



United States  
Department of  
Agriculture



Forest  
Service

June 2004

# Environmental Assessment

## Hardwood Stand Restoration

**Walla Walla Ranger District, Umatilla National Forest**

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# INTRODUCTION

## Document Structure

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The Forest Service has prepared this Environmental Assessment in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. The document is organized into four parts:

- *Introduction:* This section includes information on the history of the project proposal, the purpose of and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.
- *Alternatives, including the Proposed Action:* This section provides a more detailed description of the agency's proposed action as well as alternative methods for achieving the stated purpose. These alternatives were developed based on significant issues raised by the public and other agencies. This discussion also includes possible mitigation measures. Finally, this section provides a summary table of the environmental consequences for comparison of alternatives.
- *Environmental Consequences:* This section describes the environmental effects of implementing the proposed action and other alternatives. This analysis is organized by resource area. Within each section, the affected environment is described first, followed by the effects of the No Action Alternative that provides a baseline for evaluation and comparison of the other alternatives that follow.
- *Agencies and Persons Consulted:* This section provides a list of preparers and agencies consulted during the development of the environmental assessment.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Walla Walla Ranger District Office in Walla Walla, Washington.

## Background

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The hardwood stands on the Walla Walla Ranger District most likely originated during an earlier era in which wetter climates persisted. During this time, conditions were favorable for the successful germination of seeds and the early growth of seedlings. Today, conditions in the west are not as favorable and these hardwood stands have survived by their ability to sprout new hardwood stems following disturbances, such as fire, avalanches, or wind events. These stands may continue to reproduce in this manner for hundreds of years as long as their root systems remain healthy.

It is estimated that hundreds of acres of hardwood forest in eastern Oregon and Washington have been lost in the last 150 years and have become an ecosystem at risk. Individual aspen and cottonwood trees are short-lived, with an expected lifespan of 50-100 years. Although quaking aspen is the most widely distributed native tree species in North America, land management practices, particularly browsing and the exclusion of fire, have caused significant decrease in hardwood regeneration across the landscape.

Since 1990 the Walla Walla Ranger district has identified and inventoried over 150 stands of Quaking Aspen (*Populus tremuloides*) and Black Cottonwood (*Populus trichocarpa*) that could benefit from an active management program. These stands have been inventoried, evaluated, and monitored to determine what management activities might lead to restoration of a historical level and diversity of hardwood species across the landscape.

The District used fencing, burning, and other methods to manage these stands in the past. This analysis continues protection and restoration so hardwood stands will continue to exist, or reoccupy sites historically dominated by hardwoods. The value of the nurturing and retaining these declining aspen and cottonwood stands in all stages of vigor and development is perceived primarily in terms of preserving their genetic diversity and their value as wildlife habitat.

## Purpose and Need for Action

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Hardwood plant communities fulfill a wide variety and diversity of habitat needs for various wildlife species including forage for big game, cavity bird nesting habitat, cover and forage for upland game birds, as well as habitat for many other small mammals and other wildlife species. These are often areas of high water yield and many times important watering or wallowing areas for big game. Hardwood stands utilize less available water than conifers, and offer many aesthetic and recreational values.

Stands of these important hardwood species are currently in decline throughout the National Forests of eastern Oregon and Washington. This decline is characterized by observations of “relic” aspen and cottonwood stands where there are few or no live trees, but evidence of a prior stand that appear to have been much larger historically; and stands with mature trees which do not appear to have a replacement stand growing in smaller size classes.

The decline of hardwood species appears to be attributed to several factors including excessive browsing of young trees; competition with conifer trees for water, light, and nutrients; lack of sprouting in mature and over-mature stands; and the reduction of the natural role of fire due to fire suppression efforts.

Historically moderate to high intensity wildfires caused mortality to conifer regeneration and to mature and over-mature hardwood trees, allowing regeneration to occur from the root systems. Fire also stimulates root growth and suckering in aspen. Without fire, or other disturbance, conifers will out-compete the hardwoods, absorbing more light and water, until the hardwoods eventually die. Once a stand has lost its root vigor and ability to sprout, it may be permanently lost. This stand replacement by competing conifers can eventually remove hardwood trees from the landscape.

In addition, grazing by big game and livestock has had several effects: new suckers are consumed and not allowed to mature, eliminating the natural regeneration process; feeding animals make wounds on the hardwood stems which can girdle and kill the tree, increases their vulnerability to disease; and grazing by large numbers of domestic livestock may cause soil compaction, which may damage roots and change soil and hydrologic conditions. Browsing damage has been observed in the hardwood stands but damage from compaction has not been evaluated.

This action is needed because hardwood stands provide many benefits and are rich habitat areas. The District objectives for retaining and improving the condition of existing aspen and cottonwood stands include:

- Maintain and enhance the current distribution of hardwoods on the District.
- Increase the average size and density of aspen and cottonwood stands.

