to the prescribed fire project under the Supplemental Project Plan between Whitman Mission National Historic Site and the Walla Walla District, Umatilla National Forest. The Adequate Holding Resource Worksheet (Appendix 9, page 34) and the Fireline Handbook (National Wildfire Coordinating Group Handbook 3, PMS 310-1) were used to determine the minimum number and type of holding resources needed. Following ignition, during patrol and mop-up phases, fewer resources may be required. The Burn Boss has the discretion to adjust the resources to accomplish the objectives. All prescribed burns within Whitman Mission National Historic Site must be extinguished by 6:00 p.m. per the requirements of a County Burn Permit.

Burn Boss (Type 2)
Holding Specialist
Ignition Specialist
2 Ignition crewmembers
4 Holding crewmembers

The qualifications of each individual holding these positions will be on file at their home unit. The Burn Boss will be provided with a list of personnel qualifications. One person may fill multiple positions where appropriate (e.g. Burn Boss and Ignition Specialist). All persons filling these positions must be NWCG qualified.

Proposed ignition date: Early January – late March

Projected burn duration: Burn duration will not exceed one day, as required by the County Burn permit. More than one sub-unit may be burned at a time, and burning may occur on more than one day to accomplish management's resource objectives.

Dates when the burn will not be conducted:

1. No-burn day as determined by the Walla Walla County Burn Control office.
2. Local, Regional, or National preparedness levels preclude new prescribed fires.
3. Management concerns preclude ignition of any portion of this project.
4. Holidays or times of high visitor use.

NFFL Fuel Models used: 3 (L) 100% of burn unit.

PRESCRIPTION

Weather	Range
Temperature (degrees F)	50 - 65
Relative Humidity (%)	40 - 68
Wind Direction (Cardinal direction)	S,W,N
Midflame Wind Speed (mph)	2 - 6
1-Hour Fuel Moisture (%)	8 - 20

Fire Characteristics	Range
Rate of Spread (chains / hour)	16 - 129
Flame length (feet)	4 - 14
Fireline Intensity (btu/ft/sec)	142 - 1625
Probability of Ignition (%)	40 maximum

Required Reports
All prescribed burn forms will be completed as outlined by the Prescribed Burn Incident Commander and the park FMO. A fire monitor will be assigned to collect all predetermined information and complete all necessary forms prior to, during, and after the burn. All records will be archived in the site's fire records for future use and reference.

The Prescribed Burn Incident Commander and the park FMO will prepare a final report on the prescribed burn for the Fire Analysis Committee. Information will include a narrative of the burn operation, a determination of whether objectives were met, weather and fire behavior data, map of the burn area, photographs of the burn, number of work hours, and final cost of the burn.

The forms necessary for documenting prescribed burn activities are outlined in RM- 18 (Wildland Fire Management Guideline). The Individual Fire Report, Dl- 1202, is the responsibility of the Prescribed Burn Incident Commander and the park FMO. The Case Incident Report, 10-343, is also the responsibility of the Prescribed Burn Incident Commander and the park FMO and documents all personnel and equipment costs involved in the burn.

Prescribed Burn Critique

The Fire Analysis Committee will critique each prescribed burn. A report detailing the actual burn will accompany any recommendations or changes deemed necessary in the program. This report will be submitted to the Superintendent. A post-season critique of the fire management program, including the prescribed burn program, will be held each year by the Fire Analysis Committee at the conclusion of the fall fire season.

The complete Whitman Mission National Historic Site Prescribed Burn Plan is included in the Appendix.

2. Exceeding the Prescribed Fire Burn Plan

If spot fires or slopovers occur, the Holding Crew Leader will supervise suppression actions. Ignition within the target area will cease. If spot fires and/or slopovers cannot be controlled immediately with on-site resources, the Burn Boss will convert the emerging fire to wildland fire status. In general, the emphasis on managing suppression actions will be the use of minimum impact suppression techniques as long as firefighter safety is not compromised. Suppression forces would include the use of firefighters with handtools as well as firefighters staffing portable pumps and hoses. Walla Walla County dispatch will be notified and requested to send suppression resources from Walla Walla County Fire District 4.

In event of a wildland fire, the Prescribed Burn Incident Commander will make the declaration and assume the role of Incident Commander until relieved by an Incident Commander Type 3 (ICT3). All incident leaders (Holding, Ignition) will ensure the safety of ALL personnel assigned to them. All personnel will be assigned holding or suppression duties.

3. Air Quality and Smoke Management

Whitman Mission National Historic Site is designated a Class II airshed. Atmospheric pollutants, including smoke, must be managed accordingly. The Fire Management Plan will comply with the Clean Air Act, Washington State Smoke Management Plan, and the Washington Visibility Protection Plan. National Park Service Management Policies state:

> "The National Park Service will seek to perpetuate the best possible air quality in parks because of its critical importance to visitor enjoyment, human health, scenic vistas, and the preservation of natural systems and cultural resources ... The Park Service will assume an aggressive role in promoting and pursuing measures to safeguard (air quality related values) from the adverse impacts of air pollution. In cases of doubt as to the impacts of existing or potential air pollution on park resources, the Park Service will err on the side of protecting air quality and related values for future generations." (Chapter 4:17 December 1988)

Open burning in Walla Walla County requires a burning permit, currently issued by the Walla Walla County Burn Control office. Each separate burn must have the permission of the Air Pollution Control Board of the State Department of Ecology. A telephone recording made at the burn control office each morning advises if it is a burn day. Receiving the permission of the burn control office to burn includes assumption that air instability is adequate to facilitate smoke dispersal. Whitman Mission complies fully with their decisions.

The nearest Class I airsheds to Whitman Mission are the Hell's Canyon and the Wallowa Whitman Wilderness Areas, both southeast of the park over 100 miles. With the prevailing winds, neither area should be affected by activities at Whitman Mission. The Lewiston-Clarkston are has been covered by a Total Particulate management plan for over 15 years. It is possible that many cases of prescribed burning in Walla Walla and Columbia counties could move east toward Clarkston. The regional perspective of the state Department of Ecology can factor this possibility into its burn/no-burn decisions much better than the previous system of county-by-county decisions. Under current guidelines, a limit of how many burns and how much acreage in any one area may burn under given conditions is set by the Department of Ecology. In fact, it could be the case that a park neighbor has permission to burn on a given day, but the park would not have permission.

Public opinion regarding smoke levels will also be considered. Complaints regarding smoke will be documented and communicated daily to the Collateral Fire Management Officer, for consideration and inclusion into the fire package.

National Weather Service predictions on mixing heights for smoke dispersion are included into the county Burn Day and the park Go/No Go decision process. Receiving the permission of the burn control office in Walla Walla includes the assumption that air instability is adequate to facilitate smoke dispersal. Whitman Mission complies fully with their decisions. To the degree possible, the burn will be ignited at the time of maximum heating, to facilitate smoke dispersion. Every attempt will be made to burn during periods when winds are favorable for associated smoke dispersion.

The smoke column should disperse to the northeast with prevailing winds. Some minor smoke impacts may be expected for periods of up to six hours. By selecting time periods when weather conditions facilitate large-scale smoke dispersion, impacts to critical receptor sites are expected to be minimal. A potential for health impacts to park visitors and staff does exist to a limited degree. If smoke rises well and dispersion is to the east and northeast (as planned), smoke will be carried away from many visitor use areas. Signs will be posted in the Visitor Center warning visitors of prescribed fire activities and possible smoke impacts. Every attempt will be made to burn during periods when winds are favorable for associated smoke dispersion.

E. Non-Fire Fuel Treatment Applications

Non-native plants growing in the revegetated areas are controlled with herbicides or biological agents that are part of the park's approved Integrated Pest Management Plan. Some of these plants are on the state and/or federal Noxious weed list and are under laws and regulations that mandate their control. Spot or broadcast spraying of herbicides are done only with state and federally approved substances under the direction of licensed pesticide applicators. Spraying non-native plants, however, does not address the build-up of hazardous fuel – the dry, dead grass stems and leaves from previous years. This dead biomass becomes so thick that it can retard the growth of the next season's grasses, allowing non-natives to grow and overtop the native grasses. It also creates a large hazardous fuel buildup once the dead biomass dries in the spring. Spot spraying weeds does not address the hazardous fuel buildup of the grasses.

1. Mechanical Treatment

Hazard fuel buildups could be removed or manipulated strictly by mechanical means, at least to the extant practicable. However, this treatment would be extremely expensive and natural ecological processes would still not be allowed to function in this fire-dependent community. This option would likely result in substantial damage to the resources from human activities and mechanical devices.

The Whitman Mission maintenance staff uses a tractor with attached flail mower to mow an eight-foot wide strip along the inside of most of the park boundary fence. This serves as a firebreak in those fire management units that are next to the park boundary, and also serves as an easier means of access to parts of the park and to the boundary fence itself for maintenance of it.

a. Maintenance staff prepare the flail mower each spring, performing preventive maintenance and ordering necessary spare parts. Each year the park flail mows between one and ten acres, even if it uses prescribed fire to burn additional acres. This is usually a series of spot treatments of individual patches of weeds that are about to disperse seed. These spot treatments are usually less than one-half acre.

b. Flail mowing would occur in late spring, as noxious weeds begin to reach the height of the grass surrounding them. Mowing must occur early enough to cut the grasses and noxious weeds before they become so tall that the mower simply cannot cut the large amount of vegetation it moves over. The mowing must wait in the spring until the ground if firm enough so the tractor does not get stuck in any of the lower muddy areas where it may have to drive.

c. Monitoring after mowing would use the same protocols as used with prescribed fire. These are in the monitoring plan included in the Appendix. The purpose and objectives of mechanical treatment are the same as for prescribed fire—to reduce the hazardous fuel and to maintain a sense of the historic scene. The objectives for any "spot" treatment of a weed patch with the flail mower is to prevent an increase in the weedy area and to allow greater efficiency for any herbicide applied to the area. For "spot" flail mower treatments

a simple comparison of before treatment and post treatment weed population density and area is a sufficient monitoring activity.

d. Every critique of a flail mowing effort that is used instead of a prescribed burn treatment should be evaluated much the same way the burn would have been critiqued. They critique will involve park staff and possibly other subject matter experts in vegetation monitoring, weed control, or rangeland vegetation. The objectives as stated in the post-burn evaluation of the prescribed fire plan will be the same objectives that any mechanical treatment should fulfill.

e. Cost accounting is simple at Whitman Mission, because all of the flail mowing is done by the maintenance staff, and all maintenance activity is tracked against work orders in Maximo. The maintenance staff keeps their record keeping up-to-date and can print out the total time and cost charged against revegetation and maintenance of the revegetated areas.

f. Annual reports for Maximo cover the maintenance costs to the park. Resource management annual summaries cover annual maintenance of the revegetated areas. The new generation of the NPS Resource Management Plan will provide an easier way to report accomplishments. Whitman Mission will receive this fiscal year a history of vegetation manipulation report that covers the last 20 years. Every year a new appendix to the report will be added that covers fire herbicide, mechanical, and any other treatment to the vegetation.

g. No large flail mowing projects occurred in fiscal year 2003, and none is planned in 2004. Spot mowing of weedy patches will occur as necessary to prevent seed dispersion and to slow or stop the expansion of non-native plants in revegetated areas. The areas that are mowed will be tracked similarly to the way areas of herbicide spot spraying are tracked, on an aerial photograph of the park.

Debris Disposal

Fire may be used to eliminate various types of debris generated from resource management or maintenance activities, such as brush clipping, pruning, and hazard tree removal, according to the guidelines established in RM- 18.

All debris burning activities will be reviewed by the Collateral FMO. If it is determined that a burn has virtually no chance to exceed the planned perimeter, will not damage surrounding natural or cultural resources, does not present a safety threat to crew members, will not require curtailment during the burning operation, and is an established rather than a new practice, a prescribed fire burn boss, fire qualified personnel, a formal prescribed fire burn plan, and a monitoring plan are not needed. Otherwise, it will constitute a prescribed fire and must comply with all requirements.

For debris burns, all personnel will wear appropriate personal protective equipment (hard hat, eye protection, leather gloves, nomex shirt and pants, leather boots). The supervisor of the burn will notify appropriate agencies (e.g., air quality, local fire departments) and

neighbors and obtain all needed permits, and will develop an appropriate safety and evacuation plan in case of injuries or other emergencies. The crew should include someone who has previously conducted a similar burn at the site or a similar site.

F. Emergency Rehabilitation and Restoration

When suppression action is taken, rehabilitation is appropriate. The most effective rehabilitation measure is prevention of impacts through careful planning and the use of minimum impact suppression techniques.

Rehabilitation will be initiated by the Incident Commander or the Collateral FMO. Rehabilitation will be directed toward minimizing or eliminating the effects of the suppression effort and reducing the potential hazards caused by the fire. These actions may include:

1. Backfill control lines, scarify, and seed.
2. Install water bars and construct drain dips on control lines to prevent erosion.
3. Install check dams to reduce erosion potential in drainages.
4. Restore natural ground contours.
5. Remove all flagging, equipment and litter.
6. Completely restore camping areas and improved helispots.
7. Consider and plan more extensive rehabilitation or revegetation to restore sensitive impacted areas.

If revegetation or seeding is necessary, only native or approved species with similar appearance to native plant species will be used. If emergency rehabilitation measures are needed or if rehabilitation is needed to reduce the effects of a wildland fire then the site can request appropriate funding through the Burned Area Emergency Rehabilitation (BAER) fund. The BAER fund is administered through the NPS representative at the National Interagency Fire Center and national BAER team leader. The Interagency Burned Area Emergency Stabilization and Rehabilitation Handbook is the reference for the park.

V. ORGANIZATIONAL AND BUDGETARY PARAMETERS

A. Organization

The Fire Analysis Committee consisting of the Resources Management Specialist/ Chief Ranger, Prescribed Fire Specialist, and Maintenance person will meet as needed to review wildland fires, coordinate actions, develop alternatives, and present them to the Superintendent for approval. Guidelines for their work are those established for the Wildland Fire Situation Analysis (WFSA).

B. FIREPRO Funding

The Collateral Fire Management Officer (FMO), the Whitman Mission Chief I & RM, manages budgets for both allocated and emergency fire accounts. The Chief, I & RM consults with Regional fire management staff on FIREPRO funding. Whitman Mission NHS does not submit an individual FIREPRO funding request.

C. Fire Management Organization for Whitman Mission

Acting Superintendent
An Acting Superintendent is delegated all decision making responsibility when the Superintendent is absent from the site and unavailable for contact.

(Collateral) Fire Management Officer (Chief I & RM)
The Collateral Fire Management Officer (FMO) oversees the fire management program and ensures its coordination with emergency services and resource management programs. The Collateral FMO has direct responsibility to plan and implement the site's suppression and preparedness plans. The Major duties related to wildland fire include:

1. Chair the Fire Analysis Committee, to review fire management situations as needed.

2. Approve and implement any fire-related use restrictions.

3. Conduct reviews of fires as specified in this plan.

4. Manage budgets for both allocated and emergency fire accounts.

5. Ensure fire equipment readiness during fire season.

6. Oversee initial attack fire operations and within delegated authority arrange for additional equipment, personnel and logistical support as needed.

7. Call Fire Analysis Committee to meet as needed. Prepare WFSA after developing alternatives and estimating probability of success.

8. Coordinate off-park dispatches of personnel

9. Inform and consult with System Support Office (SSO) FMO when a fire reaches 10 acres.

10. Monitor fire danger conditions, implement step-up plan activities, and recommend appropriate use restrictions.

11. Ensure completion of fire reports and other administrative records.

12. Serve as liaison with other agencies regarding wildland fire activities.

13. Prepare fire reports, route for signature and maintain fire records, including fire reports, dispatch fire reports, weather information, resource orders, and situation and fire reports as needed.

14. Prior to fire season, update lists of contact phone numbers.

Prescribed Fire Specialist

The Prescribed Fire Specialist for Whitman Mission NHS is located at John Day Fossil Beds National Monument. This position has direct responsibility to advise the Whitman Mission collateral FMO in all planning and implementation of the site's fire activities. The Major duties related to fire include:

1. Develop or review prescribed burn objectives and monitor post-burn fire effects. Establish burn monitor plots, as needed. Identify areas of potential benefit from prescribed fire.

2. Develop, update and/or review fire plans, including implementation or assistance in prescribed burn plans.

3. Provide for development of fire qualifications for selected employees and make them available during on-going fires.

Administrative Officer

The Administration Officer manages administrative functions including personnel, procurement, budget, and phone and computer support. The main duties of the position related to fire management are:

1. Provides emergency procurement assistance for on-going fires.

2. Provides services in timekeeper, travel, and budget clerks for fire management.

3. Assist in gathering and displaying information regarding site resources for fire management activities.

4. Provide communications with field fire personnel as needed.

D. Statement of park Superintendent’s Responsibility

The Superintendent is responsible for managing wildland fire programs according to Department policy, RM-18, and policy updates. Major wildland fire duties include:

1. Approves the Fire Management Plan and any revisions.

2. Sole authority to approve prescribed burn plans.

3. Select and approve action alternatives from among those developed by the Fire Analysis Committee when needed (i.e., WFSA process).

4. Provide direction directly to Type I and Type 2 incident commanders working in a park area, or designate a representative to do so, as needed.

5. Delegates specific authority to Collateral Fire Management Officer for mobilizing equipment and personnel.

6. When needed, coordinate with adjacent land managers to establish a Multi-Agency Coordination Group to develop objectives and priorities on fires involving multiple ownership or jurisdiction.

An Acting Superintendent is delegated all decision making responsibility when the Superintendent is absent from the site and unavailable for contact.

E. Interagency Coordination

Whitman Mission NHS is developing good working relationships with local land management agencies, the Collateral FMO being the primary liaison for wildland fire. Cooperative agreements with various federal, state and local agencies (Appendix E) generally provide that resources of each agency are available to assist in initial attack efforts.

Whitman Mission NHS will use the Incident Command System (ICS) as a guide for fireline organization. Qualifications for individuals is per NPS Wildland Fire Qualifications and Certification System, part of NIIMS and the National Wildland fire Coordination Group (NWCG) Prescribed Fire Qualification Guide. Depending on fire complexity, some positions may be filled by the same person.

F. Key Interagency Contacts

Roger Trick, Chief of Interpretation and Resource Management, Whitman Mission NHS, National Park Service, Walla Walla, WA Phone: 509-522-6360 Home: 509-529-7356

Richard Smedley, Regional Fire Planner, Columbia Cascades SSO, National Park Service, Portland, OR

Terry Darby, Superintendent, Whitman Mission NHS, Walla Walla, WA 99362. Phone: 509 522-6360 Home: 509 529-8799

Jim Beekman, Fire Management Officer, Walla Walla Ranger District, Umatilla National Forest, 1415 W. Rose, Walla Walla, Washington 99362. Phone: 509 522-6281 Home: 509-529-4569

G. Fire-related Agreements

The following fire-related agreements that involve Whitman Mission NHS are included in the appendix.

Northwest Master Agreement

Local Operating Plan with USFS, USFWS, BLM, NPS, Washington DNR, Oregon DoF,

Supplemental Project Plan between Whitman Mission NHS and USFS, Walla Walla District, Umatilla National Forest

Memorandum of Understanding between National Park Service and County Fire Protection District No. 4

VI. MONITORING AND EVALUATION

FIRE RESEARCH AND MONITORING
The main goal of fire research and monitoring at Whitman Mission National Historic Site is to guide management actions and interpretive programs. Both short and long-term approaches are needed to accomplish this goal and to document that overall programmatic objectives are being met and undesired effects are not occurring. The Monitoring Plan for WHMI is contained in the Appendix. The Fire Monitoring Plan for Whitman Mission complies with National Park Service Fire Monitoring Handbook. Personnel from North Cascades National Park have visited Whitman Mission and set monitoring stations in the park.

SHORT-TERM MONITORING
Short-term monitoring efforts are divided into three levels of data gathering intensity: reconnaissance, current fire conditions, and post-fire effects. Reconnaissance monitoring, which provides a basic overview of a fire event, will be used for both prescribed and wildland fires, as they are occurring.

Current fire conditions data will be documented for all fires that, based on a reconnaissance, have the potential to threaten resource values at risk, or that are being managed under specific constraints, such as a prescribed fire. Routine monitoring of current fire conditions calls for data on ambient conditions and fire and smoke characteristics as they change over a 24-hour period. These data will be coupled with information gathered during reconnaissance monitoring to predict fire behavior and to identify potential problems.

Additional monitoring will be triggered when prescribed or wildland fire actions threaten resource values at risk. For example, if a fire burns through an area known to be occupied by any threatened, endangered or sensitive species, follow-up resource surveys will be conducted.

Post-fire effects monitoring will collect information on fuel reduction, vegetative, or other objective dependent variables after a fire, using sampling techniques described in the Western Region Fire Monitoring Handbook (1992). This level of monitoring permits a quantitative evaluation of whether a stated objective was achieved, such as to reduce dead and downed fuels by 60 percent; to disrupt the understory tree ladder; or to remove invading young trees from a specified meadow.

LONG-TERM MONITORING

Long-term monitoring requires collecting information on trends, that is, change over time, for a managed ecosystem. Once a trend is detected, a research program and appropriate management response can be implemented.

Long-term monitoring efforts will identify the existence of a trend by continued monitoring of the variables examined for the post-fire effects and by monitoring additional variables, selected by natural resource and fire research personnel, that would indicate long-term change. These primary indicators of long-term change are those variables most sensitive to change in the environment as a result of fire.

Annual summaries of fire effects data will be analyzed and interpreted for significant ecological trends. Once a trend is recognized, and management has determined that the trend is unacceptable, research proposals will be developed, along with funding requests, to determine the cause of the trend and the mechanism by which it was manifested.

VII. FIRE RESEARCH

Very little fire research has occurred at the park. Monitoring stations were set in 2003 in preparation for an early spring burn in 2004. The effect of fire on pre-selected vegetation plots has not been monitored. No documentation of a fire's effects has been written down, only casual observations have been made by the park's maintenance and resource management staff of before and after conditions of an area that was burned.

Whitman Mission does have a herbarium containing almost 200 species found on the park. Photographs of most revegetation efforts are in the image collection, and a summary of revegetation efforts and individual fire reports are on file. The systematic, scientific, and consistent monitoring that has just begun is the most important research tool for the fire program at Whitman Mission. It may provide us with answers about how well the role of fire in the habitat can aid park management in controlling non-native plants in the park.

VIII. PUBLIC SAFETY

Whitman Mission NHS is dedicated to ensuring the safety of each visitor and to all residents and property adjacent to the site's boundary. The Superintendent may close all or a portion of a park unit (including roads and trails) when wildland fire or a prescribed

burn pose an imminent threat to public safety. A prescribed burn that exceeds prescription or extends beyond the predetermined area will be immediately suppressed. Any prescribed burn that is determined to pose a threat after ignition will be immediately suppressed.

In case of a wildfire, park staff will notify the county dispatcher through a 911 telephone call. County Fire District 4 would respond and suppress the fire. The Chief, I & RM or another staff member the Superintendent designates would act as a resource advisor to the Fire District 4 personnel at the park. Park staff would clear trails near the fire of any visitors and conduct them into the Visitor Center building, park staff would conduct any necessary traffic control in the Visitor Center parking lot to ensure unimpeded access by Fire District 4 equipment, and park staff may conduct traffic control on the entrance road during periods of dense smoke across the road. Inside the Visitor Center building will be the designated safe zone for visitors and staff.