- Enhance the distribution of age classes, providing for an increased number of young stands.
- Decrease the current conifer component within hardwood stands.
- Maintain habitat and vegetation diversity across the forest landscape.
- Maintain and improve water yield in hardwood communities for fish and wildlife use.
- Provide cover, nesting habitat, and forage for various bird species.

## Proposed Action

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In an effort to enhance regeneration of these important hardwood sites, a total of 41 stands have been prioritized and identified for proposed treatment to meet the purpose and need. These 41 stands are located in 38 different sites (stands) and total approximately 16 acres.

Various regeneration treatments have proven effective in stimulating hardwood's disturbance needs, including prescribed fire. However, fire use is limited to ideal burning conditions that ensure its controlled use and is an alternative considered but not developed. The proposed action considered mechanical treatments:

1. To protect hardwood stands from grazing wildlife and domestic livestock the proposed action uses fencing or caging of some hardwood stands or sprouts or creating natural barriers by falling trees and/or brush around the perimeter of the stand.
2. To reduce competition for sunlight, nutrients and water by felling mature conifer trees within and around stands and the removal of conifer seedlings under the hardwood canopy.

Commercial sale of wood products is not being considered as a by-product of hardwood restoration. At some sites, fallen trees may be hand-piled and later sold or used for firewood. Smaller, hand-piled fuels may be burned at some sites. No new roads would be built for these projects. These restoration projects would be implemented as funding becomes available. Priority 1 hardwood stands would be given first consideration for treatment. Most of the proposed sites are located in the Grande Ronde River sub-basin, however some sites do occur within the Umatilla River sub-basin and one site within the Walla Walla River subbasin.

## Decision Framework

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This Environmental Assessment documents the results of the environmental analysis conducted for the proposed action and its alternatives. The Walla Walla District Ranger will determine which alternative or portions of alternatives best accomplishes Forest Plan Goals and Objectives. Given the purpose and need, the deciding official reviews the proposed action and the other alternatives in order to make the following decisions:

1. What, if any, treatments would be utilized to stimulate regeneration of hardwood species across the District.
2. Where fencing materials may be obtained within existing lodgepole stands.

## Laws, Regulations, Policies, and Other Plans

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This Environmental Assessment process and documentation has been done in accordance to the direction contained in the *National Forest Management Act (NFMA)*, the *National Environmental Policy Act (NEPA)*, the *Council on Environmental Quality (CEQ) Regulations*, the *Clean Air Act*, the *Clean Water Act* and the *Endangered Species Act (ESA)*.

This Environmental Assessment (EA) is tiered to the Umatilla National Forest Land and Resource Management Plan FEIS and Record of Decision approved June 11, 1990 and the accompanying Land and Resource Management Plan (Forest Plan) (USDA 1990). This includes clarifying direction of Plan Amendment 10, Interim Strategies for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California (PACFISH) (USDA 1995). It is also tiered to the Managing Competing and Unwanted Vegetation Final Environmental Impact Statement, its Mediated Agreement, and Record of Decision (USDA 1988, amended 1992).

This action responds to the goals and objectives outlined in the Umatilla National Forest Land and Resource Management Plan. During the forest planning process Forest Management Objectives and Standards and Guidelines were developed for important resource values of the Umatilla National Forest. The standards and guidelines established measures of acceptable impacts to these resources while providing forest outputs. These values are listed in the table of contents for Forest Management Direction found on pages iii and iv of the Umatilla National Forest Plan (USDA 1990). The outcome of the proposed action can change the resource conditions that support the attainment of the Forest Goals for the resource values. The effects of each alternative to these resource values will be displayed in the Environmental Consequences section of this document. Issues raised during scoping will be incorporated into these resource values. Review of the Forest Plan indicates linkages to Forest Management Goals for the following resource groups:

*Plant Diversity:* Provide for plant diversity by maintaining and enhancing ecosystem functions and provide for long-term stability and productivity of biological communities.

*Wildlife Habitat:* Provide, develop, and enhance effective and well-established habitats throughout the Forest for all existing native and desired non-native wildlife species. Provide and maintain big game habitat and its components of forage and cover.

*Stream and Riparian Habitats:* Maintain integrity and equilibrium of all stream systems, riparian areas, and wetlands on the Forest

*Water:* Manage National Forest resources to protect existing beneficial uses of water and within the Forest capability, maintain or enhance water quantity, quality, and timing of stream flows to meet needs of downstream users and resources.

*Recreation:* Provide attractive natural settings for forest users along important roads, trails, and in and around recreation sites.

## **American Indian Treaty Rights**

The Forest Service, through the Secretary of Agriculture, is vested with statutory authority and responsibility for managing resources of the National Forest. No sharing of administrative or management decision-making power is held with any tribal entity. However, commensurate with the authority and responsibility to manage is the obligation to consult, cooperate, and coordinate with Indian Tribes in developing and planning management decisions regarding resources on National Forest land that may affect tribal rights.

The planning area lies within an area ceded to the United States government by the Confederated Tribes of the Umatilla Indian Reservation as a result of the Treaty of 1855. Trust responsibilities resulting from the Treaty dictate, in part, that the United States government facilitates the execution of treaty rights and traditional cultural practices of the CTUIR Indians by working with them on a government-to-government basis in a manner that attempts a reasonable accommodation of their needs, without compromising the legal positions of the Tribes or the federal government. Because tribal trust activities often occur in common with

the public, the Umatilla National Forest strives to manage ceded land in favor of the concerns of the Tribes, as far as practicable, while still providing goods and services to all the people.

Specific treaty rights applicable to the planning area are generally articulated in Article III of the 1855 Treaty, and include:

"The exclusive right of taking fish in all the streams where running through or bordering said reservation is further secured to said Indians; as also the right of taking fish at all usual and accustomed places in common with citizens of the Territory; and of erecting temporary buildings for curing, together with the privilege of hunting, gathering roots and berries, and pasturing horses and cattle upon open and unclaimed land."

Although the 1855 Treaty does not specifically mandate the federal government to manage habitats, there is an implied assumption that an adequate reserve of water be available for executing treaty related hunting and fishing activities.

Because the government is bound to perform its trust duties in a manner that will not diminish, abridge, violate, or abrogate reserved treaty or executive order rights, the Umatilla National Forest has endeavored to solicit the comments of the Confederated Tribes of the Umatilla Indian Reservation to determine what effects may occur to Tribal welfare and treaty resources as a result of implementing projects included in the planning area. Michael Farrow, Director of the Tribe's Department of Natural Resources provided a detailed reply to our scoping letter. Issues and concerns identified in the letter from the Tribe were incorporated during the development of the alternatives and or have been addressed in the Environmental Assessment in the following places:

1. "The analysis must adequately explain the current conditions of the project area..." The Environmental Consequences section on page 17 describes the current conditions, by resource area.
2. "The environmental analysis should examine a wide range of alternatives, including not only a no-action alternative, but also something in-between that and the proposed action." This environmental analysis has 3 alternatives, including a no-action. See Alternative section on page 10.
3. Effects to anadromous fish within the context of water quality...The Environmental Consequences, Riparian and Aquatic Habitat (page 19) and Soil, Water and Hydrology section page 17 discusses the effects to fish, water quality, soil and hydrology.
4. Cultural sites...The area was surveyed by the archaeologist and no effect on cultural sites was found and is documented on page 30.
5. Roads and their impact on water and wildlife. No road construction or changes to access are proposed.

## Public Involvement

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Scoping occurred in January and February of 2002 as the Environmental Assessment for Hardwood Stand Restoration. The proposal was listed in the Schedule of Proposed Actions (SOPA) beginning in the fall of 2001. Scoping is used to identify major issues and determine the extent of environmental analysis necessary for an informed decision on a proposed action. The Walla Walla Ranger District received ten responses from a mailing to 255 individuals, organizations, agencies, and Tribal governments. Using these comments, (see Issues section), a list of issues to address was developed.

## Issues

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Several issues and concerns were generated from public input to the proposed action. These issues were reviewed and the Interdisciplinary team determined key issues. Key issues are defined as resource or other values that drive the development of an alternative, modifies the action, or identifies “unresolved conflicts regarding the uses of available resources” (NEPA sec 102(2)(E)).

The Council on Environmental Quality (CEQ) NEPA regulations requires agencies to “...identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)...” Non-significant issues were identified as those:

Outside the scope of the proposed action;

Already decided by law, regulation, Forest Plan, or other higher level decision;  
Irrelevant to the decision to be made;

Conjectural or opinion and not supported by scientific or factual evidence.

A list of non-significant issues and reasons regarding their categorization as non-significant may be found in the project record at the District Office.

### **Key Issues:**

#### **Key Issue #1 – Water Quality and Riparian Habitat**

*Since aspen are associated with wet or moist sites there was conflict with the loss of shade and exposure of soil and what the action would do to water quality. There is concern about documenting the existing watershed conditions, including current quality, sediment, turbidity, and temperatures. How the project would affect hydrologic functions was also identified. Sediment delivery and impacts to the riparian environment were mentioned several times.*

*Concerns were voiced that felling of conifer trees within riparian areas would elevate temperatures. Others felt restoring hardwoods in these areas would help reduce solar radiation loading and increase channel stability. Some felt no management should occur within riparian areas, because of the complexity of plant and animals that depend on them.*

*How management activities would affect wetlands in the project areas was questioned and whether the area has been surveyed for wetlands and how many were inventoried was a concern.*

This is one of the Key Issues that generated Alternative 3. Impacts to the riparian areas related to temperature, shading, water quality, sediment and turbidity would be minimal and immeasurable. The scale of the project is very small, 6 to 16 acres compared to the watersheds and riparian areas proposed for treatments. The streams that occur near the proposed treatment sites are Class 4, intermittent streams. Treatments are not expected to increase stream temperatures because summer shading would not be reduced. For Alternative 3 no treatment (fencing or conifer removal) would occur within designated Class 4 Riparian Habitat Conservation Areas (RHCAs) (intermittent/non-fish bearing streams).