During a prescribed fire, park interpreters will post signs in the Visitor Center, per the Prescribed Fire Plan, that inform visitors about a prescribed fire in progress and about smoke in the area. Other information, brochures, knowledgeable staff, etc. will be in the Visitor Center for public information. No person will go into the burn area without personal protective equipment. No visitor will be allowed in the burn area without the permission of both the Superintendent and the Burn Boss. Park staff would clear trails near the prescribed fire of any visitors and conduct them into other parts of the park, or into the Visitor Center building, park staff would conduct any necessary traffic control in the Visitor Center parking lot or on the entrance road during periods of dense smoke. The Superintendent may direct staff to close portions of the park trail system during a prescribed fire to ensure visitor safety.

Areas of fire activity will be clearly signed at visitor center. Residents adjacent to the site will be notified in advance of any prescribed burn and if any fire poses a threat to burn outside the site's boundaries.

During prescribed burns at least one burn team member will have first aid training. A first aid kit will be on-site for prescribed burns as well as wildland fires. The local police, fire, and emergency medical services will be notified prior to the ignition of any prescribed burn. They will also be notified of the location of any wildland fires.

IX. PUBLIC INFORMATION AND EDUCATION

Educating the public on the value of fire as a natural process is important to increasing public understanding and support for the fire management program. The interpretation division, in coordination with resource and fire staff, has the primary responsibility for providing this education. The U.S. Forest Service, National Interagency Fire Center, and National Park Service fire information-related web sites have a wealth of information about fire and its role as a natural agent. Interpretation can use most of that material unchanged even though a great deal of it covers forests or the wild/urban interface.

The site will use the most appropriate and effective means to explain the overall fire management program. This may include supplemental handouts, signing, personal contacts, or media releases. When deemed necessary, interpretive presentations will address the fire management program and explain the role of fire in the environment. During periods of High Fire Danger, notices will be posted in the Visitor Center and at site bulletin boards. During Extreme Fire Danger periods, all fires are prohibited, including the use of fire grates, grills, and stoves. Restrictions and closures of site areas may be deemed necessary. Interpretive activities will include a fire safety message. Material from public displays used at past county fairs, and other material developed to document the park's use of prescribed fires will continue to be saved, improved, and developed. The Chief of Interpretation and Resource Management is an Information Officer Type 3 and has experience with public information about fire.

Prior to the lighting of any planned ignition, the Superintendent will make information available to visitors, local residents, and the press about what is scheduled to happen in the site and why. On-site information will be provided to alleviate visitor concern about the apparent destruction of site resources by fire or the impairment of views due to temporary smoke. This information will include prescribed burn objectives and control techniques, current fire location and behavior, effects caused by the fire, impacts on private and public facilities and services, and restrictions and closures within the site.

As outlined in the prevention section, emergency closures or restrictions may become necessary during periods of extreme or extended fire danger. The Superintendent has authority under Title 36 of the Code of Federal Regulations, Section 1.5 to restrict or close temporarily parts of the park.

X. PROTECTION OF SENSITIVE RESOURCES

A. Cultural Resources

Whitman Mission NHS is listed on the National Register of Historic Places. The entire park is treated as an archeological site, and any ground disturbance or alteration of the landscape must has a completed assessment of effect completed in order to comply with the National Historic Preservation Act. Compliance with Section 106 of the National Historic Preservation Act (NHPA, as amended), was accomplished years earlier and will be reviewed by subject matter experts. The burn will have no adverse effect on the park. Cultural resources requiring protection from fire and related management activities are identified on a project map located in the compliance and project files, and are identified on the attached project map. No ground disturbance is expected through the course of implementing this project. Hand ignition of the interior and utilization of natural and existing human constructed fuel breaks will prevent ground disturbance. The Type 3 fuels will respond to water and/or foam wetline that can be laid quicker with an engine than a handline could be dug with shovel and pulaski.

The park resource manager is responsible for ensuring that all compliance measures are completed before ignition. An incomplete list of specific resources and concerns regarding them is in the Cultural Sites Inventory in the Appendix.

To prevent needless or excessive damage, historians may be consulted during the early planning stages of prescribed fires, where appropriate.

THE GREAT GRAVE

The Great Grave is the site of interment for the individuals killed at Whitman Mission in November 1847. Efforts to establish a marker for the grave located near the Mission Grounds began as early as 1859. At this time the grave was simply a pile of dirt surrounded with a picket fence. In about 1860 a new picket fence was constructed around the grave. This fence lasted until 1897 when, on the 50th anniversary of the killings, a regional committee was formed to generate funds for a suitable grave marker and memorial shaft. Funds were secured, and in 1897, the two-ton marble slab was laid. It was also during this time that the iron fence was constructed around the grave. At this time, there was an access road to the gravesite and a parking area nearby. This road lasted until 1962 when it was converted to a trail and the parking area was removed altogether, establishing a more peaceful setting for the grave. In 1984 stabilization of the marble slab was undertaken to correct settling problems. This work required exhuming the casket containing the remains, and rehabilitation of the interior portion of the grave itself before resetting the stone on its foundation.

MEMORIAL SHAFT

The Memorial Shaft was commissioned to establish a suitable memorial to the Whitmans, and was erected at the site during the 50th anniversary commemoration, at the same time as the Great Grave. This occurred primarily through the earlier fund raising efforts of William Gray and the Monument Association. The monument is located on top of a hill approximately eight acres in extent. It is the highest landform in the area. The monument is a 27-foot high granite shaft on a granite base. An iron fence surrounds the shaft. In 1941, water was pumped up the hill in order to irrigate a small lawn within the fence. In 1952, a road to the monument was converted to a footpath, and a gate installed preventing cars from driving up the hill.

IRRIGATION DITCH

Historically, Marcus Whitman relied on the Walla Walla River to provide the majority of water needed to run the mission and irrigate crops. Water was diverted to the Millpond and to a ditch, which irrigated the orchard and crops to the west. Today, a reconstructed portion of the irrigation ditch runs along the north edge of the Mission Grounds. The ditch is approximately 1,000 feet long, four feet wide, and two and one-half feet deep. The ditch was relocated from the north side of the Oregon Trail in 1961, based on archeology and oral history. This ditch continues as a viable irrigation system carrying water diverted from Doan Creek to properties adjacent to the mission site.

MILLPOND DIKE

This landform was created to hold the Millpond, which held water for operating the mill. Reconstruction of the Millpond occurred in 1961, based on physical evidence and used water supplied from Doan Creek, north of the site. The pond was drained and repaired in 1980 using a clay seal on the bottom to reduce seepage. The dike surrounding the pond is approximately 600 feet by 175 feet. The landform was rebuilt in 1981 and again in 1982 to repair damage from geese, ducks, muskrats, moles, and gophers. The Millpond on the Mission Grounds was historically associated with the operation of the water-wheel powered Gristmill and was fed from the Walla Walla River. The mill supplied the mission with flour and milled grain.

OREGON TRAIL

A segment of the Oregon Trail was reestablished for interpretive purposes on the north side of the Mission Grounds in 1963, when the old county road running east-west through the park was closed.
The location of the trail is approximate, based on historic drawings, and generally following the old county roadbed.

On November 10, 1978, the Oregon National Historic Trail was established. Whitman Mission was officially recognized as a historic site along the Oregon Trail. Designation as part of the Oregon Trail expanded the NHS's legislated purpose and significance beyond a memorial to the Whitmans as specified in the 1936 enabling legislation.

B. Natural Resources

Natural resource compliance is completed before the ignition of any project. Qualified staff has conducted appropriate review and survey of the project area for plant and animal species of concern prior to ignitions in the project area. An Environmental Assessment has been prepared and the Deputy Regional Director has approved a Finding of No Significant Impact. Whitman Mission has no known threatened or endangered species. Vegetation surveys –baseline and non-native inventory—have not found any T & E species on the park. The riparian area along Mill Creek is not in a prescribed burn unit. The riparian strip is narrow and has easy access for engines, so water or foam can be used instead of chain saws or pulaskis to stop fire from entering the riparian strip, and extinguish any fire that does enter the riparian strip.

C. Developed features, infrastructure

The only park building that is not surrounded by green lawn is the pumphouse located behind the Pioneer Cemetery. Before any burn is conducted in Areas E or D, a wide strip must be mowed around the pumphouse, and may have to be wetted. The park does not have plans to burn adjacent to the pumphouse. The tall grasses there will be mowed, and raked if necessary to maintain a healthy grass stand.

XI. FIRE CRITIQUES AND ANNUAL PLAN REVIEW

FIRE CRITIQUES
Fire reviews will be conducted in accordance with RM- 18. Each review will be documented and filed with the final fire report. The Collateral FMO will retain a copy for the site's files.

ANNUAL FIRE SUMMARY REPORT
The Prescribed Fire Specialist will be responsible for completing an annual fire summary report. The report will contain the number of fires by type, acres burned by fuel type, cost summary (prescribed burns and wildland fires), personnel utilized, and fire effects.

ANNUAL FIRE MANAGEMENT PLAN REVIEW
The Fire Management Plan will be reviewed annually by the Fire Analysis Committee. Necessary updates or changes will be accomplished prior to the next fire season. Any additions, deletions, or changes will be reviewed by the Superintendent to determine if such alterations warrant a re-approval of the plan.

XII. CONSULTATION AND COORDINATION

The park will consult with the CPSU at Oregon State University, University of Idaho, or other resource management specialist within the NPS or other agencies to obtain advice on the role of prescribed burns in the park vegetation management program.

Park personnel will also consult with Fire Management personnel of the Umatilla National Forest. Coordination between the park staff and personnel from the Walla Walla Ranger District of the Umatilla National Forest is of critical importance to the success of Whitman Mission's fire management program. The Walla Walla Ranger District has personnel that are prescribed burn bosses and have experience with the fine fuels at Whitman Mission. Given a few days notice, they are eager to assist the park.

Reviewers of this plan include:

Terry Darby, Superintendent, Whitman Mission National Historic Site.

Roger Trick, Chief of I & RM Whitman Mission National Historic Site.

Tom Wordell, District Fire Management Assistant, Walla Walla Ranger District, Umatilla National Forest.

Richard Smedley, Regional Fire Planner, Pacific West Region, National Park Service, Portland, OR

Ken Till, Fire Management Officer, Columbia Cascades SSO, National Park Service, Seattle, WA

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Paul Reeburg, Fire Monitoring Program Specialist, Pacific West Regional Office, National Park Service, San Francisco, CA

Jim Beekman, Fire Management Officer, Walla Walla Ranger District, Umatilla National Forest

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APPENDIX B: DEFINITIONS

Appropriate Suppression. Selecting and implementing a prudent suppression option to avoid unacceptable impacts and provide for cost-effective action.

Class of Fire (as to size of wildland fires):

Class A - 1/4acre or less.
Class B - more than ¼ but less than 10 acres.
Class C - 10 acres to 100 acres.
Class D - 100 to 300 acres.
Class E - 300 to 1,000 acres.
Class F - 1,000 to 5,000 acres.
Class G - 5,000 acres or more.

Energy Release Component (ERC) A number related to the available energy (BTU) per unit area (square foot) within the flaming front at the head of a fire. It is generated by the National Fire Danger Rating System, a computer model of fire weather and its effect on fuels. The ERC incorporates thousand hour dead fuel moistures and live fuel moistures; day to day variations are caused by changes in the moisture content of the various fuel classes. The ERC is derived from predictions of (1) the rate of heat release per unit area during flaming combustion and (2) the duration of flaming.

Wildland Fire Situation Analysis WFSA). A decision making process that evaluates alternative management strategies against selected environmental, social, political and economic criteria.

Extended attack. A fire on which initial attack forces are reinforced by additional forces.

Fire management . All activities related to the prudent management of people and equipment to prevent or suppress wildland fire and to use fire under prescribed conditions to achieve land and resource management objectives.

Fire effects. Any consequences to the vegetation or the environment resulting from fire, whether neutral, detrimental, or beneficial.

Fire intensity. The amount of heat produced by a fire. Usually compared by reference to the length of the flames.

Fire prescription. A written direction for the use of fire to treat a specific piece of land, including limits and conditions of temperature, humidity, wind direction and speed, fuel moisture, soil moisture, etc., under which a fire will be allowed to burn, generally expressed as acceptable range of the various fire related indices, and the limit of the area to be burned.

Fuels. Materials that are burned in a fire; primarily grass, surface litter, duff, logs, stumps, brush, foliage, and live trees.

Fuel loadings. Amount of burnable fuel on a site, usually given as tons/acre.

Hazard fuels. Those vegetative fuels which, when ignited, threaten public safety, structures and facilities, cultural resources, natural resources, natural processes, or to permit the spread of wildland fires across administrative boundaries except as authorized by agreement.
Maintenance burn. A fire set by agency personnel to remove debris; i.e., leaves from drainage ditches or cuttings from tree pruning. Such a fire does not have a resource management objective.

Natural fire. A fire of natural origin, caused by lightning or volcanic activity.

NFDRS Fuel Model. One of 20 mathematical models used by the National Fire Danger Rating System to predict fire danger. The models were developed by the US Forest Service and are general in nature rather than site specific.

NFFL Fuel Model. One of 13 mathematical models used to predict fire behavior within the conditions of their validity. The models were developed by US Forest Service personnel at the Northern Forest Fire Laboratory, Missoula, Montana.

Prescribed fire. A fire ignited by agency personnel in accord with an approved plan and under prescribed conditions, designed to achieve measurable resource management objectives. Such a fire is designed to produce the intensities and rates of spread needed to achieve one or more planned benefits to natural resources as defined in objectives. Its purpose is to employ fire scientifically to realize maximize net benefits at minimum impact and acceptable cost.

Unwanted ignition. A natural fire that is permitted to burn under specific conditions, in certain locations, to achieve defined resource objectives.

Preparedness. Actions taken seasonally in preparation to suppress wildland fires, consisting of hiring and training personnel, making ready vehicles, equipment, and facilities, acquiring supplies, and updating agreements and contracts.

Prevention Activities directed at reducing the number or the intensity of fires that occur, primarily by reducing the risk of human-caused fires.

Rehabilitation (1) Actions to mitigate the adverse effects of suppression on soils, watershed, or other values, or (2) actions to mitigate adverse effects of a wildland fire on the vegetation-soil complex, watershed, and other damages.

Suppression Actions taken to extinguish or limit the spread of a wildland fire, regardless of the strategies and tactics employed.

Wildland fire Any fire that burns wildland vegetation other than a prescribed fire.

Wildland/urban interface fire A wildland fire that threatens or involves structures.

APPENDIX C: SPECIES OF CONCERN

Federally listed and proposed endangered and threatened species, candidate species, and species of concern that may occur within Whitman Mission NHS (from USFWS, April 9, 1999):

LISTED SPECIES

BIRDS

Bald eagle	*Haliaeetus leucocephalus*

PROPOSED SPECIES

None

CANDIDATE SPECIES

None

SPECIES OF CONCERN

Pale western big-eared bat	*Corynohinus (=Plecorus) townsendii pallescens*
Small-footed myotis (bat)	*Myotis ciliolabrum*
Fringed myotis (bat)	*Myotis thysanodes*
Yuma myotis (bat)	*Myotis yumanensis*
Ferruginous hawk	*Buteo regalis*
Columbia spotted frog	*Rana luteiventris (=prefiosa*, eastern population)
Loggerhead shrike	*Lanius ludovicianus*
Northern sagebrush lizard	*Sceloporus graciosus graciosus*
Western burrowing owl	*Athene cunicularia hypungea*

APPENDIX D: NEPA AND NHPA COMPLIANCE

United States Department of the Interior

NATIONAL PARK SERVICE

Whitman Mission National Historic Site
Route 2, Box 247
Walla Walla, Washington 99362

IN REPLY REFER TO:

Finding of No Significant Impact

Fire Management Plan

Project Description: The Fire Management Plan calls for continued suppression of all wildland fires. Prescribed fires (management-planned ignitions) are called for at Whitman Mission NHS to return fire as a natural process, maintain historic/cultural scenes, and to reduce fuel loads. Prescribed fires would only be started under project specific burning prescriptions (predetermined conditions of weather, fuel moisture, and personnel availability). Objectives of the prescribed fires would be documented in individual burn plans. Monitoring and research of fire effects would determine if management goals are being achieved and if burn prescriptions are appropriate.

Compliance: This project has been reviewed under the regulations and guidelines that implement the Endangered Species Act, National Environmental Policy Act, National Historic Preservation Act, Clean Water Act, and all NPS directives and guidelines.

Public Review: The environmental assessment (EA) for this project was distributed to park neighbors, local government entities, and other federal agencies in October 1999. Whitman Mission NHS requested all comments be returned by November 29, 1999.

No written comments were received.

Finding of no significant Impact: Based on the analysis of potential environmental impacts contained in the attached environmental assessment, I have determined that the project does not constitute a major federal action significantly affecting the quality of the human environment. Therefore, an environmental impact statement will not be prepared.

Decision Notice: It is my decision to implement the project as described in the proposed action in the EA. This action will return fire as a natural process to Whitman Mission National Historic Site and continue to protect the sites historic structures through suppression of all wildland fires.

Recommended:

Francis T. Darby, Superintendent
Whitman Mission National Historic Site

03-27-2000
Date

Approved:

William C. Walters, Deputy Regional Director
Pacific West Region

4/22/00
Date

ENVIRONMENTAL ASSESSMENT

WILDLAND FIRE MANAGEMENT PLAN

WHITMAN MISSION NATIONAL HISTORIC SITE

SEPTEMBER 1999

United States Department of the Interior

NATIONAL PARK SERVICE

Whitman Mission National Historic Site
Route 2, Box 247
Walla Walla, Washington 99362

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Recommended:

Francis T. Darby, Superintendent
Whitman Mission National Historic Site

03-27-2000
Date

Approved:

William C. Walters, Deputy Regional Director
Pacific West Region

4/22/00
Date

U. S. DEPARTMENT OF INTERIOR
NATIONAL PARK SERVICE
ENVIRONMENTAL ASSESSMENT

for

WILDLAND FIRE MANAGEMENT PLAN
Whitman Mission National Historic Site
Washington

Summary:

Fire was a natural component of this ecosystem until suppression of fire started around the turn of the century. With the decades of fire suppression and land use changes, alterations to the vegetation of the area have occurred. Species diversity is declining and native vegetation is disappearing. Revegetation efforts are working to restore native vegetation to the area. Fire can be used as a tool to promote native plant establishment.

The Fire Management Plan calls for continued suppression of all wildland fires. Prescribed fires (management-planned ignitions) are called for at the site in order to return fire as a natural process, maintain historic/cultural scenes, and to reduce fuel loads. Prescribed fires would only be started under project specific burning prescriptions (predetermined conditions of weather, fuel moisture, and personnel availability). Objectives of the prescribed fires would be documented in individual burn plans. Monitoring and research of fire effects would determine if management goals are being achieved and if burn prescriptions are appropriate.

Address Comments To:

Francis T. Darby, Superintendent
Whitman Mission National Historic Site
Route 2, Box 247
Walla Walla, Washington 99362

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PREPARER

CONSULTATION AND COORDINATION.

REFERENCES

PURPOSE AND NEED

Fire has been suppressed at Whitman Mission National Historic Site since the early 1900's. Fire suppression and other land management practices have altered plant community structure and composition, helped change the historic/cultural scene, and might have resulted in artificially high fuel loads (Gruell 1983).

Fire suppression activities have unintentionally deprived the land of fire as a natural process, which is now understood to be necessary for perpetuation of ecological processes. As a result, fire-adapted communities have been altered, potentially creating a decline in the biological diversity of the historic site.

There is an ongoing need to ensure the perpetuation of ecosystems and natural resources while managing wildland fire to provide protection of life, property, and cultural resources.

The restoration of fire to ecosystems is an important objective in managing the natural and cultural resources of Whitman Mission NHS. The preparation of a Fire Management Plan is required by The National Park Service Wildland Fire Management Guidelines and Director's Order #18 (NPS 1999, USDI 1998).

The NPS Wildland Fire Management Guidelines further define the service wide goal of wildland fire management:

> To achieve the resource objective of the park through prevention of human-caused wildfire, to minimize the negative impacts on resources from all wildland fires that occur, and to guide the use of prescribed fire as an integral part of the resources management program in a manner which would minimize the risk to the lives of employees, visitors, neighbors and their property.

The Resources Management Plan (NPS 1997) reinforces the need for fire suppression, prescribed burning, fire monitoring, and fire research by stating: "The cultural landscape is gradually approaching the appearance of the historic scene....The cyclic [vegetation management] maintenance program uses prescribed burns and the spot application of herbicides."

ALTERNATIVES

The following alternatives were analyzed for this environmental assessment. Under both alternatives, appropriate suppression response would be taken on all wildland fires, including human- and lightning caused fires.

Alternative A: Full Suppression (No Action)

Under this alternative, all ignitions within Whitman Mission NHS, including those of natural origin would be suppressed. Suppression would be accomplished through appropriate management response. No prescribed burning or mechanical fuel manipulation would be conducted.

Alternative B: Prescribed fire (Proposed Alternative)

Under this alternative, prescribed fires, ignited by qualified fire personnel, would be used to simulate the

ecological effects of natural fire and maintain the historic landscape. Prescribed fires would be intentionally ignited to accomplish management objectives in specific areas under prescribed conditions identified in approved prescribed burn plans. All other fires (whether of natural or human origin) would be suppressed. All prescribed fires would be monitored and be available as research projects. Mechanical manipulation of fuels for site preparation prior to ignition of prescribed fire projects might be used. This manual manipulation might include the use of hand crews to create fireline and/or move or stack downed fuels for ignition during more appropriate burning windows.

Alternatives Considered but Rejected

No Suppression or Prescribed Fire

Under this alternative, all ignitions would be allowed to burn in all areas and at all times. This alternative was rejected due to unacceptable risk to human life and property, with significant political, socioeconomic, and environmental impacts.

Wildland Fire Use Program

Under this alternative, natural (lightning-caused) ignitions would be managed in predetermined areas for resource benefits, if all prescription criteria were met. This alternative was rejected due to staff limitations, small land management parcels, valuable cultural resources, and values at risk on neighboring lands. This plan does not recommend wildland fire managed for resource benefit at the site.

Mechanical Manipulation of Fuels Only

Under this alternative, hazard fuel buildups would be removed or manipulated strictly by mechanical means to the extent practicable. This alternative was rejected because it would be extremely expensive and natural ecological processes would still not be allowed to function in this fire-dependent community. This option would likely result in substantial damage to the resources from human activities and mechanical devices.

AFFECTED ENVIRONMENT

Description of the Site

The enabling Act of 1936 identified the purpose of Whitman Mission as a "...public national memorial to Marcus Whitman and his wife, Narcissa Prentiss, who here established their Indian mission and school ....".

All land surrounding Whitman Mission is privately owned, except along the south boundary, which is managed by the Washington State Department of Fish and Wildlife. Currently, surrounding land use is agricultural. The Union Pacific Railroad does border the northern boundary, but this does not detract from the historic scene, as the railroad line is not visible from most of the park. As long as the land use in the immediate vicinity of Whitman Mission National Historic Site remains essentially the same--that is, growing wheat, hay and alfalfa--no adverse use is anticipated.