Executive Order 11990 requires that government agencies take action to minimize the destruction, loss or degradation of wetlands. Streamside riparian areas, seeps, springs, and other wet habitat exists within the project area. Most systems within the project area are riverine riparian. Several of the sites are wetlands with aspen a major vegetation component of the riparian vegetation. Best Management Practices (BMPs) and the mitigation measures identified in the Alternatives Section would be used to protect riparian habitat.

## **Issue #2 – Wildlife**

*Concerns arose over the affect of the project on endangered species. There was conflict with the action occurring in Riparian Conservation Areas (RHCAs) because of potential impacts to ESA listed fish species and in lynx habitat. The effect on lynx habitat by the cutting of fencing materials within lodgepole stands was also a concern.*

This Key issue led to the development of Alternative 3 which restricts restoration treatments to only those sites located outside of lynx habitat and RHCAs. Because of these concerns, no cutting of fence poles would occur within lynx habitat.

The Terrestrial Wildlife Biological Evaluation (BE) for this project outlined the possible effects of restoration activities on wildlife, especially those that are listed as Endangered or Threatened under the Endangered Species Act and as Sensitive by the Regional Forester. The BE determined there would be no impact to any listed species except Canadian lynx. The BE outlined 20 of the 41 stands located in two Lynx Analysis Units (LAUs) in which the proposed vegetative changes may affect, but would not likely adversely affect lynx.

Hardwood plant communities fulfill a variety of habitat needs for various wildlife species including forage for big game, cavity nesting habitat for primary and secondary cavity nesters, cover and forage for upland game birds, and habitat and cover for many other small mammals and wildlife species. The proposed restoration activities would improve and maintain vegetative species diversity as well as enhance and improve fish and wildlife habitat. The proposed restoration projects would primarily occur in the summer and fall months to avoid spring elk calving season.

## **Other Comments and Concerns**

**Domestic Grazing:** *There were several references to domestic grazing as a primary cause for the decline of aspen and cottonwood and recommended limiting or eliminating domestic grazing within the project area. Another recommendation was to complete a study to determine what percentage of hardwood decline is attributed to grazing. Support was voiced for trying fencing or other barriers to protect young trees from browsing. Some felt grazing could be used as a tool.*

Grazing and browsing by big game and domestic livestock is a contributing factor to the decline of hardwood species across the landscape; however, the decision to graze or not to graze is beyond the scope of this Environmental Assessment. The Allotment Management Plan is the environmental analysis document that determines the amount and timing of grazing. The impacts of domestic grazing may be eventually reduced through an adjustment in timing and duration of pasture use within the Allotment Management Plans and Annual Operating Plans of permitted use. Fencing clones or leaving large wood on the ground would limit impacts from grazing and browsing.

Due to limited funding and personnel, a study to determine hardwood decline directly attributed to livestock grazing is not feasible at this time. Monitoring of past fencing of hardwood stands to protect them from browse damage from not only livestock, but also deer and elk has proved successful

**Soil Impacts:** *A concern was raised over how the project would affect soils and macrobiotic crusts. It was felt the analysis needed to show the inventory and management of these resources. A discussion of soil types and their relevant properties was suggested. One respondent wanted to know if soil compaction from grazing is heavy around moister hardwood sites.*

Neither soil disturbance nor erosion has been identified as a problem in the project area. The hydrologic report noted that any adverse effect to soil condition by the proposed restoration activities would be of small magnitude and distributed over

such a large area that their effect would be immeasurable. Fence building could cause some localized soil disturbance however the small amount of exposed soil would be buffered by remaining duff and vegetation, preventing sediment runoff. Conifer trees may be felled and left on the ground and this activity is not anticipated to disturb the soil. Though sheep have browsed young aspen there is no indication that regeneration is being limited by compaction associated with grazing. The dramatic results from past exclusions have been associated with eliminating foraging; whether it is from big game or domestic livestock. Reestablishment of a more diverse, natural plant community would tend to be beneficial for soil conditions helping to recover some of the 'scab' meadow area impacted by grazing of sheep early in the 20<sup>th</sup> century.

Macrobiotic or soil crusts are most common in non-forest areas where little disturbance would occur with the proposed action. Macrobiotic crusts within fenced areas resulting from the proposed action would benefit from reduced grazing pressure from both wildlife and livestock.

**Noxious Weeds:** *What affect the project would have on noxious weed distribution and spread was questioned. It was felt the analysis needed to show the status of weed infestations and what is being done to combat this problem.*

How to treat weed infestations is not within the scope of this Environmental Assessment. High priority noxious weeds sites within the project area that are inventoried and mapped in the Umatilla National Forest's 1995 Noxious Weed EA will continue to be treated as outlined in that EA. In addition, the Pacific Northwest Region of the USDA Forest Service is currently developing a region-wide, programmatic Environmental Impact Statement to address the growing problem of noxious weed invasion. Building fences and removing encroaching conifer trees in and around the hardwood stands is not expected to be a contributing factor to the spread of noxious weeds; prevention methods would be incorporated into project implementation.