The Walla Walla basin has a dry climate; average annual precipitation is 14 inches; summers are dry and hot. The average maximum temperature in the summer is near 90 degrees Fahrenheit, with temperatures rising from 100 to 110 degrees for about ten days in July and August. Prevailing winds are from the southwest.

Fuels
Most of the 98.15 acres of Whitman Mission National Historic Site is flat bottom, land covered with grasses and scattered trees. One hill rises approximately 100 feet above the plain to an elevation of 720 feet.

Wildlife
The Bald eagle *(Haliaeetus leucocephalus) is* a listed species for Whitman Mission NHS. This species winters in the area (November I - March 3 1; USFWS correspondence April 9, 1999). There are no proposed or candidate species currently identified for the Whitman Mission area.

Several species of concern, as identified by the USFWS, are identified for the area including: pale western big-eared bat *(Corynohinus (=Plecorus) townsendiipallescens),* small-footed myotis (bat) *(Myotis ciliolabrum),* fringed myotis (bat) *(Myotis thysanodes),* Yuma myotis (bat) *(Myotis yumanensis),* ferruginous hawk *(Buteo regalis),* Columbia spotted frog *(Rana luteiventris (=pretiosa,* eastern population)), loggerhead shrike *(Lanius ludovicianus),* northern sagebrush lizard *(Sceloporus graciosus graciosus),* and western burrowing owl *(,Athene cunicularia hypungea).*

Vegetation
The Walla Walla basin is in the Steppe Region and the vegetative zone is Agropyron-Fescue. Historically, the poorly drained valley fill soils supported wild rye *(Elymus sp.),* with an understory of alkali saltgrass *(Distichlis sp.)* and alkali bluegrass *(Poa sp.).* The hill where the monument is located was an association of bluebunch wheatgrass *(Agropyron spicata)* **and Idaho** fescue, *(Festuca idahoensis)* with a scattering of rabbitbrush *(Chrysothamnus sp.)* and big sagebrush *(Artemisia tridentata).*

Air Quality
Whitman Mission NHS is a Class II air quality area as specified by the Clean Air Act. Prescribed fire would be conducted under the guidelines of, and in cooperation with Washington State Smoke Implementation Program.

Water and Soils
Soils are silt-loams, poorly drained and strongly alkaline. The park lies within Section 32, Township 7N, Range 35E, Willamette Meridian. The bedrock of the Walla Walla Basin is the Columbia River Basalt. Above this are continental deposits of clay and gravel of Pleistocene age. Overlying the gravel is a mantle of silt and loess, the Palouse formation, constituting the predominant parent material for the soil.

Cultural Resources
The enabling legislation created Whitman Mission as a public national memorial to Marcus and Narcissa Whitman. The entire park is on the National Register of Historic Places. As detailed in the Landscape Study and Management Alternatives for Revegetation, and in the Resources Management Plan for the park, the management objective for all treatment areas is to create a sense-of the historic scene.

Fire management, and in particular, prescription burning of the tall grasses at Whitman Mission is outlined in the park's Resources Management Plan being revised in 1999 (Project Statement WHMI-N-501).

CONSEQUENCES OF THE PROPOSED AND ALTERNATIVE ACTIONS

Vegetation
Alternative A: Full Suppression (No Action)
Under the No Action alternative unnatural vegetation patterns would continue to occur due to the removal of fire from the ecosystem. Many species, as well as the health of ecosystems, depend on fire. Fire dependent plant communities and their associated species would disappear. Higher intensity fires would invariably occur due to increased fuel loads. Suppression activities would result in adverse resource impacts from firelines and other activities.

Alternative B: Prescribed Fire (Proposed Alternative)
Effects of fire on vegetation are directly related to the type of vegetation and the fire behavior exhibited by the fire. Fire intensity, temperature, flame length, duration, time of day, and season influence fire impact. Fire might kill or damage individual plants but many plants would -survive through various fire adaptations. Individuals of some species are inherently more resistant to fire and therefore survival rates differ. Some species increase in density and abundance following fire due to reduced competition, especially shrub cover, allowing more favorable growing conditions.

Prescribed burns would prevent catastrophic damage to fire tolerant species and would reduce fuel accumulations that could contribute to large and potentially dangerous conflagrations. Prescribed burns, especially for hazard fuel reduction projects, are often conducted during burning windows best suited for control of the burn. Burning during these times of year can increase mortality rate of some plant species that are not fire adapted. Thus hazard fuel burning, in some instances, can reduce the biological diversity of an area.

Preburn preparation of a prescribed burn project might include manual manipulation of fuels prior to ignition. This manipulation might include line preparation using hand tools, wet line, or foam techniques, and the movement of downed fuels to nearby areas where they might be safely ignited. Manual manipulation would not include the use of heavy equipment (dozers, front end loaders, etc.).

Fuels
Alternative A: Full Suppression (No Action)
Implementing this alternative would create a gradual and unnatural increase in fuel accumulations leading to increased potential of wildland fires of greater size and intensities than would occur under

natural fire regimes. Control capabilities would be compromised or exceeded, and suppression expenses increased. The potential of threat to life and property rises, as well as an. increased potential for large destructive fires.

Alternative B: Prescribed Fire (Proposed Alternative)
Prescribed burning would reduce fuel accumulations that contribute to potentially catastrophic fires. Prescribed fires in areas where fuel loads are very high might escape control lines. The combination of prescribed burning and mechanical fuel manipulation would allow the reduction of fuels that, if not reduced, would contribute to large, potentially catastrophic fires.

Wildlife
Alternative A: Full Suppression (No Action)
Wildlife populations would be influenced directly and indirectly by the impacts on associated vegetative communities. The increased probability of intense wildland fires would lead to fire-caused mortalities. The potential for inadvertent wildlife habitat destruction could occur from fire suppression activities such as fireline construction as well as loss of successional stages for habitat.

Alternative B: Prescribed Fire (Proposed Alternative)
This alternative would allow greater flexibility in planning for, locating, and avoiding disturbance to wildlife populations. Habitat impacts would be determined by prescribed burn timing, location, conditions, and patterns. Considering the small size of the site and the modest proposed prescribed fire program, any impacts to wildlife would be minimal and temporary. No long-term changes in population are anticipated.

Impacts to the mammals and birds on the federal species of concern list should be-temporary in nature and minor in intensity. Although knowledge of populations of these species within the site is limited, fire is a natural process and local wildlife evolved in the presence of fire.

Air Quality
Alternative A: Full Suppression (No Action)
Implementation of this alternative would generate a short-term reduction of particulate matter from fires due to suppression efforts. The type and amount of emissions would vary greatly dependent upon fuel moisture, fire intensity, and other physical characteristics of the environment. This alternative would increase the potential for severe episodes of air pollution due to accumulated fuels resulting from suppression actions. The potential for large, high intensity fires that might be difficult to suppress would continue to increase, further contributing to uncontrolled and undesirable impacts to air quality and visibility.

Alternative B: Prescribed Fire (Proposed Alternative)
Local air quality would be adversely affected for short periods during prescribed burns. Particulate matter would be the primary pollutant with localized effects, therefore no significant longterm health impacts are expected. The effect of particulate matter and visibility on local communities can be lessened by the proper use of smoke management, timing of burns, and public notification. All prescribed burns at Whitman Mission NHS will be grassland burns, producing fewer pollutants per acre than in forested situations.

Water Resources

Alternative A: Full Suppression (No Action)

Implementation of this alternative would cause only short-term benefits. This alternative would increase the potential for severe episodes of wildland fire due to accumulated fuels resulting from suppression actions. The potential for large, high intensity fires which might be difficult to suppress would continue to increase, further contributing to vegetation and land impacts with associated runoff to hydrologic resources. Soils stripped of vegetative cover might suffer severe erosion during certain periods of the year.

Alternative B: Prescribed Fire (Proposed Alternative)

Because of the controlled area, timing, and intensity of prescribed burning in this alternative, there should be little or no long- or short-term changes in hydrologic conditions within the prescribed burn areas. Burn activities would be timed for target species growth potentials, promoting stand rejuvenation. Some erosive effects would result from the construction of firelines and other ground disturbing activities. Firelines created as a result of burn activities would be rehabilitated to minimize erosion. Burning has been shown to aid in increasing grass, forb and understory cover, all of which would reduce surface runoff. With an increase in these constituents in all areas of the site, the potential for damaging runoff is reduced. The reduction of down and dead fuel loads by prescribed fire also reduces ash and other contamination into water resources. Erosion resulting from this alternative should approximate natural erosion levels.

Soils

Alternative A: Full Suppression (No Action)

Long-term impacts of this alternative, with increased potential for catastrophic fire, would have adverse impacts to soils. Diurnal temperature regimes. would be altered from effects of catastrophic fire due to loss of shading and insulating cover. Fire suppression activities might severely impact soils during episodes of catastrophic fire. Some erosive effects would result from the construction of firelines and other ground disturbing activities. Firelines created as a result of burn activities would be rehabilitated to minimize erosion. Wildland fires typically consume more of the vegetative cover and accumulated ground fuels than prescribed fires, potentially leading to increased erosion during certain periods of the year.

Alternative B: Prescribed Fire (Proposed Alternative)

Because of the controlled area, timing, and intensity of prescribed burning in this alternative, there should be little long- or short- term changes in soils within the prescribed burn areas. Some erosive effects would result from any construction of firelines and other ground disturbing activities. Firelines created as a result of burn activities would be rehabilitated to minimize erosion. Prescribed fire can result in a patchy vegetative pattern, leaving some portions of the ground unburned. This type of patchy burn aids in the prevention of sheet erosion and increases interception of precipitation.

Cultural Resources

Alternative A: Full Suppression (No Action)

Recorded cultural resources would receive protection from wildland fire under this alternative.

Potential for cultural landscape damage by fire would increase in the long-term scenario. There would be an increased possibility of destruction of previously unrecorded cultural resources as a result of fire suppression activities such as fire line construction and backfiring operations. Risk to historic structures increases as the chance for a catastrophic fire increases.

Alternative B: Prescribed Fire (Proposed Alternative)
With the scheduled nature of burning under this alternative, there would be an ability to plan for, locate, and avoid the disturbance of cultural resources due to either ignition or fire control activities. Dangerous fuel buildups near known resources would be reduced. Cultural features, structures, and other resources would receive increased protection by reducing fuels through controlled burns in appropriate areas.

Safety
Alternative A: **Full Suppression (No Action)** The occurrence of catastrophic fires resulting from high fuel loadings caused by fire suppression would pose a threat to the safety of both firefighters and the public. Efforts at direct attack or suppression of severe fires would pose a threat to firefighter safety due to the nature of the activity. Examples of this are fireline construction, helicopter transport, backfiring operations, and exposure to heat and smoke.

Alternative B: Prescribed Fire (Proposed Alternative)
The implementation of prescribed burning would allow fireline construction to be accomplished in a safe manner by enabling managers to schedule such activities and to plan their construction in an orderly fashion. Fires would be ignited in a preplanned pattern. There would be a potential safety problem from prescribed fires that might cross control lines.

Visual or Aesthetic Values
Alternative A: Full Suppression (No Action)
Implementing this alternative would reduce the short-term visual effects that would result from other alternatives utilizing prescribed fire. However, the increased potential for high-intensity fire developing over the long run would result in drastic changes in the aesthetic appearances of affected areas with changing vegetation and a short-term black appearance to the landscape.

Alternative B: Prescribed Fire (Proposed Alternative)
Through the use of prescribed burns, areas with sensitive visual resources can be protected from fire. Short-term visual effects would consist of scorching of foliage. Prescribed fires would aid in the maintenance of the historic/ cultural scene and in the rejuvenation of the natural vegetation. This would result in increased visitor enjoyment, wildlife viewing, and protection of resources.

Overall Program Risk
Alternative A: Full Suppression (No Action)
In the short term, full suppression poses the least amount of risk to natural resources and developments at the site and in surrounding areas. In the long-term, fuel buildups would increase the potential for large, uncontrollable fires that would pose a significant risk to developed areas and natural resources in and near the site. The chance that a fire starting at the site and spreading to adjacent lands increases in the long-term.

Alternative B: Prescribed Fire (Proposed Alternative)
This alternative would present a low amount of short-term risk. Prescribed burns are conducted by trained fire personnel and would be conducted only during conditions that present an opportunity to control the burn. There would be limited potential for loss of fire control. Long-term risk is moderate as compared to Alternative A.

Cumulative Impacts
Alternative A: Full Suppression (No Action)
Implementing this alternative would create a gradual and unnatural increase in fuel accumulations leading to increased potential wildland fires of greater size and intensities than would occur under natural fire regimes. Suppression activities would result in adverse resource impacts from firelines, helispot construction and other activities. The potential of threat to life and property rises. The potential for inadvertent wildlife habitat destruction could occur from fire suppression activities. This alternative would increase the potential for severe episodes of air pollution due to accumulated fuels, especially given that wildland fires often occur simultaneously region-wide. The potential for large, high intensity fires further contributes to vegetation and land impacts with associated sediment-laden runoff impacting hydrologic resources, again with simultaneous fires region-wide increasing the magnitude of the effect. There would be an increased possibility of destruction of previously unrecorded cultural resources. Risk to historic structures increases as the chance for a catastrophic fire increases. The occurrence of catastrophic fires resulting from high fuel loadings poses a threat to the safety of both firefighters and the public. As fire hazards increase due to the continuing buildup of fuels, the magnitude of the suppression effort would rise, as would associated suppression costs.

Alternative B: Prescribed Fire (Proposed Alternative)
No adverse cumulative impacts would be expected from the proposed alternative action. Local air quality would be affected for short periods of time during prescribed burns, with air quality returning to normal following the completion of burning and resultant flushing of smoke from the airshed. Effects of smoke from prescribed fires throughout the Walla Walla area may be mitigated with careful planning. Particulate matter would be the primary pollutant with localized effects, therefore no significant long-term health impacts would be expected. The controlled nature of these burns would make the effect on air quality less severe than from catastrophic wildland fires. There should be little or no long- or short-term changes in soils within the prescribed burn areas. Some erosive effects would result from the construction of firelines and other ground disturbing activities. There is a potential safety problem from prescribed fires that might cross control lines.

PREPARER
Amanda McAdams, Prescribed Fire Specialist, Whitman Mission National Historic Site/ John Day

Fossil Beds National Monument, Kimberly, OR

CONSULTATION AND COORDINATION

The following individuals were consulted in the preparation of this environmental assessment:

Roger Trick, Chief of Interpretation and Resource Management, Whitman Mission NHS, National Park Service, Walla Walla, WA

Richard Smedley, Regional Fire Planner, Columbia Cascades SSO, National Park Service, Portland, OR

Ken Till, Fire Management Officer, Columbia Cascades SSO, National Park Service, Seattle, WA

REFERENCES

Gruell, George E. 1983. Fire and vegetative trends in the Northern Rockies: interpretations from 187 1 - 1982 photographs. Gen. Tech. Rep. INT-158. Ogden, UT: US Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. 117 pp.

National Park Service. 1999. Wildland Fire Management, RM- 18. USDI, National Park Service.

US Department of the Interior. 1998. Director's Order # 18: Wildland Fire Management, as revised.

APPENDIX E: UNIT-SPECIFIC SUPPLEMENTAL INFORMATION

1. Fire call-up list
2. Preparedness inventory
3. Cooperative agreements

1. Whitman Mission fire call-up list

IN PARK

Superintendent's Office – 522-6356
Visitor Center – 522-6357
Chief of Maintenance – 522-6359
Maintenance Shop – 522-6363

Name	Position	Qualifications
Roger Trick	Chief I&RM	Resource Advisor, IOF3

OUT OF PARK

Position/Role	**Organization/Name**	**Phone #**
PWR FMO	**Sue Husari**	**510-817-1386**
Wildland Fire Notification	Walla Walla County Fire District #4	9-911 or 529-1282
	Walla Walla Ranger District	522-6281
Structural Fire Notification	Walla Walla County Fire District #4	9-911 or 529-1282
National Weather Service	Pendleton Office	541-276-7832
Air Quality/Burn Day	Washington Dept. of Ecology County Burn Safety Authority	1-800-406-5322 527-3226
Electric Company	Pacific Power	1-888-221-7070
Park Neighbors	Mark and Donna Hannebut	525-4097
	Mike and Laurie Klicker	529-9353
	Neil and Flora Shelden	525-3520
	Ken and Micki Maxson	529-5414 or 526-3244
Neighboring Businesses	3 Rivers Winery	526-9463
Police	County Sheriff	9,911 or 527-3265
	WA Highway Patrol	9,911
Ambulance		9,911
Hospital	Saint Mary's Medical Center	525-3320
	General Hospital	525-0480
Poison Control		1-800-732-6985

Updated: 01/2004

2. Preparedness inventory

EQUIPMENT INVENTORY
FIRE CACHE Whitman Mission NHS
Inventory Date:_____By:
PERSONAL EQUIPMENT

Item Description			
Helmet, plastic, w/chin strap			
Gloves, leather (pair) X Large ----------			
Large ----------			
Medium ----------			
Small ----------			
Headlamp ----------			
Extra batteries			
Goggles, plastic ----------			
Fire shelter, w/ case --------			
Canteen, 1 quart ----------			
Canteen case ----------			
Shirt, nomex, X Large ----------			
Large ---- ~ I --------			
Medium ----------			
Small ----------			
Pants, nomex, 38 ----------			
36 ----------			
34 ----------			
32 ----------			
28 ----------			
Firefighter travel pack, red ----			
Firefighter line pack, yellow ----			
Firefighter line pack, maroon --			
First aid kit, personal -------			
Belt Fire Weather kit -------			
Flagging, ribbon, fluorescent, roll			
Ear protection, pair ---------			
Fedco portable water pump ---			
McLeod fire rake ----------			
Pulaski fire tool ----------			
Brush hook ----------			
Chainsaw - ----------			

Shovel, round nose --------			
Fusee ----------			
Portable pump (with kit) -------			
Hose, 1" (cotton-synthetic) ----			
Hose, 1 1/2" (cotton-synthetic) ---			

3. Cooperative agreements

NORTHWEST MASTER AGREEMENT
MASTER COOPERATIVE FIRE PROTECTION AGREEMENT

Between

UNITED STATES DEPARTMENT OF INTERIOR
BUREAU OF LAND MANAGEMENT
Oregon And Washington
HA-A98-2AOO

NATIONAL PARK SERVICE
PACIFIC WEST REGION
1443-CA9000-98-006

BUREAU OF INDIAN AFFAIRS
PORTLAND AREA
AGPOO0591

UNITED STATES FISH AND WILDLIFE SERVICE
PACIFIC REGION
101308HO37

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
PACIFIC NORTHWEST, AND NORTHERN REGIONS
NFS 98-06-52-09

STATE OF OREGON
DEPARTMENT OF FORESTRY

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

By THE FOLLOWING AUTHORITIES:
Reciprocal Fire Protection Act of May 27, 1955 (69 Stat. 66; 42 U.S.C. 1856)(Federal Agencies)
Economy Act of June 30, 1932 (31 U.S.C., 1535 as amended)(Federal Agencies)
Disaster Relief Act of May 22, 1974 (42 U.S.C. 5121 as amended)(Federal Agencies)
Robert T. Stafford Disaster Relief and Emergency Assistance Act (P.L. 93-288) (Federal Agencies)
National Indian Forest Resources Management Act (P.L. 101-630, Title III) (Interior Agencies)
Taylor Grazing Act of June 28, 1934 (48 Stat. 1269; 43 U.S.C. 315)(BLM, FS)
Granger-Thye Act of April 24, 1950 (16 U.S.C., Sec 572)(FS)
Cooperative Funds and Deposits Act of Dec 12, 1975 (P.L. 94-148, 16 U.S.C. 565)(FS)
Cooperative Forestry Assistance Act of July 1, 1978, as amended (16 U.S.C. 2101)(FS)
Cooperative Funds Act of June 30, 1914 (16 U.S.C. 498)(FS)
Federal Land Policy and Management Act of Oct. 21, 1976 (P.L.94-579; 43 U.S.C.)(131,M)
NPS Organic Act (16 U. S.C. 1)(NPS)
National Wildlife Refuge Administration Act of 1966 (16 U.S.C. 668dd-668ee, 80 Stat. 927, as amended) (FWS)
National Wildlife Refuge System Improvement Act of 1997 (P.L. 105-57) (FWS)
RCW 76.04 Washington State Forest Protection (DNR)
RCW 38.52 Washington State Emergency Management (DNR)
ORS Chapter 401, 477 and 526 (ODF)

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PURPOSE

The purpose of this Master Cooperative Fire Protection Agreement (hereinafter called the Agreement) is to document the commitment of the Parties to this Agreement to improve efficiency by facilitating the exchange of personnel, equipment, supplies, services, and funds among the agencies. The Parties to this Agreement are:

> The State of Oregon Department of Forestry, hereinafter called Oregon or when referred jointly with Washington called the "States"; and
>
> The State of Washington Department of Natural Resources, hereinafter called Washington or when referred jointly with Oregon called the "States"; and
>
> The United States Department of Agriculture Forest Service, Region 6, Pacific Northwest Region; and Region 1, Northern Region; hereinafter called the "USFS"; and
>
> The United States Department of the Interior, National Park Service, Pacific West Region, hereinafter called the "NPS"; and
>
> The United States Department of the Interior, Fish and Wildlife Service, Pacific Region, hereinafter called "FWS"; and
>
> The United States Department of the Interior, Bureau of Indian Affairs, Portland Area Office, hereinafter called the "BIA"; and
>
> The United States Department of the Interior, Bureau of Land Management, Oregon and Washington, hereinafter called the "BLM."
>
> The USFS, NPS, FWS, BIA, and the BLM may hereinafter be jointly called the "Federal Agencies."
>
> The Federal Agencies and the States signatory to this Agreement will hereinafter be referred to as the "Parties to this Agreement."

Words and phrases used herein may have different meanings or interpretations for different readers. To establish a "common" understanding, words and phrases as used herein are defined in a Glossary attached as EXHIBIT A.

RECITALS

1. Lands for which the States are responsible for wildland fire protection in Oregon and Washington, and the lands for which the respective Federal Agencies are responsible, are intermingled or adjacent in some areas, and wildland fires on these intermingled or adjacent lands may present a threat to the lands of the other;

2. The Parties to this Agreement maintain fire protection organizations;

3. It is to the mutual advantage of the Parties to this Agreement to coordinate efforts for the prevention, detection, and suppression of wildfires, fuels management, and cooperative projects for resource protection in and adjacent to their areas of responsibility, and to limit duplication and improve efficiency and effectiveness;

4. It is the intent of the Parties hereto that State resources be available to assist in fire management activities on all federal lands, and on other lands upon which the Federal Agencies are responsible to protect;

5. It is the intent of the Parties hereto that federal resources be available to assist in fire management activities on all state and private lands the States are responsible to protect;

6. The USFS, BLM, BIA, NPS, and FWS have entered into a national Interagency Agreement for Fire Management to cooperate in all aspects of fire management;

In consideration of the mutual commitments and conditions herein made, it is agreed as follows:

INTERAGENCY COOPERATION

7. Pacific Northwest Wildfire Coordinating Group (PNWCG): This group shall provide coordination and recommendations for all interagency fire management activities in Oregon and Washington. As a minimum, the group will consist of one representative from each agency party to this Agreement as designated by Agency Administrators. The Forest Service, Pacific Northwest Region, shall represent the Forest Service, Northern Region, in matters relating to this Agreement.

   Membership, procedures, and guidelines will be agreed to and documented in the PNWCG Charter.

8. National Interagency incident Management System: The Parties to this Agreement will operate under the concepts defined in the National Interagency Incident Management System (NIIMS) including: Incident Command System (ICS), qualifications system, training system, the management of publications, and participate in the review, exchange, and transfer of technology as appropriate for providing qualified resources, and for the management of incidents covered by this Agreement.

9. Annual Operating Plans: Annual operating plans may be developed at the Northwest, State, or local area level and will tier to this Agreement (see Exhibit B, Operating Plan Outline Guide). The following annual operating plans are listed in descending order of precedence:

   A. <u>Northwest Area Operating Plans</u>

   Northwest Area Operating Plans will address issues affecting Northwest Area-wide cooperation. The Northwest Area Operating Plans will be approved by the affected State and

   Federal PNWCG member agencies.

   The Pacific Northwest Mobilization Guide will be identified as, and be considered, part of the Northwest Annual Operating Plan.

   B. <u>Statewide Operating Plans</u>

Statewide Operating Plans will address issues affecting statewide cooperation. The Statewide Operating Plans will be approved by the affected State and Federal PNWCG members.

The Statewide Mobilization Guides will be identified as, and considered part of the Statewide Operating Plans.

C. Local Operating Plans

Local operating plans will be developed that outline the details of this Agreement for local geographical areas. Unit Administrators will have the responsibility for developing and approving local operating plans and will submit copies to their respective Agency Administrator. Unless superseded by Northwest Area or Statewide Operating Plans, local operating plans will apply.

D. Project Plans

Project plans are plans developed for specific projects. Such projects will be documented in local agreements, or other appropriate written documents. Documentation will include the objectives, role of each agency, and each agency's share of cost (See Exhibit D for a Supplemental Project Plan).

10. Interagency Dispatch Centers: The Parties to this Agreement agree to maintain, support, and participate in local Interagency Dispatch Centers, as appropriate.

    Staffing, funding, and level of participation will be agreed to and documented in annual operating plans and/or appropriate Mobilization Guides.

11. Northwest Coordination Center: The Parties to this Agreement recognize the Northwest Coordination Center in Portland, Oregon, as the Geographic Area Coordination Center (GACC) for the Northwest. The Parties to this Agreement will coordinate fire management activities and resource movements through the Northwest Coordination Center as appropriate. Parties to this Agreement are not precluded from independent movement of resources.

12. Interagency Resources: Interagency funding, staffing, and utilization of resources and facilities will be pursued whenever an interagency approach is appropriate and cost effective. Shared staffing and funding will be commensurate with each agency's use of resources and will be agreed to and documented in local operating plans.

    To the extent practical, additional preparedness resource requests will be coordinated. The coordination process will be identified in the annual operating plan.

13. Standards: It is the goal of the Parties to this Agreement to achieve common standards within the Parties' best interest. Until common standards are achieved, each Party to this Agreement recognizes that other agency standards are reasonable, prudent, and acceptable. Local representatives will manage situations where standards vary. This clause is not intended to affect the jurisdictional agency's land management considerations (see Clause 3 1, Land Management Considerations).

PREPAREDNESS

14. Definition of Responsibilities: The Parties to this Agreement shall be distinguished as follows:

Jurisdictional Agency - The agency that has overall land and resource management and/or protection responsibility as provided by federal or state law. Under no circumstances will a jurisdictional agency abdicate legal requirements as provided by federal or state law.

Protecting Agency - The agency providing fire management services to a given area pursuant to this Agreement.

Supporting Agency - An agency providing assistance.

15. Protection Planning: Annually, before April 15, local geographic area Unit Administrators will determine efficiencies to be gained from reciprocal assistance and acquisition of protection services. Annual operating plans will document decisions. Plans should be reviewed and agreement reached concerning such items as placement of crews, engines, air tankers, helicopters, fixed and aerial detection, regulated use, closures and other joint fire suppression efforts.

16. Protection Areas and Boundaries: Protection areas, as defined by boundaries, will be mapped and or described, and made a part of annual operating plans.

17. Reciprocal Fire Protection Assistance: Reciprocal fire suppression assistance that is approximately equal between agencies will be determined and mapped where necessary for field use. Reciprocal assistance will be rendered when the Parties to this Agreement are in a position to furnish resources or services.

18. Acquisition of Fire Management Services: One agency may provide fire management services on lands under the jurisdiction of another. Factors to consider in establishing the fee or rate of exchange will be based upon equivalent comparable costs, acreage involved, complexity, workload, staffing, organization, performance, and/or available resources with consideration for values at risk, and other factors as may be appropriate and mutually agreed to by the affected Parties to this Agreement. If an imbalance exists, the protecting agency will bill the jurisdictional agency. The terms and conditions of such arrangements must be included in annual operating plans.

Opportunities for acquisition of services will be evaluated and mapped when necessary. Considerations may include

A. Reimbursable

Paid assistance in the form of personnel, equipment and services.

B. Offset

Exchange of fire management services in specific locations that is anticipated to be approximately equal value between agencies.

C. Fee Basis

One agency provides fire management services on the lands under the jurisdiction of another and payment is provided for the service.

The BLM's Fire Prevention, Detection, Initial Attack, and Suppression Contract with ODF is an example of Fee Basis Services. In this instance, neither this Agreement nor the Contract preclude the other. The two instruments are independent of, but complimentary to, each other.

19. Joint Projects and Project Plans: The Parties to this Agreement may jointly conduct cooperative projects, within their authority and as authorized by law, to maintain or improve their fire management services and activities. These projects may involve such activities as prescribed fire/fuels management, presuppression, fire analysis/planning, rehabilitation, training, prevention, public affairs, and other beneficial efforts. Such projects will be documented in local operating plans, or other appropriate written documents. Documentation will include the objectives, role of each agency, and each agency's share of costs.

    Project plans may be executed by Unit Administrators of agencies party to this Agreement. Bill according to Clause 45C.

20. Fire Prevention: The Parties to this Agreement agree to cooperate in the development and implementation of fire prevention programs. Unit Administrators will assure that fire prevention goals and activities are planned at local levels and are addressed in annual operating plans. Specific fire prevention plans should be developed by local interagency fire management personnel. The Parties to this Agreement may pool resources and share costs. Unit Administrators are encouraged to participate in local fire prevention cooperatives.
21. Public Use Restrictions: Guidelines for implementing restrictions and closures shall be established by a separate Memorandum of Understanding and in the Northwest Annual Operating Plan.

22. Burning Permits: Burning permit procedures, where applicable, will be included in local annual operating plans. Federal employees or their agents, as authorized by law, may be granted authority by the States to operate as fire wardens when it is determined to be in their mutual interest.

23. Prescribed Fire and Fuel Management: The Parties to this Agreement agree to cooperate in the development and implementation of prescribed fire and fuels management programs, whose primary interest is to reduce fire hazard.

    Any Party to this Agreement may provide assistance to another Party as requested and agreed to for the purposes of performing prescribed fire or other fuels management work. Conditions of the assistance and details related to reimbursement will be agreed to and documented, through the procurement or project plan process (see Exhibit D, Supplemental Project Plan).

24. Smoke Management: Within their authorities, the Parties to this Agreement agree to cooperate in smoke management programs.

OPERATIONS

25. Closest Forces Concept: The guiding principle for dispatch of initial attack suppression resources is to use the closest available resource regardless of which agency they belong to, and regardless of which agency has protection responsibility.

26. Fire Notifications: Each agency will promptly notify the appropriate protecting agency of fires burning on or threatening lands for which that agency has protection responsibility. Likewise, protecting agencies will promptly inform jurisdictional agencies whenever they take action on fires for which the protecting agency is responsible. Fire reports will be sent to jurisdictional agencies within 30 days after a fire is declared out.

27. Boundary Line Fires: A boundary line fire, as defined in Exhibit A, will be the initial attack responsibility of the protecting agencies on either side of the boundary. Neither agency will assume the other agency is aware of the fire or that the other agency will take action. Each agency will make every reasonable effort to communicate with the other concerning the fire. The affected agency individual in charge that arrives on the fire first will act as Incident Commander. When affected agencies have arrived, the agencies will mutually agree to the designation of an Incident Command organization.

28. Independent Action: Except as otherwise limited in annual operating plans, nothing herein shall prohibit any agency, on its own initiative, from going upon lands known to be protected by another Party to this Agreement to engage in suppression of wildfires, when such fires are a threat to lands that are that agency's protection responsibility. These actions will be commensurate with the jurisdictional agencies land management considerations. In such instances, the party taking action will promptly notify the protecting agency.

29. Escaped Prescribed Fires and Wildland Fire Managed for Resource Benefits: Wildfire resulting from prescribed fire and wildland fire managed for resource benefits that were ignited by, managed at the direction of, under the supervision of, or on lands under the jurisdiction of one of the Parties to this Agreement shall be the responsibility of the Party providing protection. All
suppression costs shall be billed to that responsible Party. The Parties to this Agreement will not hold each other responsible under this clause for escaped prescribed fires and wildland fire managed for resource benefits originating on private land, or on state or federal lands not protected by one of the Parties to this Agreement.

    If the Parties to this Agreement conduct a cooperative prescribed fire, the responsibility for suppression costs, should it escape, shall be agreed upon and documented in the project plan.

30. Reciprocal Suppression Operations: As deemed appropriate, the Parties to this Agreement may establish reciprocal initial attack zones for lands of intermingled or adjoining protection responsibility. Such zones will be mapped and the maps made a part of annual operating plans.

    Initial attack on all fires occurring on lands of intermingled or adjoining protection responsibility will be in accordance with the planned dispatch procedures. The plan shall provide for regular contact between field units to determine availability of reciprocal fire suppression forces.

If a fire is controlled by the planned initial attack forces within the first 24-hour period, and no additional resources are required, there shall be no claim for reimbursement.

If a fire is not controlled by the initial attack resources within the first 24-hour period, or if reinforcements or services are requested by the protecting agency, the protecting agency will reimburse the supporting agency for all reimbursable costs not identified as initial attack.

If it is determined that a fire will not be controlled in the first 24-hour period, the protecting agency must take over the fire or request that the initial attack party continue suppression action beyond the 24-hour period.

31. Land Management Considerations: All fire suppression action taken by the protecting agency will be consistent with the jurisdictional agency's land management considerations and the terms of this Agreement, and will be documented in annual operating plans.

32. Delegation of Authority: Annual operating plans will document procedures and criteria for Unit Administrators to specify direction and authority to Incident Commanders for large incidents.

33. Resource Advisor: Unless otherwise agreed, the jurisdictional agency may provide a Resource Advisor to advise the protecting agency of any conditions which may influence suppression action. The Incident Commander will incorporate conditions in the incident planning process, subject to the Delegation of Authority.

34. Preservation of Evidence: As initial action is taken on a fire, the initial attack forces will preserve information and evidence pertaining to the origin and cause of the fire. Protecting and jurisdictional agencies shall render mutual assistance in the gathering of evidence to the fullest extent practicable. Affected agencies will meet to determine an investigation process.

USE AND REIMBURSEMENT OF INTERAGENCY FIRE RESOURCES

35. Appropriated Fund Limitation: Nothing herein shall be considered as obligating the Parties to this Agreement to expend funds, or as involving the United States or the States of Oregon and Washington in any contract or other obligation for the future payment of money in excess of funding approved and made available for payment under this Agreement and modifications thereto.

36. Duration of Assignments: Consideration must be given to the health and safety of personnel when assigned to fires. The Parties to this Agreement agree that Incident Commanders will release suppression resources to their primary responsibilities as soon as priorities allow. Incident Commanders shall adhere to rest and rotation policies of respective responding agencies.

37. Supplemental Fire Suppression Agreement: Except as otherwise provided by Clauses 28 (Independent Action), 30 (Reciprocal Suppression Operations), and 45 (Billing Procedures), a supplemental fire agreement will be prepared by the responsible Unit Administrators (as defined in EXHIBIT A, Glossary) or their authorized representatives when the incident involves lands of more than one protecting agency (see Clause 27, Boundary Line Fires, and EXHIBIT C, Supplemental Fire Suppression Agreement).

A Supplemental Fire Suppression Agreement, in order to document cost sharing, may be used for temporary support functions or facilities established during periods of high fire danger or activity.

38. Procurement: At the time of the incident, the affected agencies will determine which agency's procurement procedures will be utilized.

39. Loaned Equipment and Supplies: Equipment and supplies loaned to another agency shall become the responsibility of that agency, and shall be returned in the same condition as when received, reasonable wear and tear excepted. The receiving agency will repair or reimburse for damages in excess of reasonable wear and tear and will replace or reimburse for items lost, destroyed, or expended.

40. Licensing: Drivers and equipment operators will hold appropriate operating licenses to meet state and federal laws. Employees of the Parties to this Agreement may operate each other's vehicles provided the operator meets the current operating guidelines and training requirements of their own agency.

41. Training: The Parties to this Agreement will cooperate to assure that training needs are provided that will produce safe and effective fire management and aviation programs. The intent is to champion high quality training, to minimize training costs by sharing resources, and to standardize training.

42. Communication Systems: The Parties to this Agreement may mutually agree to allow one another the use of communications systems such as radio frequencies, computer system access, data transmission lines, and communication sites when there is a mutual benefit to the parties. Such agreement shall be approved only by authorized personnel.

43. Fire Weather Systems: The Parties to this Agreement will cooperate in the gathering, processing, and use of fire weather data, including the purchase of compatible sensing systems and the joint use of computer software. The Parties to this Agreement will jointly evaluate and agree to any deletions or additions to the system.

44. Aviation Operations: The Parties to this Agreement agree to cooperate in use of aviation resources to foster effective and efficient use of aircraft and personnel. (Refer to Standards, Clause 13.)

45. Billing Procedures: (Refer to Reimbursable Costs, Appendix A)
A. Suppression Billings

1. Federal Billings: Federal Agencies will not bill each other for fire suppression support. Federal Agencies will submit bills for their reimbursable costs to the States whenever Oregon or Washington is the protecting agency and a billing is appropriate.

2. State Billings: When one of the States is the supporting agency and the fire is within the State of Oregon or Washington, the State will bill the protecting agency for reimbursable costs when a billing is appropriate. Anytime the States respond to a Federal Agency fire outside of

Oregon and Washington, the State will bill all applicable costs to the USFS. Annual operating plans will include billing location information.

3. Billing Estimates and Time Frames: Each Party will notify the respective administrative headquarters of any reimbursable claims which they intend to make and will strive to provide an estimate of the amount involved within 60 days in each reimbursable action. The final itemized claim should be submitted to the Party owed within 120 days of the suppression action. When mutually agreed, local fire suppression payments may be consolidated into a single statement at calendar year end, and the Party with the excess expenditures will be reimbursed by the other Party.

4. Billing Content: Bills will contain, at a minimum, fire name(s), location(s), jurisdictional unit, and appropriate incident number; and will be supported by documentation, including applicable cost share agreements. (See Exhibit B, Operating Plan Outline Guide, for suggested additional details.) Billings for fire suppression assistance will not include indirect costs. Federal Agencies will not bill each other for indirect costs for preparedness activities.

5. Payment Due: Whenever this agreement provides for billing, the party receiving the bill has an obligation to pay in accordance with the terms of this agreement. All bills will be paid in accordance with the paying agency's prompt payment procedures.

6. Contested Billings: Written notice that a bill is contested will be mailed to the billing agency within 60 days of issuance of the final bill and will fully explain the contested items. Contested items will be resolved not later than 60 days following receipt of the written notice. The uncontested portion of the bill will be paid and a new bill will be issued for the contested amount.

B. Fee Basis Acquisition of Services:

Annual Statewide or local operating plans and procurement documents will establish billing procedures for Fee Basis Protection Services.

C.Non-Supression (e.g., Fuels Treatment) Billings:

The Parties to this Agreement may bill for activities not related to fire suppression within their authorities. Billing arrangements for such activities will be documented on procurement documents or project plans (see Exhibit D) and indirect charges will be applied. Provisions described above also apply to these billings. Billings will outline services performed and include a copy of, or reference, the applicable operating plan.

46. Third Party Cost Recovery: Agency authority to recover suppression costs and damages from parties causing a fire varies depending on contracts, agreements, permits or statutes. The Authorized Representatives of affected agencies will mutually agree as soon as possible after a fire on the strategy that will be used to recover suppression costs and damages from the party(ies) liable for such costs and damages. Such strategy may alter interagency billing procedures, timing and content as otherwise provided in this Agreement. Any agency may independently pursue civil actions against third parties to recover suppression costs and damages.

GENERAL PROVISIONS

47. Personnel Policy: Employees of the Parties to this Agreement shall be subject to the personnel rules, laws and regulations of the employing agency.

48. Mutual Sharing of Information: In accordance with applicable state and federal rules and regulations, Parties to this Agreement may furnish to each other, or otherwise make available upon request, such maps, documents, GIS data, instructions, records, and reports including, but not limited to, fire reports, employment records, and investigation reports as either Party considers necessary in connection with the Agreement.

49. Initial Attack Cost Recovery: In those cases where costs have been recovered from a third party, reimbursement of initial attack, as well as suppression costs to the extent included in the recovery, will be made to the Party taking reciprocal action.

50. Accident Investigations: When an accident occurs involving the equipment or personnel of a supporting agency, the protecting agency shall immediately notify the jurisdictional and supporting agencies. As soon as practical, the protecting agency shall initiate an investigation of the accident. The investigation shall be conducted by a team made up of representatives from affected agencies, as appropriate.

51. Purchaser, Contractor, Operator, Permittee, Etc., Fires: The protecting agency will notify the jurisdictional agency of any fire suspected to have been caused by a purchaser, contractor, operator or permittee, etc., of the jurisdictional agency as soon as it becomes aware of the situation. The protecting agency will be responsible for management of the fire under the provisions of this agreement. Agencies will meet to determine a cost recovery process as outlined in Clause 46.

52. Non-Fire Emergencies: This Agreement provides for cooperation between the Parties to this Agreement in accordance with law for non-fire emergencies.

53. Waiver: It is mutually agreed that the Parties to this Agreement shall each be responsible for their own losses arising out of the performance of this Agreement and each party hereby waives any claim against any other party for any loss, damage, personal injury, or death of the Party, or its employees or agents, occurring as a consequence of the performance of this Agreement; provided, this provision shall not relieve any Party from responsibility for claims of third parties for losses for which the Party is otherwise legally liable.

54. Amendments: Amendments within the scope of this Agreement shall be made by mutual consent of the Parties, by the issuance of a written amendment, signed and dated by all Parties, prior to any changes being performed. No Party is obligated to f1md any changes not properly approved in advance.

55. Annual Review: If deemed necessary, prior to April 15, representatives of the States and Federal Agencies will meet and review matters of mutual concern. Operating plans, at all levels, will be reviewed annually. If necessary, operating plans will be revised.

56. Duration of Agreement: The term of this Agreement shall commence on the date the last Party signs below and shall remain in effect for five (5) years from that date. A review of this Agreement will be conducted every five years for appropriateness and modified or renewed for a period of not more than five (5) years from the date the last Party signs the modification or renewal.

    Any Party shall have the right to terminate their participation under this Agreement by providing one-year advance written notice to the other Parties.

57. Previous Agreements Canceled: This Agreement supersedes the following fire protection agreements:

Reciprocal Agreement between State of Oregon, State Forester, and State of Washington, Department of Natural Resources, April 13, 1979.

Cooperative Fire Protection Agreement between U.S. Bureau of Indian Affairs, Department of the Interior, and State of Washington, Department of Natural Resources, January 1, 1983.

Fire Management Agreement between the State of Washington, Department of Natural Resources, and Bureau of Land Management, U.S. Department of Interior, #952-A-1-0004, effective November 1, 1990.
Cooperative Agreement between State of Washington, Department of Natural Resources, and Forest Service, U.S. Department of Agriculture, 1989.

Memorandum of Understanding between Washington State Department of Natural Resources, Oregon State Department of Forestry, Bureau of Land Management, National Park Service, Bureau of Indian Affairs, U.S. Fish and Wildlife Service, and Forest Service, #84-06-52-26, September 1984.

Memorandum of Understanding between Portland Area, Bureau of Indian Affairs, and USFS, Pacific Northwest Region; National Park Service; Oregon State Office, Bureau of Land Management; Region 1, Fish and Wildlife Service; Washington State Department of Natural Resources; Oregon State Department of Forestry, 1992.

Interagency Agreement between the Bureau of Indian Affairs, Portland Area, U.S. Department of the Interior; and the Forest Service, Pacific Northwest Region, U.S. Department of Agriculture, 1983.

Cooperative Fire Protection Agreement between the Portland Area Office, Bureau of Indian Affairs; and the State of Oregon, State Forester, 1982.

Memorandum of Understanding between USDA Forest Service and BLM, OR 940-9408, August 1994.

Interagency Agreement between USDI BLM, Oregon and Washington; and USDA Forest Service, Pacific Northwest Region, NFS 94-06-52-06, October 1993
Cooperative Agreement between State of Oregon, State Forester; and USDA, Forest Service, Pacific Northwest Region, NFS 91-06-52-30, February 1991.

Reciprocal Fire Protection Agreement between State of Oregon, State Forester, and Bureau of Land Management, Department of Interior, September 15, 1988.

Cooperative Agreement between U.S. Fish and Wildlife Service and Washington State Department of Natural Resources, #1448-13530-98-JO29, dated March 6, 1998.

Cooperative Agreement between U.S. Fish and Wildlife Service and Washington State Department of Natural Resources, #14-16-0001-82061, dated March 6, 1998.

Cooperative Agreement between U.S. Fish and Wildlife Service and Washington State Department of Natural Resources, #14-16-0001-3149, dated March 6, 1998.

Existing agreements subsidiary to those listed above remain in effect to the extent that they do not conflict with the provisions of this Agreement, but only until such time that all activities and conditions covered by those agreements can be incorporated into annual operating plans provided for under this Agreement, and not later than May 1, 1999.

MASTER COOPERATIVE FIRE PROTECTION AGREEMENT

EXHIBIT A

GLOSSARY OF TERMS

Agency Representative: An individual assigned to an incident with full authority to make decisions on all matters affecting that agency's participation at the incident.

Agency Administrator: Agency officials who are signatories to this Agreement, as follows: Bureau of Land Management, State Director; Forest Service, Regional Forester; BIA, Area Director; National Park Service, Regional Director; Fish and Wildlife Service, Regional Director; State of Oregon, Oregon State Forester; State of Washington, Department of Natural Resources, Department Supervisor.

Boundary Line Fire: Fire occurrences on lands of intermingled and/or adjoining protection responsibilities.

Closest Forces Concept: See Section 25 of this Agreement.

Escaped Fire: A fire which has exceeded, or is anticipated to exceed, preplanned initial action capabilities or the fire management direction.

Fee Basis Acquisition of Services: For a given fee, one agency can become the protecting agency for the other. The fee (or cost) is the price for the work agreed to be performed on each acre of land.

Fire Management Activities and/or Services: Any or all activities that relate to managing fire or fuels on lands under the jurisdiction of any Party to this Agreement. Activities include, but are not limited to: suppression, prescribed fire/fuels management, fire analysis/planning, rehabilitation, training, prevention, public affairs, and other beneficial efforts.