**Fisheries:** *Maintaining fish populations and habitat was an issue raised by several respondents who asked that current status and cumulative effect on species and habitat both inside and outside the project area be shown.*

Impacts to the riparian areas related to temperature, shading, water quality, sediment and turbidity would be minimal. Most streams that occur near the proposed treatment sites are intermittent streams. Treatments are not expected to increase stream temperatures because shading would not be reduced. For Alternative 3, no treatment (fencing or felling of conifers) would occur within designated Class 4 Riparian Habitat Conservation Areas (RHCAs) (intermittent/non-fish bearing streams).

**Economics:** *Disclosure of economic costs, especially the cost of building and maintaining fences, and assurance that long-term funding is available to protect and maintain the initial investment was requested.*

Fences to protect hardwood seedlings have been built on the Walla Walla Ranger District since 1995. Over time, fencing types and specifications have been improved in order to assure the most cost-effective and low-maintenance methods. As funding allows, well-built buck and pole fencing is replacing high maintenance woven wire fences. Buck and pole fencing holds up much better through winters of heavy snow pack. In some areas, low-cost, cattle panel cages would be built around small clusters of sprouts.

Funding for fence building has come through a variety of sources including grants from private organizations and through the Knutson-Vandenberg Act of 1930 (KV trust funds) collected from timber sale receipts. Although KV trust funds are no longer

readily available, many private foundations and organizations such as the Rocky Mountain Elk Foundation, the Ruffed Grouse Society, and others have shown strong support and provided funding for fencing and repairs to improve wildlife habitat in recent years.

**Fire:** *Many felt that prescribed fire would benefit the area and restoration of the hardwood stands. There was support for using prescribed fire as a management tool, but caution was raised to avoid letting fire into riparian areas.*

This issue generated an alternative that was not fully developed. Fire use within RHCAs or to regenerate drier site aspen is limited to ideal burning conditions that ensure it's controlled use. Due to the limited size of sites (most sites are 1 acre or less) and the narrow burning window that makes this option possible, prescribed fire is not a practical option. Fire may be used later through some stands as part of a larger prescribed fire project. Opportunities to include hardwood sites in future planned prescribed fire activities will be sought. As a result of conifer removal, smaller, hand-piled fuels may be burned after treatment is completed at some sites.

**Commercial Timber Harvest:** *Several respondents wanted to know what type of commercial timber harvest would be done and how would it benefit hardwood restoration. Some felt timber harvest could be used as a management tool but wanted a full analysis on how any commercial logging around hardwood stands would affect other resources. Protection of all old growth forest stands was emphasized.*

An alternative for commercial conifer removal was considered but not developed. Because of the minor amount of merchantable timber produced by the conifer trees encroaching into the hardwood stands, and the scattered location of sites identified for treatment, commercially removing the trees would not be economically practical. At some sites near roads, fallen trees may be hand piled and later sold or used for firewood. No conifer trees over 18" in diameter at breast height would be fallen.

**Roads and Roadless Areas:** *There was support for not building any roads, but there were questions about whether temporary roads would be constructed. Another concern was voiced over road closure methods when decommissioning them entirely might be a better option. Several questions were asked about road density, quantity, and proximity to streams including skid trails and landings. Sediment from roads and affects to fish and wildlife was a concern to some. Several respondents want roadless areas to be avoided at all cost.*

Decommissioning roads, and access and travel management is beyond the scope of the environmental analysis and will not be addressed in this document. No new or temporary roads would be built for these projects. Temporary use of some closed roads for delivery of fencing materials may occur. Previously closed roads would then be re-closed by replacing or reinstalling barriers to road passage. No treatment (fencing or conifer removal) would occur within designated roadless or wilderness areas.



## Alternatives, including the Proposed Action

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This section describes and compares the alternatives considered for this Hardwood Stand Restoration project. It includes a description and map of each alternative considered. This section also presents the alternatives in comparative form, defining the differences between each alternative. Some of the information used to compare the alternatives is based upon the design of the alternative (for example, fencing vs. no fencing) and some of the information is based upon the environmental, social, and economic effects of implementing each alternative (for example, whether to do restoration treatments near Class 4, intermittent streams).

### Alternatives Considered but Eliminated from Detailed Study

***Prescribed Fire, Felling of Conifers, and Fencing:*** Prescribed fire has been proven effective in stimulating hardwood's disturbance needs. However, fire use is limited to ideal burning conditions that ensure it's controlled use. Due to the limited size of sites (most sites are 1 acre or less) and the narrow burning window that makes this option possible, prescribed fire is not a viable option. Fire may be used later through some stands as part of a larger prescribed fire project. Opportunities to include hardwood sites in planned prescribed fire activities in the future will be sought.

***Commercial Conifer Removal and Fencing Only:*** Although providing for production of wood fiber is a goal of the Umatilla National Forest Land and Resource Management Plan, at this time, commercial removal of wood products is not being considered as a by-product of hardwood restoration. Because of the minor amount of merchantable timber produced by conifer trees encroaching into the hardwood stands and the scattered location of sites identified for treatment, commercially removing the trees would not be economically practical.