Geographic Area Coordination Center (GACC): An organization which serves as the focal point within a large geographic area to provide the logistical support and intelligence needs, relative to ongoing and anticipated wildland fire and other emergency support activities.

Indirect Cost: A fixed percentage rate as determined by the Indirect Cost Negotiation Agreement as in OMB Circular A-87. The rate will be specified in the Statewide Operating Plan.

Initial Attack Zone: An identified area in which predetermined resources would normally be the initial resource to respond to an incident.

Interagency: Involvement of two or more agencies party to this Agreement.

Jurisdictional Agency: The agency which has overall land and resource management and/or protection responsibility as provided by federal or state law. Under no circumstances will a jurisdictional agency abdicate legal authorities.

Northwest Area: The lands in Washington and Oregon managed by the Parties to this Agreement.

Offset: Exchange of fire management services in specific locations that is anticipated to be approximately equal value between agencies.

Operating Plan - Northwest: A plan which will include all Northwest considerations. This will be developed at the Geographic Area level and approved by the PNWCG member agencies.

Operating Plan - Statewide: A plan which will include all statewide considerations. This will be developed at the state level and approved by affected state and federal PNWCG member agencies.

Operating Plan - Local: A plan generated at a local level and authorized by Unit Administrators for implementing the Oregon and Washington Wildland Fire Agreement in their respective areas of responsibilities.

Parties to this Agreement: United States Department of Interior: Bureau of Land Management, Oregon and Washington; National Park Service, Pacific West Region; U.S. Fish and Wildlife Service, Pacific Region; United States Department of Agriculture: Forest Service, Pacific Northwest and Northern Regions; State -of Oregon, Department of Forestry; State of Washington, Department of Natural Resources.

Prescribed Fire: The planned use of fire to accomplish specific land management objectives.

Preparedness: Activities in advance of fire occurrence to ensure effective suppression action. Includes training and placement of personnel, planning, procuring and maintaining equipment, development of fire defense improvements, and maintaining cooperative arrangements with other agencies.

Prevention: Activities directed at reducing the number of person-caused fires, including public education, law enforcement, dissemination of information, and the reduction of hazards.

Procurement Documents: Agency specific financial obligation documents.

Protecting Agency: The agency providing fire management services to a given area pursuant to this Agreement.

Protection: See Fire Management Activities and/or Services.

Protection Area: That area which, by law or identified or authorized pursuant to the terms of this Agreement, is provided wildland fire protection by a state or federal agency. This may include land protected under exchange or payment for protection.

Protection Boundaries: Mutually agreed upon boundaries delineated on maps, or otherwise described, identifying areas of direct fire protection responsibility.

Protection Area Maps: Official maps which identify areas of direct fire protection responsibility for each agency.

Reciprocal Fire Suppression: Reciprocal fire suppression is the act of helping the protecting agency, at no cost for the first 24 hours or by agreement, suppress wildfires. Reciprocity is attained by agreeing among one another the kind, location and numbers of firefighting resources which will automatically initial attack a wildfire, regardless of the protecting agency. The kind, locations, and numbers of

resources which constitute reciprocity is defined in or though local operating plans. Reciprocity may be thought of as the implementing mechanism of the closest forces concept.

Reimbursable Costs: All costs associated with operations and support ordered on a resource order or project plan by or for an incident or project within the provisions of this Agreement. Such costs may include, but are not limited to, the following:

- Agency costs for transportation, salary, benefits, overtime, and per them of individuals assigned to the incident or project.
- Additional support dispatching, warehousing or transportation services requested through a resource order.
- Cost of equipment in support of the incident, contract equipment costs and operating costs for agency equipment.
- Operating supplies for equipment assigned to the incident such as fuel, oil, and equipment repairs.
- Aircraft, airport fees, and retardant costs.
- Agency-owned equipment and supplies lost, damaged, or expended by the supporting agency.
- Cost of reasonable and prudent supplies expended in support of the incident.
- Charges from the States for state-controlled resources such as inmate crews, National Guard resources, and county and local resources.
- Indirect charges will be applied on joint state and federal non-suppression projects (see 45C).

Supplemental Fire Suppression Agreement: A document prepared to distribute costs on a multi-jurisdictional incident (see Exhibit Q.

Supporting Agency: An agency providing assistance.

Suppression: All the work of confining and extinguishing a fire beginning with its discovery through the conclusion of the incident.

Unit Administrator: The individual assigned administrative responsibilities for an established organizational unit, such as Forest Supervisor for the Forest Service, District Manager for the Bureau of Land Management, Agency Superintendent for the Bureau of Indian Affairs, Park Superintendent for the National Park Service, and Refuge Manager (Project Leader) for Fish and Wildlife Service, Region Manager for State of Washington Department of Natural Resources, and District Forester for State of Oregon Department of Forestry.

Wildfire: Any fire occurring on wildland that is not meeting management objectives and thus requires a suppression response.

LOCAL OPERATING PLAN

Between

Washington State Department of Natural Resources,
Southeast Region;

Oregon Department of Forestry
Northeast Oregon District;

National Park Service,
Whitman Mission National Historic Site;

Bureau of Land Management,
Spokane District;

U.S. Fish and Wildlife Service,
Mid Columbia River National Wildlife Refuge Complex;

U.S.D.A. Forest Service,
Umatilla National Forest

LOCAL OPERATING PLAN

Washington State Department of Natural Resources, Southeast Region; Oregon Department of Forestry, Northeast Oregon District; National Park Service, Whitman Mission National Historic Site; Spokane District; Bureau of Land Management, U.S. Fish and Wildlife Service; Mid Columbia River National Wildlife Refuge Complex, and U.S. Forest Service, Umatilla National Forest.

PREAMBLE

This local operating plan is prepared pursuant to the Master Cooperative Fire Protection Agreement (MCFPA) signed and dated October 14, 1998.

This operating plan is between the Southeast Region of the State of Washington, Department of Natural Resources (DNR) Oregon Department of Forestry, Northeast Oregon District (ODF), National Park Service, (NPS), Whitman Mission National Historic Site; Spokane District; Bureau of Land Management (SPD), U.S. Fish and Wildlife Service; Mid Columbia River National Wildlife Refuge Complex (USF&W), and U.S. Forest Service, Umatilla National Forest (UMF). It is effective on the latest date shown on the signature page and is in accordance with the Master Cooperative Fire Protection Agreement signed and dated October 14, 1998.

This operating plan supersedes all local fire related operating plans, agreements, and MOU's between all parties signed before May 1, 2000. This operating plan will be in effect 12 months, reviewed annually and revised as necessary.

The purpose of this local operating plan is to clarify and refine reciprocal fire protection services and procedures for pre-suppression, detection, suppression, fire prevention and fire planning on lands protected by the agencies involved.

The State Agencies acknowledge, at this time, the critical importance of agreements and strong, effective relationships between the UMF and nonsignatory (to the MCFPA) Local Fire Districts. The State Agencies retain oversight and involvement throughout all phases of the establishment and implementation of any agreements between the State and Local Fire Districts.

INTERAGENCY COOPERATION

Interagency Dispatch Center - Pendleton Interagency Coordination Center (PICC) is located in Pendleton, Oregon at the Forest Headquarters for the Umatilla National Forest. Northeast Oregon Interagency Dispatch Center (NOIDC) is located in La Grande, Oregon. Refer to appropriate dispatch operating plan for staffing, funding and level of participation agreed to.

Fire dispatching for fires on land protected by agencies will comply with the following:

I . Resources will be dispatched using the closest force(s) concept. Pre-planned dispatch cards will be utilized to guide this process. (MCFPA, Operations, page 11, #25)
2. The responsibility for direction of the initial attack supervision will fall to the work supervisor on the first crew to arrive at the scene. He/She will remain as Incident Commander until released of these duties by the jurisdictional agency.
3. Agencies are responsible to provide information and assistance in a timely manner, to each other for proper completion of the fire reports.
4. In the event of an extended incident or when incident management teams are in command of an incident, dispatch actions, for that incident will be conducted through the jurisdictional agency, unless otherwise agreed to. This will occur with involvement of CWICC, PICC, NOIDC, and Spokane BLM utilizing appropriate radio frequencies.

Interagency Resources: Agency's equipment may be operated and utilized by the other agency's qualified personnel in emergency situations. Agency personnel may staff each other's suppression resource jointly, as mutually determined necessary.

PREPAREDNESS

Protection Planning: Pre-planned dispatch cards, coupled with the closest force(s) concept, will be utilized by the dispatch and suppression programs to facilitate effectiveness for all agencies.

Protection Areas and Boundaries and Reciprocal Fire Assistance: See Blue Mountain Fire Map and the Pre-Planned Dispatch Maps in Interagency Dispatch Centers, for delineation of protection areas and boundaries. Reciprocal Fire Protection will be in effect during those periods of time when the States have declared "Closed Fire Season." Outside that period of time the parties may provide support to one another on a reimbursable basis, with the exception that UMF agrees to provide year round protection, at no cost, to the NPS.

The current suppression resources and their locations, for all agencies are listed on pre-planned dispatch cards and in the dispatch centers. Aircraft and .air delivered resources are also available through dispatch centers.

Joint Projects and Project Plans- Annual prescribed burning and land management projects are scheduled on a regular basis. Utilization of resources in support of these projects are encouraged and anticipated. The MCFPA allows for cooperative project accomplishment. Each project requires a "Project and Financial Plan" completed and signed prior to project initiation. Each "Project and Financial Plan" must be signed by an agency representative that has the proper level of authority to cover the amount of expenses incurred and has the ability to commit the resources required.

Fire Prevention Policies: Agencies have common goals, objectives and approach with regard to the Fire Prevention education program. Agencies will coordinate and cooperate in the fire prevention effort.

Dissemination of information during the critical dry period of the year to forest users is accomplished through a series of signing and public contacts. Joint efforts for updating signs, outdoor display boards, and contacting the public while recreating on protected lands is accomplished in a cooperative manner.

Public Use Restrictions: All factors, as listed in the MCFPA, are applicable. (MCFPA, Preparedness, page 11, #2 1) Update local MOU and maintain as separate document. Current Plan(s) are still in effect.

Burning Permit Procedures: Burning permits issued will be the responsibility of jurisdictional agency. Jurisdictional agency must notify appropriate dispatch center of all permits issued. Procedures and notifications will be coordinated with local fire districts and other cooperating agencies.

Prescribed Fire and Fuels Management: Agencies will notify each other of known prescribed burning activities within the reciprocal area.

Smoke Management: Smoke management planning and accomplishment will be the responsibility of the jurisdictional agency.

OPERATIONS

Fire Notification: - Detection will be coordinated between agencies as needed. All fires detected will be reported to appropriate dispatch center.

Incident Reporting:

NOIDC	(541) 962-5452 (After hours Duty Officer)
NOIDC	(541) 963-7171 (Normal business hours)
DNR	(800) 527-3305 (Use in Washington State only)
BLM	(509) 536 1235 (24 hour reporting)
PICC	(541) 278-3732 (24 hour reporting)
CWICC	(509) 663-8575 (24 hour reporting)
CWICC	(509) 662-4393 (Normal business hours)

All fires reported directly to CWICC will be forwarded via phone call from CWICC to PICC for initial attack dispatch.

Initial Attack: Initial attack will consist of those incident suppression resources, as listed on pre-planned dispatch cards based on availability. The closest force(s) concept will be used for initial attack. Appropriate suppression response, "tactics", will be "control" for all incidents. If modified suppression tactics are required by jurisdictional agency then Supplemental Fire Suppression Agreement will be prepared.

Any suppression or support resources utilized by agencies that are not listed on the pre-planned dispatch card(s) as an IA resource will be reimbursable. Supplemental Fire Suppression Agreement will be utilized as appropriate. (MCFPA, Use and Reimbursement of Interagency Fire Resources, page 13-16) (MCFPA, Glossary of Terms, page 23)

Wildland engines from agencies under this agreement do not directly fight vehicle or structure fires. They may provide assistance to fire districts; maintain equipment and supplies; support communications; deploy hoselay outside of structures; and protect structure/vehicle fires from burning onto wildland or wildland fires from reaching structures.

Investigations: The initial attack resources are responsible to initiate protection of the origin point and to make a reasonable attempt to gather and save evidence that relates to fire cause. The jurisdictional agency has the responsibility to investigate the fire. Upon request, agencies will provide, as available, qualified fire investigator to assist the other, within the limits of their jurisdiction and authority, as a reimbursable service. Joint incidents involving multiple agencies' land, may have a cooperative investigation of the cause. Leadership responsibility will be the agency with the highest cost or damage, or as agreed to. (MCFPA, Operations, page 13, #34)

Law enforcement requirements, in regards to Fire Prevention, for each agency will be the responsibility of that agency.

Reciprocal Suppression Operations: All factors, as listed in the MCFPA, Operations, page 12, #30, are applicable, EXCEPT, the wording in the forth and fifth paragraphs have been modified as follows:

If a fire is not controlled by the initial attack resources within the first 24-hour period, or if reinforcements/services are requested and later approved, by the Jurisdictional agency, the jurisdictional agency will reimburse the supporting agency for any additional costs, not identified as initial attack, on the preplanned dispatch cards. If it is determined that a fire will not be controlled in the first 24-hour period, the jurisdictional agency must take over the fire or request that the initial attack party continue suppression action beyond the 24-hour period.

Incident Commander: Incident Commander designations will comply with the MCFPA and each agency's policy. (MCFPA, Interagency Cooperation, page 9, # 13)

Duty Officer: Agencies' will provide a Duty Officer capable of coordinating fire suppression activities, with the authority to approve the use of aircraft, equipment, and specialty personnel. These Duty Officers are authorized to represent agencies until they are relieved.

Boundary Line Fires: All factors, as listed in the MCFPA, are applicable. (MCFPA, Operations, page 12, #27)

Independent Action on Lands Protected By Another Agency: All factors, as listed in the MCFPA, are applicable. (MCFPA, Operations, page 12, #28)

Land Management Considerations: All factors, as listed in the MCFPA, are applicable. (MCFPA, Operations, page 13, #3 1.) It is the jurisdictional agencies' responsibility to provide adequate guidelines for appropriate suppression response.

Delegation of Authority: Jurisdictional agency will issue delegation of authority consistent with agency guidelines and policies.

Resource Advisors: All factors, as listed in the MCFPA, are applicable. (MCFPA, Operations, page 13, #33).

USE **AND REIMBURSEMENT OF INTERAGENCY FIRE RESOURCES**

Training: : All factors, as listed in the MCFPA, are applicable. (MCFPA, Use and Reimbursement of Interagency Fire Resources, page 14, #4 1)

Communications Systems: All factors, as listed in the MCFPA, are applicable. (MCFPA, Use and Reimbursement of Interagency Fire Resources, page 14, #42). Each Agency has agreed to allow the other agencies to use their frequencies for the purpose of fire traffic radio communications. Each Agency will obtain any authorizations (RFA's) needed beyond this agreement. Authorized frequencies can be obtained from local dispatch centers.

Aviation Operations: IA Incident Commander is authorized to order one load of retardant, regardless of protection responsibility, EXCEPT, any retardant requested for Spokane BLM lands must be approved prior to order or delivery. (see pre-planned dispatch cards for exception). Duty officer of the jurisdictional agency must approve additional retardant. Jurisdictional agency will be billed for the retardant delivered. Costs of air resources not identified on pre-planned dispatch cards will be the responsibility of the jurisdictional agency.

Supporting agency will notify jurisdictional agency of all fires that require additional air resources.

Billing Procedures: All factors, as listed in the MCFPA, are applicable. (MCFPA, Use and Reimbursement of Interagency Fire Resources, page 13-16). Addresses for state billings are:

Oregon Department of Forestry
District Forester - NE Oregon District
611 20th St.
LaGrande, OR 97850

Washington State Department
Natural Resources - SE Region
713 East Bowers Rd.
Ellensburg, WA 98926

Media Coordination: Joint news releases will be issued for subjects of mutual concern, when appropriate. All agencies will approve the message prior to release. Media releases about a specific incident will be the responsibility of the jurisdictional agency. The protecting agency should be kept informed.

This local operating plan supplements the terms stipulated in the MCFPA and will stay in effect until modified or cancelled. This plan will be reviewed and validated by May 1, of each year. Modifications may be made at any time when approved by each agency's representative. Any party to this plan may terminate their participation with this plan by providing 30 day written notice to the other signatory parties between the months of October and March.

/s/ William O. Boyum
Southeast Region Manager
Department of Natural Resources

/s/ Gary R. Rudisill
District Forester
Northeast Oregon District

/s/ Jeff D. Blackwood
Forest Supervisor
Umatilla National orest

/s/Joseph Buessing
District Manager
Spokane BLM

/s/ Francis T. Darby
Superintendent
National Park Service
Whitman Mission

/s/Gary Hagedorn
Project Leader – Mid Columbia River National Wildlife Refuge Complex
U.S. Fish and Wildlife Service

SUPPLEMENTAL PROJECT PLAN
Between
WHITMAN MISSION NATIONAL HISTORIC SITE
And
WALLA WALLA DISTRICT,
UMATILLA NATIONAL FOREST

PROJECT AND FINANCIAL PLAN Between

WHITMAN MISSION NATIONAL HISTORIC SITE and

WALLA WALLA RANGER DISTRICT

Article I. Introduction

This agreement is between the Whitman Mission National Historic Site, Pacific Northwest Region, National Park Service, Department of the Interior, hereinafter referred to as the Park, and the Walla Walla Ranger District, Umatilla National Forest, Pacific Northwest Region, Forest Service, Department of Agriculture, hereinafter referred to as the District. This agreement provides for a system of mutual aid activities on and adjacent to the Park for mutually beneficial fuels management and fire protection services. It is each agency's responsibility to follow all applicable environmental and historical preservation regulations prior to undertaking any projects under this supplemental project plan. The general authority for this agreement is the Master Cooperative Fire

Article 11. **Scope and Duration**

The description of this project is to provide for a system of mutual aid activities such as prevention and prescribed burning on and adjacent to the park. It is anticipated that this project will begin February 15 and will end December 31 annually. This plan will be reviewed annually. During the course of any given year the agreement may be modified with the concurrence of both parties. Either party may terminate this agreement by providing a thirty' (30) day written notice.

Article 111. Principal Contacts

Park Service Principal Contacts:

1. Terry Darby, Superintendent Whitman Mission National Historic Site
Rt#2 Box 247, Walla Walla, Washington 99362.
Phone: 509 522-6360 Home: 509 529-8799

2. Roger Trick, Chief of Interpretation & Resource Management, Whitman Mission National Historic Site Rt#2 Box 247, Walla Walla, Washington 99632
Phone: 509 522-6360 Home: 509-529-7356

3. Ken Hyde, Resource Management Specialist, John Day Fossil Beds National Monument HC 82 Box 126, Kimberly, OR 97848-9701
Phone: 541-987-2333 x18

4. Sue Husari, Regional Fire Management Officer, Pacific West Region, Oakland, CA
Phone: 510-817-1371

Forest Service Principal Contacts:

I Tom Reilly, District Ranger, Walla Walla District, Umatilla National Forest
1415 W. Rose, Walla Walla, Washington 99362.
Phone: 509 522-6293 Home: 509 522-2309

2. Tom Wordell, District Fire Management Officer, Walla Walla Ranger District, Umatilla National Forest, 1415 W. Rose, Walla Walla, Washington 99362.
Phone: 509 522-6284 Home: 509 526-0913
Fire only: 509 522-6281

3. Jim Beekman, Assistant Fire Management Officer, Walla Walla Ranger District, Umatilla National Forest, 1415 W. Rose, Walla Walla, Washington 99362.
Phone: 509 522-6281 Home: 509-529-4569

4. Mike Larson, Forest Coordinator, Umatilla National Forest, 2517 S.W. Hailey, Pendleton, Oregon 97801.
Phone 503 278-3731 or 3732 Night: 503 278-3800

5. John Robertson, Fire Management Officer, Umatilla National Forest
2517 S.W. Hailey, Pendleton, Oregon 97801.
Phone 503 278-3727 Home: 541-278-1433

Article IV. Detailed Project Description

A. Specific duties and tasks to be performed

1. Training

a. Each agency recognizes the other agency's training program as adequate to meet the minimum requirements for fire prevention, suppression and prescribed fire

b. Each agency will keep the other informed of joint training opportunities and provide for sharing of annual fire training plans between agencies.

c. Joint training is encouraged between agencies.

2. Communications

a. Communications will be coordinated by use of telephone, cell phone, and/or radio.

b. This agreement authorizes the Forest and the Park to transmit on the other's assigned agency frequencies during prescribed fire activities. (refer to Appendix A for frequency list and cell phone numbers).

c. The Park has switched to cell phone use exclusively. The Park cell phone numbers are attached to this document.

3. Prevention

a. Special Programs

The Fire Management Officer and the Superintendent will coordinate special prevention activities.

b. Fire Danger Rating

The National Fire Danger Rating System will be used by both agencies.

4. Prescribed Burning - Fire/Fuel Management Projects

a. Each agency, as it is in a position to do so, may assist the other in carrying out prescribed bums or other fuels management projects.

b. Each agency, as it is in a position to do so, may assist the other in carrying out fire other fire/fuels management projects.

c. Smoke Management - Each agency will follow guidelines of Clean Air Act and Washington State's Smoke Management (DEQ) plans as required.

B. Identify tools and equipment needed and who will supply them.

I .The park maintains a small fire cache for initial attack to assist with prescribed burning operations. The District will provide one or two engines equipped with drip torches and backpack pumps. Each agency will provide its own personnel with appropriate personal protection equipment.

C. Identify size of crew and who will be providing transportation

1 The District will provide equipment and crew, as available, to conduct any proposed prescription bum independently of the park resources. The park will provide as many personnel as possible while still conducting its maintenance, interpretation, and resource management operations for the visitors.

D. Reports

The jurisdictional agency will have the **responsibility to complete fire and/or** prescribed fire reports.

2. The assisting agency may provide information to the jurisdictional agency to help complete required reports.

Article V. Supervision and Technical Oversight

Prescribed Burning

The park Chief of Interpretation and Resource Management will provide the District Fire Management Officer with the objectives of the proposed burn. The Prescribed Fire Bum Boss will supervise all other personnel involved with the prescribed fire project during the prescribed fire operations. The Park Resource Manager and the Prescribed Fire Burn Boss will continuously communicate to conduct, evaluate, and modify activities to meet the objectives of the prescribed burn.

Article VI. Reimbursement

Under this supplemental project agreement, there shall be no reimbursements for prescribed fire activities between the National Park Service and the Forest Service.