***Felling of Small Diameter Conifers and Fencing Only:*** This alternative would fell only trees less than 9" in diameter at breast height (DBH). This alternative would not meet the purpose and need because this type of mechanical treatment would not effectively eliminate the conifers that are shading the hardwood stands from the forest canopy. Therefore, this alternative was not considered further.

***Fencing Only:*** This alternative would not fell any encroaching conifer trees. This alternative would not meet the purpose and need because some type of thinning is needed in lieu of a

natural disturbance to effectively eliminate the conifers that are competing with the hardwood stands. Therefore, this alternative was not considered further.

## **Alternative 1 - No Action**

### **Current Management:**

Under the No Action alternative, current management plans would continue to guide management of the project area. No active management of the 41 identified and prioritized aspen and cottonwood stands would occur. This would include no grazing protection by fencing or creating natural barriers around the stands. It would mean no felling of conifer trees within and around the stands. Inventory and monitoring activities would continue to occur on a periodic basis.

Thinning of lodgepole pine or western larch stands to remove poles to be used as fencing materials would not occur to fence any of these designated stands. Poles for fencing of other priority stands that have been already analyzed through other NEPA documents may be obtained from the North Fork John Day Ranger District and tiered to their Environmental Assessment and ESA consultation covering removal of post and pole material. Fencing materials may also be obtained through commercial purchase.

## **Alternative 2 - The Proposed Action**

### **Felling of Conifers and Fencing:**

In an effort to enhance regeneration of these important hardwood species, a total of 38 aspen and 3 cottonwood stands have been prioritized and identified for proposed treatment to meet the purpose and need. Because the cottonwood is intermingled or adjacent to the aspen, they are combined as one site; therefore we will analyze 38 sites containing 41 stands. Approximately 16.2 acres would be treated. Two types of treatments are primarily being considered:

1. Protection from grazing wildlife and domestic livestock by buck and pole fencing of some hardwood stands or creating natural barriers by falling trees and/or brush around the perimeter of the stand. Cattle panel cages may be used at a few small sites that consist of sprouts only.
2. Reduction of vegetative competition by felling mature conifer trees, up to 18" inches in diameter in some areas, within and immediately surrounding a 50' perimeter (from the sprouts), and the removal of any conifer seedlings under the hardwood canopy. At some sites, fallen trees may be hand piled and later used for firewood. Smaller, hand-piled fuels may be burned at some sites.

Cutting of lodgepole pines for fence poles would only occur on the North Fork John Day Ranger District and tiered to their Environmental Assessment and ESA consultation covering removal of post and pole material. Fencing materials may also be obtained through commercial purchase.

No new roads would be built for these projects. These restoration projects would be implemented as funding becomes available. The Priority 1 hardwood stands would be given first consideration for treatment according to the following table:

## Alternative 2 – The Proposed Action

### Felling of Conifers and Fencing

STAND NUMBER	PRIORITY	RECOMMENDED TREATMENT		COMMENTS
		CONIFER FELLING	FENCING	
Aspen #2 Cottonwood #45	1	Up to 18" dbh within 50' surrounding both stands	2-3 small B&P Fences and Directional Felling	Treat Aspen #2 and Cottonwood #45 together
Aspen #8	1	Up to 18" dbh within 50' surrounding stand	Possibly Fence	Monitor success of conifer felling before fencing
Aspen #9	2	Up to 18" dbh within 50' surrounding stand	Possibly Fence	Monitor success of conifer felling before fencing
Aspen #15	1	Up to 18" dbh within 50' surrounding stand	B&P Fence	High priority – only one mature tree left
Aspen #18	3	Up to 18" dbh within 50' surrounding stand	2-3 small B&P Fences	
Aspen #19	1	Finish larger diameter conifer removal up to 18"	No	B&P fence and conifer removal up to 8" done
Aspen #29	4	Up to 8" dbh within 25' surrounding stand	No	
Aspen #30	4	Up to 8" dbh within 25' surrounding stand	No	
Aspen #31 Cottonwood #44	1	Up to 18" dbh within 50' surrounding timbered part of stand	B&P Fence portion in clearcut Directional Felling	Treat Cottonwood # 44 & Aspen # 31 together. Part of stand is in dense timber / part in old clearcut.
Aspen #37	2	Up to 18" dbh within 50' surrounding stand	Directional Felling	
Aspen #38	3	Up to 18" dbh within 50' surrounding stand	No	
Aspen #39	1	Up to 18" dbh within 50' surrounding stand	B&P Fence and Directional Felling	
Aspen #40	3	Up to 18" dbh within 25' surrounding stand	No	B&P fence and conifer removal up to 8" done
Aspen #46	4	Up to 18" dbh within 25' surrounding stand	Directional Felling	
Aspen #50	3	Up to 18" dbh within 50' surrounding stand	B&P Fence	
Aspen #51	5	Up to 18" dbh within 50' surrounding stand	Directional Felling	Clear brush from around site
Aspen #52	4	Up to 18" dbh within 50' surrounding stand	B&P Fence	
Aspen #56	3	Up to 18" dbh within 25' surrounding stand	No	B&P fence completed
Aspen #57	3	Up to 18" dbh within 50' surrounding stand	B&P Fence	
Aspen #58	1	Up to 18" dbh within 50' surrounding stand	B&P Fence	
Aspen #60	1	Up to 18" dbh within 50' surrounding stand	B&P Fence	
Aspen #66	3	Up to 18" dbh within 25' surrounding stand	Directional Felling	
Aspen #75	2	Up to 18" dbh within 50' surrounding stand	B&P Fence	
Aspen #76	1	Up to 18" dbh within 50' surrounding stand	B&P Fence	High priority – only one mature tree left
Aspen #79	3	Up to 18" dbh within 50' surrounding stand	B&P Fences	Fence several different clumps