Article VII Financial Plan

Not applicable

Article VIII. Signatures

/s/Jeff BlackwoodDate 05/26/99	/s/Francis T. Darby Date 05/14/99
Forest Supervisor	Superintendent

APPENDIX A

Radio Frequencies

Forest frequencies available for Park use:

A)	North half Forest	Net 164.825 MHz
B)	South half Forest	Net 164.125 MHz
C)	Project Net (Forest wide)	164.9625 MHz

Park cell phone numbers

Visitor Center 522-6360

Superintendent 386-2381

Administration 386-2380

Maintenance Chief 386-2384

Jim Knapp, Maintenance 386-2382

Diana Elder, Maintenance 386-2383

MEMORANDUM OF UNDERSTANDING
between
NATIONAL PARK SERVICE
and
WALLA WALLA COUNTY
FIRE PROTECTION DISTRICT NO. 4

MEMORANDUM OF UNDERSTANDING
MU9000-1-0001

Article 1. Background and Objectives

WHEREAS, authority exists for the establishment of this agreement, to wit:

Federal Reciprocal Fire Protection Act of May 27, 1955 (69 Stat. 66; 42 USC 1856a)

Between National Park Service and

Disaster Relief Act of May 22, 1928

Management of the National Park Systems Act of August 8, 1953 (67 Stat. 495; 16 USC lb)

WHEREAS, the National Park Service, hereinafter referred to as NPS, at Whitman Mission National Historic Site and Walla Walla County Fire Protection District No. 4, herein after referred to as DISTRICT, each have resources which can be shared to the mutual benefit of both parties in providing Emergency Services to the public within each of their jurisdictions. These services include, but are not limited to, Search and Rescue, Structural Fire Control, and Emergency Medical Services.

Article II. Statement of Work

Walla Walla County Fire Protection District No. 4

The NPS will respond to requests from the DISTRICT to assist in providing Emergency Services such as Search and Rescue, Structural Fire Control and Emergency Medical Services. Generally these responses will be limited to the general vicinity of Whitman Mission National Historic Site and will be determined on a case by case basis, provided:

I That only those persons, equipment, and facilities specifically trained/designed and designated by the NPS for the type of emergency action requested will be permitted to respond, and

2. That such response will not jeopardize the NPS's ability to protect persons and property under its jurisdiction or otherwise perform its mandated mission.

The DISTRICT will respond to requests from NPS to assist in providing Emergency Services such as Search and Rescue, Structural Fire Control and Emergency Medical Services, at Whitman Mission National Historic Site on a case by case basis, provided:

That only those persons and equipment specifically trained, designed and designated by the DISTRICT for the type of emergency action requested will be permitted to respond, and

2. That such response will not jeopardize the DISTRICT's ability to protect persons and property under its jurisdiction or otherwise perform its mandated mission.

That this agreement does not in any way abrogate any responsibilities either party has in line with it's normally assigned stated public duties.

That the parties to this agreement shall meet at least once per year to review the terms of this agreement and the Standard Operating Plans which will implement and be a part of the agreement.

Article III. Term of Agreement

This agreement will remain in effect for five (5) years from the last date of signature herein.

Article IV. Key Officials

Key Officials to this agreement are:

Fire Chief, Walla Walla County Fire District No. 4
Superintendent, Whitman Mission National Historic Site

These officials will designate responsible and qualified employees of their respective agencies to carry out the provisions of this agreement.

Article V. Compensation and Property Utilization

All Services performed under this agreement shall be rendered without

compensation from the other party and all employees of the United States and Walla Walla County Fire Protection District No. 4, performing services under this agreement shall be considered to be performing within the scope of their normal employment. Each party to this agreement shall be responsible for all operating costs and damages to their own equipment used in providing services under this agreement.

Each party to this agreement shall waive all claims against every other party for compensation for any loss, damage, personal injury or death occurring in consequence of the performance of this agreement.

Both parties hereby agree to assume responsibility for liability arising out of the actions of its own personnel and to hold the other party hereto harmless as to actions relating to performance under this agreement.

Article VI. Termination

This agreement may be terminated by either party with sixty (60) days written notice to the other.

Article VII. Required Clauses

During the performance of this agreement, the participants agree to abide by the terms of Executive Order 11246 on nondiscrimination and will not discriminate against any person because of race, color, religion, sex or national origin. The participants will take affirmative action to ensure that applicants are employed without regard to their race, color, religion, sex or national origin.

No member of or delegate to Congress, or resident Commissioner, shall be admitted to any share or part of this agreement, or to any benefit that arises therefrom, but this provision shall not be construed to extend to this agreement if made with a corporation for its general benefit.

/s/ James Appling, Chairman Date 06-23-99
Walla Walla County Fire Protection District No. 4

/s/ Francis T. Darby, Superintendent Date 06-01-99
Whitman Mission National Historic Site

APPENDIX F: WILDLAND AND PRESCRIBED FIRE MONITORING PLAN

INTRODUCTION (GENERAL)

The focus of this monitoring program will be to study four plant associations throughout Whitman Mission National Historic Site. The reason for monitoring is to verify current fire ecology research throughout the site, and to monitor the succession of woody species.

DESCRIPTION OF ECOLOGICAL MODEL

Most of the 98.15 acres of Whitman Mission National Historic Site is flat bottomland covered with grasses and scattered trees. One hill rises approximately 100 feet above the plain to an elevation of 720 feet. Soils are silt-loams, poorly drained and strongly alkaline. The park lies within Section 32, Township 7N, Range 35E, Willamette Meridian. The bedrock of the Walla Walla Basin is the Columbia River Basalt. Above this are continental deposits of clay and gravel of Pleistocene age. Overlying the gravel is a mantle of silt and loess, the Palouse formation, constituting the predominant parent material for the soil.

Whitman Mission is located on the southern extreme of the Palouse Prairie Region. Originally, this prairie was dominated by perennial grasses, principally bluebunch wheatgrass *(Elymus lanceolatus wawawai)* which flourished over the plains. Intermixed with it were smaller patches of sandberg bluegrass *(Poa secunda)* and Idaho fescue *(Festuca idahoensis).* The region is classified as the Agropyron-Poa habitat type (formerly named *Agropyron spicatum*, new listing is *Pseudoreognaria spicata).* Large native herbivore were generally absent from the Palouse, and because of this, the grasses evolved with a low resistance to grazing. Subsequent grazing by domestic livestock and extensive cultivation for wheat are the main reasons why native perennial grasslands are now rare on the Palouse (NPS 1999).

Five vegetation types have been identified at the site: Big sagebrush shrubland; Bunchgrass grassland; Great Basin wildrye grassland; Wheatgrass grassland; and Reed canary grass grassland. Other communities exist to varying degrees, but are either not affected by fire (e.g., an area of irrigated Class A turf), not large enough to distinguish as a separate type or will not be subject to prescribed fire (e.g., cattail marsh). Objectives for the big sagebrush and bunchgrass types will be similar; differences in vegetation in these types at present results from differences in treatment to date.

The following section discusses basic characteristics of the major species of the big sagebrush, Great Basin wildrye, bunchgrass, wheatgrass, and reed canary grass vegetation types. Much of this information was obtained from the Fire Effects Information System (FEIS). FEIS provides information on fire effects on plants and animals. It was developed at the USDA Forest Service Intermountain Research Station's Fire Sciences Laboratory. The FEIS Information Center is maintained by the Intermountain Region computer staff and can be found at http://www.fs.fed.us/database/feis/.

Big sagebrush *(Artemisia tridentata)*

Big sagebrush is found predominately in the Big sagebrush shrubland at Whitman Mission. Big sagebrush is an erect shrub normally 3 to 10 feet (1-2 in) tall. It commonly reaches 40 to 50 years of age, and some plants may exceed 100 years. The root systems are well adapted to extract moisture from both shallow and deep portions of the soil profile, making them highly competitive with associated grasses and forbs (Blaisdell et al. 1982, Tisdale and Hironaka 1981).

Big sagebrush is easily killed by fire. If sagebrush foliage is exposed to temperatures above 195 degrees Fahrenheit (90 'Q for longer than 30 seconds, the plant dies. Site productivity affects the ease with which big sagebrush will burn . Highly productive sites have greater plant density and more biomass, which provides more fuel to carry a fire (Britton and Clark 1985). With the exclusion of fire, relative cover of big sagebrush increases and native bunchgrasses may decrease.

Native Grasses
Dominant grasses at Whitman Mission NHS include bluebunch wheatgrass *(Pseudorogneria (Agropyron) spicata),* reed canary grass *(Phlaris arundinacea),* Great Basin wildrye *(Leymus (Elymus) cinereus)* and Idaho fescue *(Festuca idahoensis).* Descriptions of how each of these grasses respond to fire are listed below.

Bluebunch wheatgrass *(Pseudorogneria (Agropyron) spicata)*
Bluebunch wheatgrass is found in the wheatgrass and bunchgrass grasslands at Whitman Mission. It is a drought-resistant species. It occurs where the annual precipitation ranges from 7 to 30 inches (15-76 cm) per year and is distributed throughout a broad elevational band in the western United States (Wright and Bailey 1982).

Bluebunch wheatgrass regenerates vegetatively following fire. Prolonged high temperatures do not occur at the root crown, and most basal buds will survive (Antos et al. 1983). Willms et al. (1980) reported that compared with control plants, burned grass clumps had lighter tillering the first year after burning, but in the second year, tiller density was greater.

Great Basin wildrye *(Leymus (Elymus) cinereus)*
Great Basin wildrye is the dominant species in the Great Basin Wildrye vegetation type at Whitman Mission. It is also found occasionally in the bunchgrass grassland. Self-perpetuating stands of basin wildrye are indicative of climax conditions on saline/alkaline lowland and upland sites within sagebrush-grassland and salt desert communities throughout the Great Basin. Basin wildrye is an erect, native, cool-season, perennial bunchgrass. It is robust, coarse, densely tufted, and salt tolerant. Basin wildrye is typically non-rhizomatous but sometimes produces short, thick rhizomes (Barkworth and Dewey 1985).

Basin wildrye is generally considered well adapted to fire (Wright 1985). Crowns have coarse stems, which insulate buds located just below the ground surface (Wright and Bailey 1982). Surviving plants sprout from basal buds and, in some ecotypes, from rhizomes. Some post-fire seedling establishment may also occur. Although basin wildrye

plants are frequently reduced to charred stubble and typically exhibit reduced basal diameters immediately after fire, the majority survives and resprouts.

Idaho fescue *(Festuca idahoensis)*
Idaho fescue is found in the bunchgrass grassland and big sagebrush grassland vegetation types at Whitman Mission. It is a cool season, perennial bunchgrass with fine, dense leaves and culms. Fire removes foliage as it passes over, but smoldering may continue in the bunch 2 to 3 hours after the flame front passes (Wright 197 1, Wright and Klemmedson 1965). Idaho fescue can survive low or moderate severity fires if its basal buds are not severely damaged. Plants burned in the fall (Oct.) may suffer reduced yields if the soil is moist.

Reed canary grass *(Phlaris arundinacea)*
Reed canary grass is found in the reed canary grass grassland at Whitman Mission. It occurs in low-lying areas with saturated soil much of the year. It is a perennial grass that can grow as tall as 8 feet (2.66 in) but usually reaches heights of only 27.6 to 55.1 inches (70-140cm). Reed canary grass reproduces mainly by rhizomes (Hansen et al. 1988). Rhizomes grow into dense mats within 1 year, and up to 74 percent of new shoots are believed to arise from rhizomes. Reed canary grass can also readily reproduce by seeds, which germinate shortly after ripening.

Reed canary grass can survive fires because of its rhizomes (Wasser 1982). Early April fires may cause increases in reed canary grass, while May burns may prevent it from producing seed (Henderson 1990). Prescribed fires are recommended in April and May to prevent shrub invasion of sedge and reed canary grass meadows (Reuter 1986).

Tall wheatgrass *(Agropyron elongatum)*
Tall wheatgrass is the dominant species in the wheatgrass type at Whitman Mission. It is an introduced ("near-native") bunchgrass with low drought tolerance, high tolerance for salt and saturated soils, and is late maturing. It grows 4-6 feet tall (Romo and Krueger 1985).

Tall wheatgrass is an introduced species planted at Whitman Mission because of its close appearance to native species. The relationship of fire to tall wheatgrass is not clearly understood.

Non-native (undesireable) species
Cheatgrass *(Bromus tectorum)*
Cheatgrass if found primarily in the big sagebrush shrubland and bunchgrass grassland types at Whitman Mission. It is an invasive species, favored by disturbances such as overgrazing, cultivation, or frequent fire. Cheatgrass effectively out-competes native vegetation when cover of these species has been reduced. Its rapid growth and its ability to utilize most of the available upper soil moisture enable it to exclude seedlings of other species (Tisdale and Hironaka 1981, Harris 1967). A dense stand of native grasses, however, will limit coverage of cheatgrass.

Cheatgrass is an annual grass and is able to complete its lifecycle in the spring before the summer dry weather begins. Its complete drying and fine structure make it extremely flammable. Annual fires favor cheatgrass by eliminating competing perennial vegetation. Its seeds survive in the unburned organic material on a site. Rapid growth and vigorous reproduction assure cheatgrass dominance in the postburn stand.

Fire may aid in controlling cheatgrass if burned during the "red" stage (i.e., as the grass first begins to cure). After burning, roundup should be applied in the summer and fall with aggressive tilling and/or seed drilling.

Quackgrass *(Elytrigia (Agropyron) repens)*
Quackgrass is a cool-season, exotic, perennial, rhizomatous graminoid. Its stems are erect, decumbent, and may reach heights of 1 to 3 feet (0.3-1 m) but more commonly grow to 0.25 to I inch (0.5-2 cm) high (Great Plains Flora Association 1986). Quackgrass propagates mainly by rhizomes but also reproduces by seed.

Quackgrass cover can increase following fire. Late spring fires generally reduce quackgrass cover, flowering and biomass, while early spring fires can increase these. Burning quackgrass on a biennial schedule for several years has been effective in eradicating this species (Anderson 1973, Bailey 1978). Mowing, burning, and chemical application combined may be the best way to eradicate quackgrass (Liegel and Lyon 1986).

Yellow starthistle *(Centaurea solstitialis)*
Yellow starthistle is found the big sagebrush shrubland, bunchgrass, and wheatgrass types at Whitman Mission. It is an introduced winter annual with a deep taproot. The stems, which grow 0.7 to 2.6 feet (0.2-0.8 in) tall, are rigid and branch from the base. Yellow starthistle reproduces exclusively by seed. Vigorous plants may produce 170,000 seeds per plant, but seed production is generally much lower when plant densities are high (Thomsen et al. 199 1).

Prescribed fire may be used to control yellow star thistle seed production if plants are burned in the early flowering stage before seed matures. Yellow starthistle is still green prior to seed maturity so there must be adequate dry fuel from other plants for fire to carry (Thomsen et al. 1991). Yellow starthistle probably regenerates after fire from seeds buried in soil or from off-site sources.

Spring burning followed by spraying with a broadleaf herbicide has proved effective for treating yellow starthistle at Whitman Mission. Fall burning, followed by tilling and spraying of broadleaf herbicide has also shown some success.

MANAGEMENT OBJECTIVES
Prior to the introduction of agriculture in the 1800's, vegetation at Whitman Mission was subject to frequent, low intensity surface fires. The hillsides were dominated by bunchgrasses, with big sagebrush scattered on hillsides. Due to fire exclusion and cultivation, vegetation cover is dominated by nonnative species. Efforts have been made

to revegetate the site with native and native-like species (to maintain the cultural scene). Prescribed fire will be used to manage vegetation composition (Romo and Kreuger 1985).

Overall management objectives for these community types are as follows:

Big sagebrush shrubland:

Reduce cheatgrass and yellow starthistle (combined) cover by 20-60% within ten years postburn.

Increase and maintain total native perennial grasses to greater than 50% relative cover, ten years postburn.

Great Basin wildrye grassland:

Maintain Great Basin wildrye to greater than 40% relative cover, ten years postburn.

Reduce non-native species to less than 30% relative cover, ten years postburn.

Bunchgrass grassland:

Increase and maintain total perennial grasses to greater than 50% relative cover, ten years postburn.

Decrease cheatgrass, teasel, poison hemlock, and thistles to less than 30% relative cover ten years postburn.

Reed canary grassland

Maintain reed canary grass at >60% relative cover, ten years postburn.

MONITORING DESIGN

We will use the monitoring design included in the National Fire Monitoring Handbook without any deviations.

MONITORING OBJECTIVE(S)

A clear understanding of vegetation cover and density for the Palouse Prairie prior to fire exclusion does not exist. Our management objectives are, therefore, broadly stated and the level of accuracy required to substantiate these results is relatively low.

Overall monitoring objectives for these community types are as follows:

Big sagebrush shrubland:

- We want to be 80% sure of detecting a negative 30% change in the relative cover of cheatgrass and yellow starthistle (combined), 10 years after the application of prescribed fire. We are willing to accept a 20% chance of saying a change took place when it did not.
- Within this monitoring type we want to be 80% confident that the sample mean is within 25% of the true preburn and the ten year postburn population means that are greater than 50%.

Great Basin wildrye grassland:

- We want to be 80% confident that the sample mean is within 25% of the true preburn and the ten year postburn population means, which are greater than 40% relative cover of Great Basin wildrye.
- We want to be 80% sure of detecting a negative 30% change in the relative cover of non-native species, 10 years after the application of prescribed fire. We are willing to accept a 20% chance of saying a change took place when it did not.

Bunchgrass grassland:

- We want to be 80% confident that the sample mean is within 25% of the true preburn and the ten year postburn population means, which are greater than 50% relative cover of native bunchgrasses.
- We want to be 80% confident that the sample mean is within 25% of the true preburn and the ten year postburn population means, which are less than 30% relative cover of cheatgrass, teasel, poison hemlock, and thistle.

Wheatgrass grassland:

- We want to be 80% confident that the sample mean is within 25% of the true preburn and the ten year postburn population means, which are greater than 50% relative cover of native wheatgrasses.
- We want to be 80% confident that the sample mean is within 25% of the true preburn and the ten year postburn population means, which are less than 30% relative cover of cheatgrass, teasel, poison hemlock, and thistles.

Reed canary grassland

- We want to be 80% confident that the sample mean is within 25% of the true preburn and the ten year postburn population means, which are greater than 60% relative cover of reed canary grass.

SAMPLING DESIGN

See monitoring type description sheets attached to this plan.

No monitoring plots will be established on bare exposure (less than 20% vegetated) on slopes are greater than 45%, or on any areas identified by specialists as having significant resource value (e.g., cultural sites).

FIELD MEASUREMENTS

We will use the field methods included in the National Fire Monitoring Handbook without any
deviations.

TIMING OF MONITORING

We will monitor plots at the peak of flowering season. Early July is usually the ideal time to monitor vegetation at Whitman Mission. Depending on the weather this time may vary from mid-June to mid-July. Plots will be monitored as per handbook protocols (immediate, 1, 2, 5, and 10 years postburn) until the plots are burned again.

MONITORING PLOT RELOCATION

An Electronic Marker System will be used to relocate plots. This system, developed by 3M for utilities applications, allows you to return to a specific location, with the aid of an EMS Electronic Marker Locator and GPS. The GPS will be used to get in the general vicinity of the monitoring plot, and the EMS will allow for exact location, once in the general vicinity. This system will be used at Whitman Mission to avoid visual impacts of rebar on the cultural landscape.

Markers will be placed 4-10" below surface level, depending upon vegetation ad soil constraints. Markers will be located adjacent to the reference stake (0m) and end (30m) of each brush transect, where feasible. Marker locations will be noted on Plot location datasheets (FMH-5), as actual location may vary due to specific site constraints (e.g., a large rock at the 0 meter reference point or origin).

Rebar, 6-12 inches long, will be inserted into the ground, where the Fire Monitoring Handbook recommends the use of rebar. The rebar will be buried, level with the ground. The rebar will then be used as permanent marks when the plot is (re)measured.

The makers of the 4" Ball Marker, 3M, list acceptable temperatures for the marker as.-40 to 147 T. Tests will be conducted to determine what minimum depth the markers need to be buried to ensure resistance to the prescribed fire. Should the Ball Marker get too hot, contents include small amounts of glycol, water, wire, and a small capacitor. The products have been tested by 3M and determined to present no environmental risks.

INTENDED DATA ANALYSIS APPROACH

Data will be analyzed by running minimum sample size equations until the minimum plot numbers are met for each variable. For all variables that are related to condition objectives, minimum sample size equations will be run again once all the plots within a monitoring type reach one year postburn and again when the timeframe mentioned in the management objective has been reached. The same pattern will be followed for change objectives, except the equation will be different (see the National Fire Monitoring Handbook for further details). We will then use dot plots to determine if the data fit a normal distribution or if data are skewed. If normal, we will use a paired West to determine if objectives have been met. If the data is skewed we will consult a statistician for assistance.

We will contrast our results with other past fire ecology studies that have taken place in the monument and similar vegetation types elsewhere. We will also coordinate our findings with other land managers and universities that have worked with similar issues and continue to stay current on all pertinent research.

DATA SHEET EXAMPLES

See the National Fire Monitoring Handbook.

INFORMATION MANAGEMENT

Data will be entered, checked for errors, and managed by the fire effects monitoring staff at North Cascades National Park. Original copies of all data will be kept in the prescribed fire specialist's office at John Day Fossil Beds NM. Copies of all hard and soft data will be filed in North Cascades fire management office and the Chief of Resources office at Whitman Mission. Data for each year must be made available to Whitman Mission and John Day Fossil Beds staff by December first of that year.

QUALITY CONTROL AND DATA ERRORS

Quality Control will be a shared responsibility. The following methods will be used to minimize data errors:

Minimizing errors in recording, such as incomplete or uncollected data, are the responsibility of the North Cascades Lead Biological Technician. This person would make sure all data sheets are completely filled out, before leaving the field.

Minimizing the field effects of monitoring, such as trampling is the responsibility of the North Cascades Lead Biological Technician.

Minimizing data entry errors, such as transcription errors, is the responsibility of the North Cascades Lead Biological Technician. Error will be checked before and after the entry of the data every plot.

Ensuring the correct identification of species is the responsibility of the North Cascades Lead Biological Technician in consultation with the John Day Prescribed Fire Specialist, Whitman Mission staff, and local experts. Voucher specimens will be collected.

Minimizing other field errors, e.g., species that are overlooked or not seen, or data collected at the wrong time of year is the responsibility of the North Cascades Lead Biological Technician.

Quality training for the North Cascades fire effects monitoring crew will be arranged by the North Cascades fire management officer.

Proper interpretation of monitoring design is the responsibility of the regional fire effects monitoring specialist.

All plot locations will be located using a GPS. In addition, accurate documentation of plot locations for ease of relocation will be maintained by the North Cascades Lead Biological Technician.

RESPONSIBLE PARTY

This monitoring plan was developed by:
Paul Reeberg, Fire Effects Monitoring Specialist, Pacific West Region, National Park Service

Amanda McAdams, Prescribed Fire Specialist, John Day Fossil Beds National Monument, National Park Service

Review of this plan was completed by:
Karen Kopper, Fire Effects Lead, North Cascades National Park, National Park Service

Ken Till, Fire Management Officer, Columbia Cascades Support Office, Pacific West Region, National Park Service

Roger Trick, Chief of Interpretation and Resources Management, Whitman Mission National Historic Site, National Park Service

Administrative duties will be completed by the following: Plan revisions, park liaison, data analysis-- Prescribed Fire Specialist, John Day Fossil Beds National Monument

Annual Review--Fire Effects Monitoring Specialist, Pacific West Region, National Park Service

Crew supervision--Fire Management Officer, North Cascades National Park

Data collection, data entry, data management, field crew supervision--Lead Biological Technician, North Cascades National Park

FUNDING
FIREPRO funding will be used for all monitoring activities. General funds for the time and travel for North Cascades monitoring will come from North Cascades budget except travel for preburn, immediate postburn and year one, and year two monitoring activities. Funding for these visits will come from project funds.