## Alternative 2 – The Proposed Action Felling of Conifers and Fencing

STAND NUMBER	PRIORITY	RECOMMENDED TREATMENT		COMMENTS
		CONIFER FELLING	FENCING	
Aspen #81	1	Up to 8" dbh within 25' surrounding stand	B&P Fence	Fence 2 remaining clumps (2 already fenced)
Aspen #82	3	Up to 18" dbh within 50' surrounding stand	B&P Fence	
Aspen #83 Cottonwood #31	1	None	B&P Fence or Cattle Panel Cages	High priority – Aspen: sprouts only, Cottonwood: 1 mature tree & sprouts
Aspen #88	1	Up to 18" dbh within 50' surrounding clump outside wilderness	Directional felling around clump outside wilderness	
Aspen #90	1	Up to 18" dbh within 50' surrounding stand	Directional Felling	
Aspen #91	3	Up to 18" dbh within 50' surrounding stand		B&P fence completed
Aspen #92	1	Up to 18" dbh within 50' surrounding stand	Directional Felling	
Aspen #93	3	Up to 18" dbh within 50' surrounding stand	B&P Fence	
Aspen #95	1	None	Cattle Panel Cage	High Priority – Sprouts Only
Aspen #99	2	None	Cattle Panel Cages	High Priority -Transplanted sprouts only
Aspen #100	2	Up to 18" dbh within 50' surrounding stand	Cattle Panel Cages	Remove brush
Aspen #101	2	Up to 8" dbh within 25' surrounding stand	None	
Aspen #103	1	None	Cattle Panel Cage	High Priority – Sprouts only

### Alternative 3

#### ***No Felling of Conifers or Fencing within Lynx Habitat or Class 4 Riparian Habitat Conservation Areas:***

Alternative 3 would include the same treatments as outlined in Alternative 2, the proposed action, but in 20 stands on 19 sites. This alternative would not treat sites within habitat determined suitable denning or foraging habitat for Canada lynx. Canada lynx is listed as threatened under the Endangered Species Act. This alternative would also not treat hardwood stands within designated Class 4 Riparian Habitat Conservation Areas (RHCAs) (intermittent streams) in order to prevent any potential effect on downstream water temperature. These sites would not be treated in order to provide maximum protection for Snake River and Middle Columbia River steelhead trout, both of which are listed as threatened under the Endangered Species Act. Approximately 6.25 acres would be treated.

As with Alternative 2, the cutting of lodgepole pines for fence poles would only occur on the North Fork John Day Ranger District and tiered to their Environmental Assessment and ESA consultation covering removal of post and pole material. Fencing materials may also be obtained through commercial purchase.

No new roads would be built for these projects. These restoration projects would be implemented as funding becomes available. Only the following sites would be fenced. Priority 1 hardwood stands would be given first consideration for treatment:

<b>Alternative 3</b>				
<b>No Felling of Conifers and Fencing in Lynx Habitat or Class 4 RHCAs</b>				
<b>Stand Number</b>	<b>PRIORITY</b>	<b>Recommended Treatment</b>		<b>Comments</b>
		<b>Conifer Felling</b>	<b>Fencing</b>	
Aspen #8	1	Up to 18" dbh within 50' surrounding stand	Possibly Fence	Monitor success of conifer removal before fencing
Aspen #9	2	Up to 18" dbh within 50' surrounding stand	Possibly Fence	Monitor success of conifer removal before fencing
Aspen #15	1	Up to 18" dbh within 50' surrounding stand	B&P Fence	High priority – only one mature tree remains
Aspen #19	1	Finish larger diameter conifer removal up to 18"	No	B&P fence and conifer removal up to 8" completed
Aspen #40	3	Up to 18" dbh within 25' surrounding stand	No	B&P fence and conifer removal up to 8" done
Aspen #51	5	Up to 18" dbh within 50' surrounding stand	Directional Felling	Clear brush from around site
Aspen #56	3	Up to 18" dbh within 25' surrounding stand	No	B&P fence completed
Aspen #57	3	Up to 18" dbh within 50' surrounding stand	B&P Fence	
Aspen #58	1	Up to 18" dbh within 50' surrounding stand	B&P Fence	
Aspen #75	2	Up to 18" dbh within 50' surrounding stand	B&P Fence	
Aspen #79	3	Up to 18" dbh within 50' surrounding stand	B&P Fences	Fence several different clumps
Aspen #83	1	None	B&P Fence	High priority – Aspen: sprouts only, Cottonwood: 1 mature tree & sprouts
Cottonwood #31				
Aspen #81	1	Up to 8" dbh within 25' surrounding stand	B&P Fence	Fence 2 remaining clumps (2 already fenced)
Aspen #88	1	Up to 18" dbh within 50' surrounding clump outside wilderness	Directional felling around clump outside wilderness	Aspen #88
Aspen #91	3	Up to 18" dbh within 50' surrounding stand		B&P fence completed
Aspen #92	1	Up to 18" dbh within 50' surrounding stand	Directional Felling	
Aspen #95	1	None	B&P Fence	High Priority – Sprouts Only
Aspen #100	2	Up to 18" dbh within 50' surrounding stand	Cattle Panel Cages	Remove brush
Aspen #101	2	Up to 8" dbh within 25' surrounding stand	None	