MANAGEMENT IMPLICATIONS OF MONITORING RESULTS
Monitoring results will be reviewed by the Fire Analysis Committee each December. The Fire Analysis Committee will determine if the results of previous burns are acceptable. Acceptable results include maintaining or reducing current levels of non-native species (<40% increase in density of any single species, <10% increase of total density of non-native species) and meeting monitoring objectives stated above.

If monitoring results show deviations from desired vegetation conditions, or if resource objectives change, the committee will determine changes necessary for future activities. These changes might include some or all of the following: altering burning prescriptions, monitoring objectives, and burn unit boundaries; recognizing a need for additional research; and increasing treatment on non-native species. Monitoring data will be reported to other NPS personnel and in publications, as appropriate.

APPENDIX G: PREATTACK PLAN

The tall grass fuels at Whitman Mission can burn with very fast rates of spread, very high flame lengths, and extreme fireline intensity. At the present time the park does not have red carded employees who can provide any initial attack on a wildland fire. The park will notify the Walla Walla County Dispatch of a wildland fire, and Walla Walla County Fire District #4 personnel and equipment will respond. The park does have an initial emergency information notebook that contains the following:

COMMAND

1. Draft delegation of authority
2. Management Constraints
3. Interagency Agreements

LOGISTICS

4. Medical Facilities
5. Utilities
6. Police, fire departments
7. Communications (radio, telephone)

OPERATIONS

8. Natural barriers
9. Safety zones

PLANNING

10. Park base map
11. Vegetation/ fuels maps & descriptions – Control lines, Natural barriers
12. Paleontological/Archaeological/culturaI base map

APPENDIX H: LONG-TERM PRESCRIBED FIRE AND HAZARD FUEL REDUCTION PLAN

Description of Project Boundaries:

Outside the north boundary fence is Union Pacific Railroad land. Park staff mows the fence line inside the park, which is part of Area D1. Problem species such as poison hemlock, cheatgrass, and teasel grow on both the park side and the railroad side of the fence. Park staff does not mow along the boundary fence in the extreme northwest corner of the park, northwest of Mill Creek. Poison hemlock is the dominant species in D4 up to the boundary fence. Outside the fence, on railroad land, the park neighbor mows between his property line fence and the tracks in an effort to keep weeds such as thistles, quack grass, and field bindweed controlled. He mows the railroad land adjacent to D4b at the same time.

Land adjacent to the west boundary is used for pasture or for commercial wheat production, and is on a lifetime lease to the former owner. When the current leasee (former owner) and his spouse are deceased, which may be 20 years from now, the land will belong to Whitman Mission National Historic Site. The park staff does not mow along the fence line in Areas D or F, but does mow along the fence in Area B along the west boundary. Poison hemlock, cheatgrass, and Canada thistle are the predominant weeds along the park's west side, and they put some pressure on the adjacent private land for weed control. The pasture areas adjacent to Area B, D4, and part of D3 are so closely cropped that there is little chance for thistle or poison hemlock to grow. The park neighbor replants the wheat field adjacent to Area D3 every year.

The Washington State Fish and Game Department administers the land along the Walla Walla River adjacent to the park's south boundary as a wildlife habitat. Since 1989, the park staff mows an 8-foot strip along the entire south boundary fence within the park. Weed control is difficult, especially for poison hemlock, which grows on both sides of the south boundary fence. A variety of weed seeds probably enters and leaves the park through the south boundary.

The east boundary of the park is more complex because it includes the Memorial Shaft Hill as well as agricultural land. All the adjacent land is privately owned and produces wheat or onions except where the hill slope is too steep or where the land is too wet near Doan Creek. Non-native plants that spread from the park include Canada thistle, yellow starthistle, cereal rye grass, and cheatgrass. Weeds enter the park along the steep slopes of the Memorial Shaft Hill. The most common ones are cheatgrass and yellow starthistle. Aquatic weeds come into the park along Doan Creek.

Sub-unit descriptions

B. Area B, approximately 28 acres at the southern end of the park, has a well-established grass stand and has approximately 20% of it covered in poison hemlock or Canada thistle. Approximately 10 acres were planted in November, 1987 and the rest in March 1988, with native and non-native grasses. The area south of Area B, south of the park, is heavily infested with noxious weeds. Irrigated pasture or cultivated farmland borders Area B to the east and west. Now that a new stand of grass is well established, this area will benefit from a prescribed fire every few years.

C. Area C is approximately 15 acres and has been subdivided into three sub-units coinciding with the northern, western, and southern aspects of the 100-foot high hill. Use of prescribed fire during revegetation efforts will reduce the cheatgrass and yellow starthistle populations. A hot backfire burning downslope is necessary to kill as many seeds and plants as possible. The burn can be timed so the sagebrush, rabbitbrush, and buckwheat are not killed by fire, even if most of their aboveground growth is consumed. When burning is complete, the site should be almost entirely devoid of vegetation. Parts of Area C are undergoing revegetation at this time. The combined use of herbicides, prescribed fire and mechanical treatment may be necessary to prepare the seedbed for revegetation in future years. The south line of Area C is the paved county road and the Oregon Trail.

D. Area D occupies approximately 31 acres in the northern and western part of the park. It supported very few native species until revegetation efforts began. Native and non-native grasses were planted in November, 1987 on approximately 10 acres. Another 15 acres were seeded in the fall of 1988. Approximately 5 acres in the northeastern corner of Area D support reed canary grass. Now that the new stands of grass are well established, this area will benefit from periodic prescribed fire.

E. Area E lies between the park residence and the Visitor Center. Bordered on the south by the paved walk to the Great Grave, this area was seeded with Great Basin wildrye and Sherman big bluegrass. It should benefit from periodic prescribed fire. Area E is approximately 2 acres. The Sherman big bluegrass did not compete against exotic weeds as well as the Great Basin wildrye did, and very little of the Sherman variety has survived.

F. Area F1, approximately 8 acres, lies between the Visitor Center, Memorial Shaft Hill, and the Oregon Trail. Vegetation is primarily wheatgrass, bunchgrasses, quackgrass, and cheatgrass. Most of the area's grasses are dense enough to suppress annual weeds. Small patches of teasel, poison hemlock, and thistles grow within it. Periodic burning or fertilization will maintain or increase the vigor of the perennial grasses.

G. Area F2, the Mission site itself, is covered almost entirely with an irrigated Class A turf. It will not be subjected to prescribed fire except along the strip between Whitman's irrigation ditch and the Oregon Trail.

5) Vegetation Types and NFFL Fuel Model including Fuel Loading and Dead Fuels:

B. Area B contains big bluegrass, wheat grasses, canary grass and other native and non-native grasses. Some grasses are growing six feet tall. It is NFFL Fuel model L, and approximately 28 acres. Control lines will be the park's south boundary, east boundary, north boundary of area B, and the general course of the old river oxbow as the northwestern limit of the burn, with the park's west boundary as the western limit of the burn.

The west, south, and east boundaries have an eight foot wide strip of vegetation mowed along the inside of the boundary fence. Outbuildings along the west boundary adjacent to the park's boundary fence are the nearest neighbor's buildings. The mowed strip will need to be wetted inside the park near those buildings. South of Area B is fuel model 8, east of Area B is an agricultural field, usually planted in alfalfa, winter wheat, or onions. Along the north boundary of Area B is the mowed Oregon Trail, the irrigation ditch and Millpond, and the Old River Oxbow. The Oregon Trail cannot carry fire across it, while the irrigation ditch and Millpond are water barriers. West of the Millpond, along the northwest boundary of Area B (Old River Oxbow) is fuel model 8 where holding forces would have to wet the area boundary and then fire off of the wet line, backing the fire into the wind.

C. Area C is an unirrigated mixture of small shrubs, weeds and grasses including rabbitbrush, buckwheat, and bluebunch wheatgrass. Approximately 15 acres, it is NFFL Fuel Model L. Area C control lines will be the park boundary and plowed fields on the east. Hand line and wet line along the steeper slopes of part of the eastern boundary will consist of suppressing the fire with flappers, foam, and backpack hand water sprayers. Ignition along this side must be slow enough that holding personnel can keep pace with firing personnel.

The west control lines will be the pedestrian trail at the base of the hill beside the Doan Creek irrigation ditch. The south boundary is the mowed Oregon Trail. The north boundary is the Doan Creek Irrigation ditch, then the steeper part of the north aspect that is fuel model 8. Next to the trees of fuel model 8, firing should take off from a wet line put in along the Area boundary. Near the base of the north aspect of Area C, next to the irrigation ditch, a swath of tall grasses will have to be mowed and wetted to form a wet line approximately 25 feet long by 12 feet wide.

D. Approximately 5 acres in the northeastern corner of the area are lower and moister, supporting a dense stand of reed canary grass. Most of the area has established grass stands of wheatgrasses and blue grasses at this time. Approximately 31 acres, it is NFFL Fuel Model L. Area D control lines will be the park boundary and railroad tracks on the north, the park boundary and

cultivated field on the east, a combination of the irrigation ditch, service road, and the utility area on the south, and the park boundary and cultivated field on the west.

The east and north boundaries of Area D have a mowed strip inside the boundary fence that will slow fire enough so firing can be done from the mowed strip and back into the wind. Holding crewmembers can wet the short vegetation in the mowed strip or use flappers to hold the fire next to the firing personnel. The west boundary is fuel model 8 next to Mill Creek. Fire should be stopped before it enters the fuel model 8 area to ensure that all fire is out be 6:00 p.m. A strip in front of the trees will be mowed and holding personnel with flappers or hand sprayers can stop the fire as it enters the mowed strip. The rest of the west boundary is the park fence line and a mowed strip along the inside of the fence will be mowed before Area D is burned. Outside the boundary fence is a closely cropped pasture and an agricultural field that usually is planted in winter wheat. The south boundary of Area D is the irrigation ditch, the mowed strip around the maintenance facility, and the park service road. Around the maintenance facility the mowed vegetation strip may need to be wet with water from an engine or the nearby fire hydrant.

E. Predominately Great Basin wildrye, with Canada thistle scattered within it, Area E is 5 acres and NFFL Fuel Model L. Area control lines will be the paved walk leading to the Great Grave on the south, the irrigated lawn on the west, and either wet line or hand line along the north and east. The north and east lines can be reached with hose from a fire hydrant. West of the park residence the Area boundary is the edge of a grove of trees that are fuel model 8. An engine may have to create a wet line for approximately 50 feet to prevent any fire from entering the heavier fuels.

F. NFFL Fuel Model L, Area F1 contains native and non-native grasses and scattered thistle and teasel on approximately 12 acres. Control lines will be the Oregon Trail on the south, and hand line construction using flappers along the west side at the edge of the irrigated, mowed lawn. The paved walk from the Visitor Center to the Great Grave is the northern control line. A mowed strip of vegetation around a grove of trees in the northeast corner of Area F1 will keep fire out of the fuel model 8 area. Given the prevailing winds, firing personnel will probably begin strip fires off the northeast corner of F1. The irrigation ditch along the base of Memorial Shaft Hill is the eastern control line. The Oregon Trail is the southern control line, and the west and northwest control lines are the edge of the mowed and irrigated lawn.

G. In Area F2, the 30 foot wide strip between the Oregon Trail and Whitman's irrigation ditch contains Great Basin wildrye grass and scattered poison hemlock and teasel. It is NFFL Fuel Model L. The irrigation ditch is the southern control line, while the Oregon Trail is the northern one. Fire will be held at the split rail fence that runs beside the Oregon Trail using a combination of foam, backpack

hand sprayers, and flappers. The east and west ends of Area G is the irrigation ditch.

Multi-Year Prescribed Fire Schedule

2003 10 acres
Portions of Area D covered with canary grass in the northeast part of the park. Not treated.
Area E between the Visitor Center and Residence. Not treated

2004 28 acres
Area B south of the Mission Grounds

2005 30 acres
Portions of Area C on Memorial Shaft Hill, the north aspect and top.
Portions of Area D across the service road from the picnic area and parking lot.

2006 25 acres
Portions of Area D between the park's east boundary and the maintenance facility.
Area E between the Visitor Center and Residence.

This vegetation maintenance schedule will be subject to change as the park encounters different exotic plant invasions. Every prescribed burn and wildland fire would be followed with integrated pest management activities to control weedy species and to encourage native vegetation. Park management intends to burn any single unit at least every five years, but not more than every three years.

Multi-Year Hazard Fuels Reduction Areas and Schedule

2003 10 acres
Portion of Area D east of Maintenance facility. Accomplished.
"Spot" flail mowing of weed patches over entire park. Accomplished.

2004 5 acres
Portions of Area B that may have excessive exotic plants growing after the prescribed burn in early spring.
Portion of Area E that may contain excessive exotic plants.
"Spot" flail mowing of weed patches over entire park.

2005 5 acres
"Spot" mowing of weedy patches over entire park.
Portion of Area D west of the park service road that may contain excessive exotic plants.

2006 5 acres
"Spot" mowing of weedy patches over entire park.

APPENDIX I: FIRE PREVENTION AND EDUCATION PLAN

Objectives

The following are the primary objectives of the Whitman Mission wildland fire prevention education program.

1. To establish active wildland fire prevention education programs at the park level.

2. To identify specific prevention alternatives in the fire management plan.

3. To integrate and coordinate wildland fire prevention education programs with adjacent state and federal land management agencies, especially the US Forest Service, and other wildland fire protection organizations.

Promotion

Whitman Mission National Historic Site will promote fire prevention and education by:

1. Supporting and encouraging employee involvement in wildland fire prevention and education programs.
2. Developing and implementing wildland fire prevention plans as a component of the fire management plan and the resources management plan.
3. Preparing wildland fire prevention plans, which shall be reviewed annually and updated as required.
4. Integrating wildland fire prevention/education into all management functions, including interpretation, visitor protection, maintenance, and administration.
5. Cooperate with local land management agencies, especially the US Forest Service to coordinate wildland fire prevention/education programs.

Prevention Plan Analysis

Determination of Risks

Risk	Location
NPS equipment hot mufflers, sparks	Anywhere in park, especially along trails
Smoking	Along visitor trails, in picnic area
Lightening	On top of Memorial Hill, at any tall tree in park

Determination of Hazards

High Hazard: Slopes and top of Memorial Hill, east boundary of picnic area with tall native grasses.

Moderate Hazard:	West, north, and east of maintenance shop building, in the cultural demonstration area between the Great Grave and the Visitor Center.
Low Hazard:	Acreage south and east of Mission grounds, area between Visitor Center and Memorial Hill.

Determination of Values

Cultural resources:	Memorial Shaft overlook of the park; MODERATE Value. All others surrounded by green grass.
Developments:	Pumphouse; HIGH Value. Visitor Center, residence, maintenance shop are surrounded by green grass.
In holdings:	None.
Sensitive habitats:	None.
Endangered species:	None.
Watersheds:	None.
Nearby structures:	Outbuildings west of park on Neil Shelden's land; HIGH Value.
Adjacent land:	Agricultural wheat; HIGH Value. Hill slopes and wooded areas by Walla Walla River & Mill Creek; MODERATE Value.

Wildland Fire Prevention Plan

1. Education

Printed Materials:

1. Whitman Mission interpretive staff will produce/update a free handout each year about fire prevention, using and customizing ideas from Firewise, NIFC, and other organizations/locations.
2. The park brochure contains a general preservation/stewardship message.
3. The free park newspaper contains a fire prevention article every issue; it is printed in May.

Media:

1. Park will issue press releases when planning a prescribed burn and when grasses cure in mid-summer.
2. Park will include a fire prevention message with every cultural demonstration press release issued weekly during the summer.
3. Park press release issued near Labor Day will contain a fire prevention message and return to normal operating hours for Visitor Center.

Signs and Posters:

1. Poster exhibit in the Visitor Center lobby in the summer about fire prevention.

Personal Contacts:

1. Park personnel are always at the Visitor Center information desk and will communicate with visitors about high fire danger in July, August, and September.

Internal Contacts:

1. Park management will use tailgate safety sessions and monthly safety meeting to reinforce fire prevention by the park staff.

Outreach:

1. Cooperation with US Forest Service with some of their fire prevention activities at places such as the Walla Walla Balloon Stampede in mid-May and at the County Fair in late-August.

2. Engineering

To reduce the hazard potential within the park, the following actions will take place:

1. Mow vegetation away from the maintenance facility area.
2. Mow vegetation away from the pumphouse.
3. Keep the grass green around the Memorial Shaft, cultural demonstration area, Great Grave, etc.
4. Do not edge along the paved walks once the grass nearby begins to cure in May.

3. Enforcement

Visitor use regulations/restrictions are in the Superintendent's Compendium to restrict fire use, and restrict public use within the park, such as off-road vehicle use. The Compendium provides for the Superintendent's authority to close part or all of the park if required.

The inadvertent or intentional ignition of wildland fuels by humans is a crime. All wildland fires will be investigated at the earliest possible time. The investigation may range from a documented determination of cause by the initial attack fire crew to criminal investigation by a qualified arson investigator. The primary job in investigation will be to obtain all the information and evidence possible to identify the responsible party. The initial actions by the fire crew on the fire will affect the investigation's chance for success. Every initial attack fire fighter will receive some minimal training in finding and protecting the point of origin of any fire. They must also understand how to protect the point of origin and any possible evidence. All violators will be held liable for civil costs and for appropriate criminal action when laws or regulations have been violated.

During previous wildland fires on the park, the Fire District #4 personnel have been very aware of their part in fire investigation, have protected the point of origin of every wildland fire, and have cooperated fully with park staff in fire investigations.

Special Emphasis Programs

Whitman Mission National Historic Site is fortunate to have on the staff an education specialist and a fire information officer. By using the resources available at the National Interagency Fire Center
External Affairs Office in Boise, Idaho, (208-387-5512) or on the web through www.nifc.gov/ the park staff can customize material to the park situation if necessary. Most of the material and ideas could be implemented without changing.

APPENDIX J: RENTAL EQUIPMENT AGREEMENTS

CONTRACTS FOR SUPPRESSION AND PRESCRIBED FIRE RESOURCES

None Needed

APPENDIX K: BURNED AREA EMERGENCY STABILIZATION AND REHABILITATION PLAN

When suppression action is taken, emergency stabilization or rehabilitation is appropriate. The most effective measure is prevention of impacts through careful planning and the use of minimum impact suppression techniques.

Stabilization and/or rehabilitation will be initiated by the Incident Commander or the Collateral FMO. Stabilization and/or rehabilitation will be directed toward minimizing or eliminating the effects of the suppression effort and reducing the potential hazards caused by the fire. These actions may include:

1. Backfill control lines, scarify, and seed.

2. Install water bars and construct drain dips on control lines to prevent erosion.

3. Install check dams to reduce erosion potential in drainages.

4. Restore natural ground contours.

5. Remove all flagging, equipment and litter.

6. Completely restore camping areas and improved helispots.

7. Consider and plan more extensive rehabilitation or revegetation to restore sensitive impacted areas.

If revegetation or seeding is necessary, only native plant species will be used. If emergency stabilization measures are needed or if rehabilitation is needed to reduce the effects of a wildland fire then the site can request appropriate funding through the Burned Area Emergency Rehabilitation (BAER) fund. The park would contact the Regional Fire Management Officer if it planned to request BAER funds.

Stabilization and rehabilitation plans for each fire will be reviewed by the Fire Analysis Committee. A final plan would be submitted to Region if the park requested an account. Rehabilitation should be initiated prior to complete demobilization or early the following season. Some of the guiding principles for the Whitman Mission Fire Analysis Committee are the following:

1. Emergency stabilization and/or rehabilitation will be carried out on all fires as necessary to prevent land degradation and resource damages and mitigate unsafe conditions caused by the fire or by actions taken to suppress the fire.

2. The Department's BAER Handbook will be the primary source of guidance on BAER policies and procedures, as well as Director's Order and Reference Manual-18, supplemented by policies and procedures memos issued 2003.

3. Whitman Mission will use the least intrusive stabilization and rehabilitation actions required to mitigate actual or potential damage caused by fire. Seeding with native plants would be used as necessary to resist competition from exotic or invasive species.

4. Burned area emergency rehabilitation plans would be prepared as necessary to specify long-term actions for mitigating the deleterious effects of fire. The park would consult with the Region FMO, local resources such as the Walla Walla office of the Natural Resources Conservation Service and County Weed Control Officer, and resources available in the Northern Semi-Arid Network.

Some potential actions that may be included in a Whitman Mission BAER Plan are:

Emergency Stabilization	Rehabilitation	Restoration
Planned actions within one year of a wildland fire to stabilize and prevent unacceptable degradation to natural and cultural resources, to minimize threats to life or property resulting from the effects of a fire, or to repair/replace/construct physical improvements necessary to prevent degradation of land or resources	Post-fire efforts (<3 years) to repair or improve lands unlikely to recover to a management approved condition from wildland fire damage, or to repair or replace minor facilities damaged by fire	The continuation of rehabilitation beyond the initial three years of rehabilitation funding or the repair or replacement of major facilities damaged by the fire. Restoration is funded using appropriated or supplemental funding (for DOI from other than the wildland fire appropriation).
*Seeding/mulching to prevent erosion. *Seeding to prevent permanent impairment of critical habitat for Federal and state listed, proposed or candidate threatened and endangered species. *Seeding to prevent establishment of invasive plants. *Direct treatment of invasive plants. *Structural measures to slow soil & water movement. *Stabilize critical heritage resources. *Protective fences or barriers to protect treated or recovering area. *Replacing/repairing (minor) facilities essential to public health and safety. *Conducting assessments of habitat and significant heritage sites in those areas affected by emergency stabilization treatments. *Patrolling, camouflaging, burying significant heritage sites to prevent looting. *Increasing road drainage frequency and/or capacity to handle additional post-fire runoff.	*Tree planting to reestablish burned habitat, reestablish native tree species lost in fire, regenerating Indian trust commercial timberland. *Repair damage to minor facilities (campgrounds, exhibits, fences, guzzlers, etc) *Habitat restoration *Invasive plant treatment *Road/trail maintenance *Heritage site restoration *Fence replacement	*Replacement of major infrastructure (visitor center, residences, administration offices, work centers) burned in the fire. *Watershed restoration

L. WHITMAN MISSION NHS LIMITED DELEGATION OF AUTHORITY

Whitman Mission National Historic Site

LIMITED DELEGATION of AUTHORITY

Date:

To: _____. Incident Commander, _____Fire

From: Superintendent, Whitman Mission National Historic Site

Subject: Delegation of Authority for Fire Suppression

As Superintendent, I am responsible to protect the site's resources and the lives of its visitors and employees. Your expertise in management of fires will assist me in fulfilling that responsibility during the present emergency situation.

By means of this memorandum I delegate to you the authority to carry out control of the fire or complex of fires named above in accordance with Department of Interior and Park Service policy and guidelines provided in the Agency Administrator's briefing and the wildland fire situation analysis. These documents will provide you with information on the current situation, management objectives and priorities, and constraints necessary to protect the site's resources. You will find additional guidelines, concerns and constraints, if any, attached. A list of personnel assigned to assist you and of facilities available for use is attached.

Upon the arrival of the entire team, I will conduct an onsite briefing for you and your overhead organization. A fireline briefing will also be conducted for you and your staff by the local fire bosses.

Additional considerations follow.

1. Your first priority at all times is safety of firefighters and the public.

2. My Agency Advisor for you is _____
whose title is _____
He/she has full authority to act for me in my absence.

3. My Resource Advisor for you is_____
whose title is _____

4. Consistent with the suppression strategy, minimize environmental impacts. Use natural barriers and cold trail when possible. Avoid opening corridors along trails. Cut stumps to ground level, and remove trash from firelines daily. If not already addressed, specific needs for rehabilitation will be identified.

5. Emergency funds are available, but you should be prepared to make full explanation and provide accountability for any and all expenditures.

6. Dozers and all-terrain or off-road vehicles shall not be used without specific authorization except for a threat to life and habitable or historic structures. Use of aircraft, power saws and pumps, and generators are authorized as needed.

7. Please try to minimize impacts on site visitors and neighbors.

8. I expect you to assume management of the fire by this time:_____.

9. Office of Aircraft Services certified aircraft may be used within the constraints of Department of Interior policy.

10. All firelines will be rehabilitated, according to NPS policy and plans approved by my Resource Advisor.

11. Manage the fire with minimum disruption to visitor access and site operations, consistent with public safety. You may close areas if necessary for public safety by authority of 36 CFR. You must notify me to implementing any closure.

12. Environmentally compatible retardant use must be approved by my Resource Advisor.

13. Incident base, staging areas, helispots, and camp operations will be confined to:
_____
_____

14. Public information must be closely coordinated with the Unit Manager. The Unit Manager for this Incident is _____, whose telephone number is _____.

15. Notify me of any threats to life or property as soon as possible.

16. Emergency suppression funding is available, and all requests for resources should be forwarded to the Pacific West Regional Office Fire Management Officer, Sue Husari at (510) 817-1386.

17. Provide training opportunities for personnel when possible to strengthen our organizational capabilities.

18. A close-out fire analysis and evaluation will be conducted by me or my representative prior to the Incident team departure. I request a 24-hour advance notice of the meeting.

19. Key resource constraints are:

a. _____
b. _____
c. _____
d. _____

20. Cultural features requiring priority protection are:
a. _____
b. _____
c. _____
d. _____

21. A determination will be made as to the necessity of rehabilitation of burned areas. If it is determined that rehabilitation of burned areas is necessary then a Burned Areas Emergency Rehabilitation report will be prepared for both short and long term rehabilitation requirements. This report will be submitted within 24 hours of control of the fire.

_____ _____
Superintendent Date

_____ _____
Incident Commander Date

M. PRESCRIBED BURN POST-PROJECT EVALUATION FORMAT

Post-Project Evaluation Format

Individual Leading Evaluation:_____

Whitman Mission NHS Prescribed Fire Name:_____

Acres Treated:_____

Total Cost:_$_____
Cost/Acre:__$_____

Objectives:

Specific Objectives	Actual Results
Reduce dead grass vegetation by at least 80% over at least 60% of the area.	
Retain at least 75% of the shrub cover in the burn unit.	
Retain at least 95% of standing trees within the burn unit.	

Range of Acceptable Results Expected Across the Project Area

Based on experience with past fires at the park, it is expected that between 80 and 90% of the burned area will be blackened by fire. The burned area will exhibit a variety of fire effects that will range from small patches of total mortality of bunch grasses to low severity surface fires that consume only a thin layer of the dead grass stems.

Results:

Problems Encountered, Methods to Improve Next Operation:

Review & Signature:

Prescribed Burn Incident Commander:_____
Comments:

Chief, Interpretation & Resource Management: _____
Comments:

SUPPLEMENTAL APPENDICES FOR LARGE DIGITAL FILES

APPENDIX L: PARK MAPS, large digital format 2

Park vicinity map 3

Park orthophoto: Project Map: Prescribed Fire Burn Areas 4

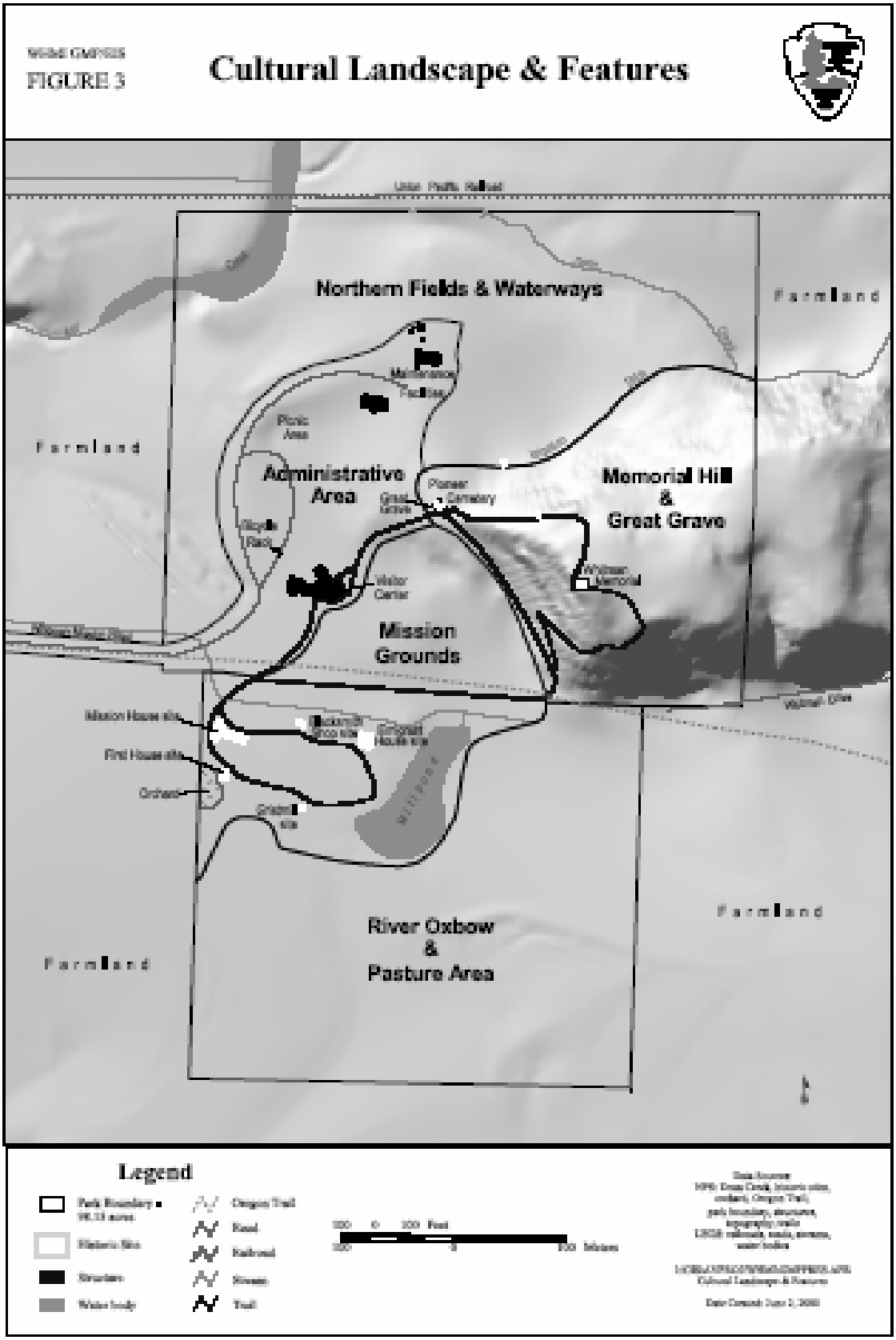
APPEBDIX M: BEHAVE Runs Supporting Prescription 5

APPENDIX L: PARK MAPS, large digital format

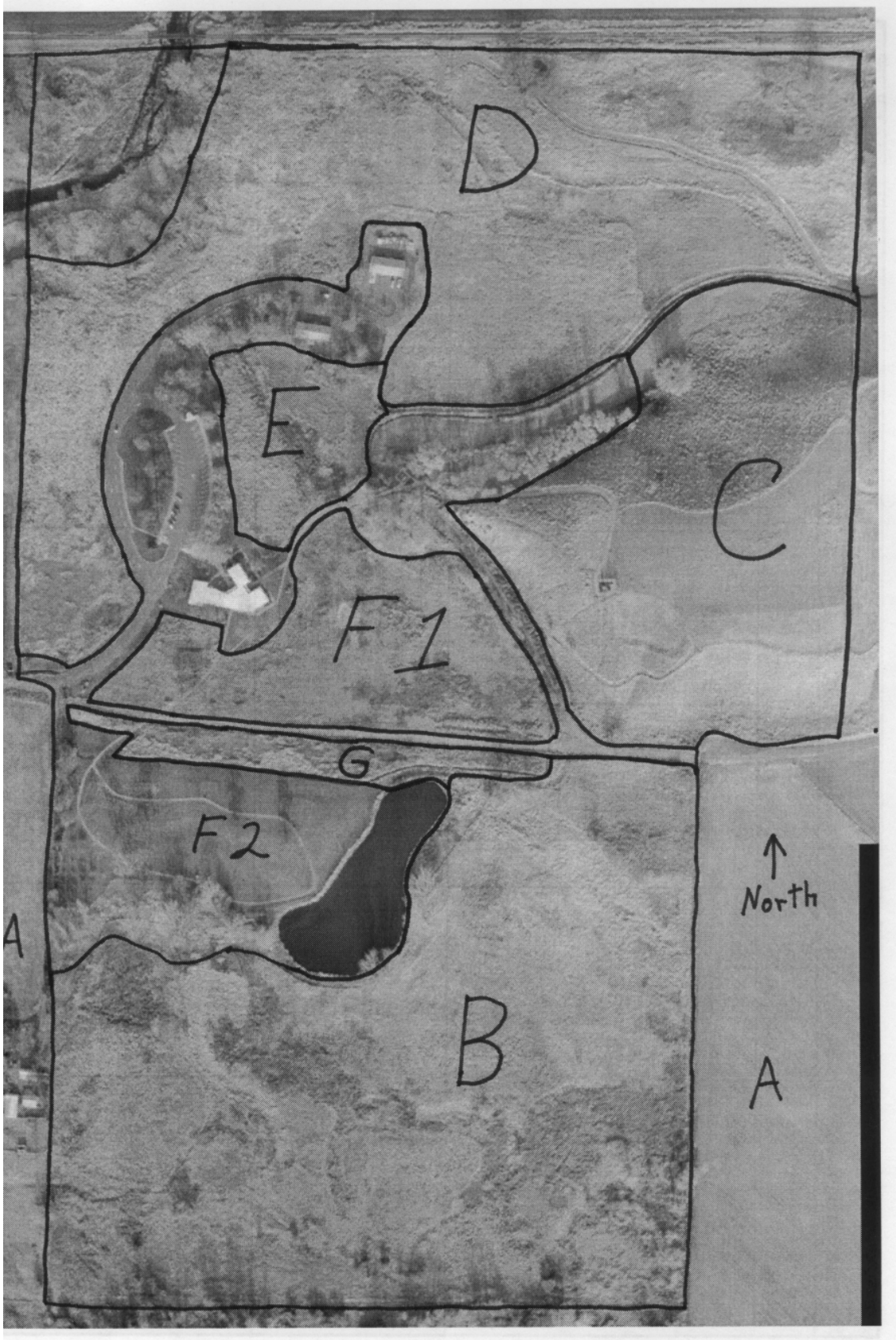
Park vicinity map

Park orthophoto: Project Map: Prescribed Fire Burn Areas

PARK VICINITY MAP



PROJECT MAP: PRESCRIBED FIRE BURN UNITS



MODULES: Surface, Size, Spot, Ignite

Description		Tall rye grass areas
FUEL/VEGETATION		
Fuel Model		3
Mean Cover Height	ft	3
FUEL MOISTURE		
I -h Moisture	%	8, 10, 12, 14,
10-h Moisture	%	
1 00-h Moisture	%	
Live Herbaceous Moisture	%	
Live Woody Moisture	%	
WEATHER		
20-ft Wind Speed	mi/h	5, 10, 15
Wind Adjustment Factor		0.4
Wind Direction (from north)	deg	240
Air Temperature	oF	65
Fuel Shading from the Sun	%	0
TERRAIN		
Slope Steepness	%	0
Aspect (from north)	deg	0

Input Worksheet (continued)

OUTPUT VARIABLES

Rate of Spread (maximum) (ch/h)

Heat per Unit Area (Btu/ft2)

Fireline Intensity (Btu/ft/s)

Flame Length (ft)

Midflame Wind Speed (mi/h)

Maximum Wind Exceeded?

Area (ac)

Perimeter (ch)

Forward Spread Distance (ch)

Backing Spread Distance (ch)

Fire Length (ch)

Spotting Distance from a Wind Driven Surface Fire (mi)

Probability of Ignition from a Firebrand (%)

NOTES

BehavePlus Version 1.0.0

Tall rye grass areas

Rate of Spread (maximum) (ch/h)

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	33.5	77.2	128.6
10	30.2	69.6	115.9
12	27.8	64.2	106.9
14	25.8	59.4	99.0
16	23.4	54.1	90.1
18	20.4	47.2	78.6
20	16.4	37.9	63.1

Tall rye grass areas

Heat per Unit Area (Btu/ft2)

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	689	689	689
10	662	662	662
12	648	648	648
14	635	635	635
16	610	610	610
18	560	560	560
20	471	471	471

Tall rye grass areas

Fireline Intensity (Btu/ft/s)

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	423	975	1625
10	366	844	1407
12	331	763	1271
14	300	692	1153
16	262	605	1008
18	210	484	807
20	142	327	545

Tall rye grass areas

Midflame Wind Speed (mi/h)

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	2.0	4.0	6.0
10	2.0	4.0	6.0
12	2.0	4.0	6.0
14	2.0	4.0	6.0
16	2.0	4.0	6.0
18	2.0	4.0	6.0
20	2.0	4.0	6.0

Tall rye grass areas

Flame Length (ft)

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	7.3	10.7	13.5
10	6.8	10.0	12.6
12	6.5	9.5	12.1
14	6.2	9.1	11.5
16	5.8	8.6	10.8
18	5.3	7.7	9.8
20	4.4	6.5	8.2

Tall rye grass areas

Maximum Wind Exceeded?

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	No	No	No
10	No	No	No
12	No	No	No
14	No	No	No
16	No	No	No
18	No	No	No
20	No	No	No

Tall rye grass areas

Area (ac)

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	19.2	67.2	141.5
10	15.6	54.6	115.0
12	13.3	46.5	97.8
14	11.4	39.9	83.9
16	9.5	33.0	69.5
18	7.2	25.1	52.9
20	4.6	16.2	34.0

Tall rye grass areas

Perimeter (ch)

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	51	100	154
10	46	90	139
12	42	83	128
14	39	77	119
16	36	70	108
18	31	61	94
20	25	49	76

Tall rye grass areas

Forward Spread Distance (ch)

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	16.7	38.6	64.3
10	15.1	34.8	58.0
12	13.9	32.1	53.5
14	12.9	29.7	49.5
16	11.7	27.1	45.1
18	10.2	23.6	39.3
20	8.2	18.9	31.5

Tall rye grass areas

Backing Spread Distance (ch)

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	2.4	2.8	2.8
10	2.2	2.5	2.5
12	2.0	2.3	2.3
14	1.9	2.1	2.2
16	1.7	1.9	2.0
18	1.5	1.7	1.7
20	1.2	1.4	1.4

Tall rye grass areas

Fire Length (ch)

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	19.2	41.4	67.1
10	17.3	37.3	60.5
12	15.9	34.4	55.8
14	14.8	31.9	51.7
16	13.4	29.0	47.0
18	11.7	25.3	41.0
20	9.4	20.3	32.9

Tall rye grass areas

Spotting Distance from a Wind Driven Surface Fire (mi)

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	0.1	0.3	0.5
10	0.1	0.3	0.4
12	0.1	0.3	0.4
14	0.1	0.3	0.4
16	0.1	0.3	0.4
18	0.1	0.2	0.4
20	0.1	0.2	0.3

Tall rye grass areas

Probability of Ignition from a Firebrand (%)

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	40	40	40
10	30	30	30
12	22	22	22
14	16	16	16
16	11	11	11
18	8	8	8
20	5	5	5

```
WELCOME TO THE BEHAVE SYSTEM
  BURN SUBSYSTEM
    FIRE1 PROGRAM: VERSION 4.4 -- FEBRUARY 1997

DEVELOPED BY:  THE FIRE BEHAVIOR RESEARCH WORK UNIT
               INTERMOUNTAIN FIRE SCIENCES LABORATORY
               MISSOULA, MONTANA

YOU ARE RESPONSIBLE FOR SUPPLYING VALID INPUT AND FOR
  CORRECTLY INTERPRETING THE FIRE BEHAVIOR PREDICTIONS.

ASSUMPTIONS, LIMITATIONS, AND APPLICATION OF MATHEMATICAL
  MODELS USED IN THIS PROGRAM ARE IN:
  Andrews, Patricia L. "BEHAVE: Fire behavior prediction and
    fuel modeling system--BURN subsystem, Part 1", INT-GTR-194, 1986
  Andrews, Patricia L., and Chase, Carolyn H. "BEHAVE: Fire
    behavior prediction and fuel modeling system--BURN
    subsystem, Part 2", INT-GTR-260, 1989




LIST


CONTAIN
 1--RUN OPTION -------------    1.=COMPUTE LINE BUILDING RATE
 2--MODE OF ATTACK ---------    2.=REAR
 3--RATE OF SPREAD, CH/H ---  129.0
 4--INITIAL FIRE SIZE, AC --     .1
 5--LENGTH-TO-WIDTH RATIO --    3.0
 6--BURNED AREA TARGET, AC -   20.0

CONTAIN KEYWORD?
ENTER INPUT,LIST,CHANGE,RUN,QUIT,
      TERSE,WORDY,PAUSE,NOPAUSE,LOG,NOLOG,
      ENGLISH,METRIC,PERCENT,DEGREES,
      COMMENT,KEY,HELP,STATUS
RUN


    (VERSION 4.4)

    TOTAL LENGTH OF LINE              86.  CHAINS
    CONTAINMENT TIME                    .3 HOURS
    TOTAL LINE BUILDING RATE         267.  CH/H

CONTAIN KEYWORD?
ENTER INPUT,LIST,CHANGE,RUN,QUIT,
      TERSE,WORDY,PAUSE,NOPAUSE,LOG,NOLOG,
      ENGLISH,METRIC,PERCENT,DEGREES,
      COMMENT,KEY,HELP,STATUS

JAN 21, 2003
WHITMAN MISSION
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MODULES: Surface, Size, Spot, Ignite

Description		Walla Walla River areas
FUEL/VEGETATION		
Fuel Model		8
Mean Cover Height	ft	3
FUEL MOISTURE		
1-h Moisture	%	8, 10, 12, 14,
10-h Moisture	%	8
100-h Moisture	%	10
Live Herbaceous Moisture	%	
Live Woody Moisture	%	
WEATHER		
20-ft Wind Speed	mi/h	5, 10, 15
Wind Adjustment Factor		0.4
Wind Direction (from north)	deg	240
Air Temperature	oF	65
Fuel Shading from the Sun	%	0
TERRAIN		
Slope Steepness	%	0
Aspect (from north)	deg	0
Ridge-to-Valley Elevation Difference	ft	
Ridge-to-Valley Horizontal Distance	mi	
Spotting Source Location		
FIRE		
Elapsed Time	h	0.5

(continued on next page)

Input Worksheet (continued)

OUTPUT VARIABLES

Rate of Spread (maximum) (ch/h)

Heat per Unit Area (Btu/ft2)

Fireline Intensity (Btu/ft/s)

Flame Length (ft)

Midflame Wind Speed (mi/h)

Maximum Wind Exceeded?

Area (ac)

Perimeter (ch)

Forward Spread Distance (ch)

Backing Spread Distance (ch)

Fire Length (ch)

Spotting Distance from a Wind Driven Surface Fire (mi)

Probability of Ignition from a Firebrand (%)

NOTES

Walla Walla River areas

Rate of Spread (maximum) (ch/h)

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	0.6	1.3	2.2
10	0.5	1.2	2.0
12	0.5	1.1	1.8
14	0.5	1.0	1.7
16	0.4	0.9	1.6
18	0.4	0.9	1.5
20	0.4	0.8	1.4

Walla Walla River areas

Heat per Unit Area (Btu/ft2)

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	174	174	174
10	165	165	165
12	160	160	160
14	157	157	157
16	155	155	155
18	152	152	152
20	147	147	147

Walla Walla River areas

Fireline Intensity (Btu/ft/s)

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	2	4	7
10	2	4	6
12	1	3	5
14	1	3	5
16	1	3	4
18	1	2	4
20	1	2	4

Walla Walla River areas

Flame Length (ft)

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	0.6	0.9	1.1
10	0.6	0.8	1.0
12	0.5	0.8	1.0
14	0.5	0.7	0.9
16	0.5	0.7	0.9
18	0.5	0.7	0.9
20	0.4	0.6	0.8

Walla Walla River areas

Midflame Wind Speed (mi/h)

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	2.0	4.0	6.0
10	2.0	4.0	6.0
12	2.0	4.0	6.0
14	2.0	4.0	6.0
16	2.0	4.0	6.0
18	2.0	4.0	6.0
20	2.0	4.0	6.0

Walla Walla River areas

Maximum Wind Exceeded?

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	No	No	No
10	No	No	No
12	No	No	No
14	No	No	No
16	No	No	No
18	No	No	No
20	No	No	No

Walla Walla River areas

Area (ac)

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	0.0	0.0	0.0
10	0.0	0.0	0.0
12	0.0	0.0	0.0
14	0.0	0.0	0.0
16	0.0	0.0	0.0
18	0.0	0.0	0.0
20	0.0	0.0	0.0

Walla Walla River areas

Perimeter (ch)

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	1	2	3
10	1	2	2
12	1	1	2
14	1	1	2
16	1	1	2
18	1	1	2
20	1	1	2

Walla Walla River areas

Forward Spread Distance (ch)

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	0.3	0.7	1.1
10	0.3	0.6	1.0
12	0.2	0.5	0.9
14	0.2	0.5	0.8
16	0.2	0.5	0.8
18	0.2	0.4	0.7
20	0.2	0.4	0.7

Walla Walla River areas

Backing Spread Distance (ch)

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	0.0	0.0	0.0
10	0.0	0.0	0.0
12	0.0	0.0	0.0
14	0.0	0.0	0.0
16	0.0	0.0	0.0
18	0.0	0.0	0.0
20	0.0	0.0	0.0

Walla Walla River areas

Fire Length (ch)

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	0.3	0.7	1.2
10	0.3	0.6	1.0
12	0.3	0.6	0.9
14	0.3	0.5	0.9
16	0.2	0.5	0.8
18	0.2	0.5	0.8
20	0.2	0.4	0.7

Walla Walla River areas

Spotting Distance from a Wind Driven Surface Fire (mi)

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	0.0	0.0	0.1
10	0.0	0.0	0.1
12	0.0	0.0	0.1
14	0.0	0.0	0.1
16	0.0	0.0	0.1
18	0.0	0.0	0.1
20	0.0	0.0	0.1

Walla Walla River areas

Probability of Ignition from a Firebrand (%)

1-h Moisture %	20-ft Wind Speed mi/h 5	10	15
8	40	40	40
10	30	30	30
12	22	22	22
14	16	16	16
16	11	11	11
18	8	8	8
20	5	5	5