## Comparison of the Alternatives

This section provides a summary of the effects of implementing each alternative. Information in the table is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

	Alternative 1	Alternative 2	Alternative 3
<b>Browse Protection</b>	No grazing protection provided	Some type of protection from browsing would be placed around 33 hardwood stands	Some type of protection from browsing would be placed around 15 hardwood stands
<b>Conifer Encroachment</b>	Conifers would continue to shade out hardwood regeneration	Conifer removal would occur around 37 stands	Conifer removal would occur around 18 stands
<b>Disturbance Mechanisms</b>	Only natural disturbances would serve to stimulate growth and regeneration	Conifer removal would allow more sunlight to stimulate sucker growth on 37 stands.	Conifer removal would allow more sunlight at 18 stands to stimulate sucker growth
<b>Hardwood Regeneration</b>	Little or no regeneration would occur, would continue deterioration of aspen and cottonwood stands.	Natural regeneration would be enhanced through browse protection and conifer removal on 41 stands.	Natural regeneration would be enhanced at 20 stands.
<b>Fish Habitat / Riparian Areas</b>	Deterioration of aspen and cottonwood stands could result in a continued reduction of stream shading.	Re-establishment of natural vegetation would contribute to shade and riparian habitat diversity at 8 sites.	Re-establishment of natural vegetation would not occur within RHCAs.
<b>Lynx Habitat</b>	Lynx habitat would essentially remain unchanged, but habitat for some prey species may continue to decline.	The quality of 5 acres of foraging habitat for prey species would increase.	No short term change in habitat for lynx or their prey.
<b>Wildlife Habitat</b>	Little or no regeneration of hardwoods would reduce amount of high quality forage for big game and reduce habitat for many bird species.	Re-establishment of natural vegetation would provide additional wildlife habitat on 16 acres.	Re-establishment of natural vegetation would provide additional wildlife habitat on 6.25 acres.
<b>Vegetation Species Diversity</b>	Conifers would continue to shade out hardwood regeneration and absorb water and nutrients	Quantity, vigor, distribution and regeneration of hardwoods would increase	Quantity, vigor, distribution and regeneration of hardwoods would increase at 50% fewer sites

## Mitigation Common to All Alternatives

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In response to public comments on the proposal, mitigation measures were developed to ease some of the potential resource impacts the various alternatives may cause. The mitigation measures may be applied to any of the action alternatives.

- No treatment (fencing, or felling of conifers) would occur within designated Class I, II, or III Riparian Habitat Conservation Areas (RHCAs).
- No cutting of fence poles would occur within lynx habitat.
- No treatment (fencing or felling of conifers) would occur within designated roadless or wilderness areas
- No conifer trees over 18" in diameter at breast height (dbh) would be included in the conifer felling treatments.
- Existing dead trees, particularly those over 12" dbh, would be left undisturbed unless there are safety concerns. Where larger snags are cut for safety reasons, they would be left on site to provide down wood. Larger conifers (5-21" dbh) would be assessed to determine if topping is feasible in order to create standing dead tree habitat.
- Vehicles will not be driven off roads under wet soil conditions, or where there is concern about compaction, rutting or breaking of soil crust.



# ENVIRONMENTAL CONSEQUENCES

This section summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. It also presents the scientific and analytical basis for comparison of alternatives presented in the chart above.

## Physical Resources

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### Soil, Water, and Hydrology

**Existing Condition** – The hardwood sites in the analysis area are categorized as wet meadows, dry meadows, riparian areas, non-riparian gullies, scab flats, mixed hardwoods, mixed conifers, and roadside (McCown 2002). Both wet and dry meadows are generally flat with hardwoods and conifers bordering the edges. The wet meadows contain perennial or intermittent streams that are either springs or meandering Rosgen type E channels. Riparian areas contain perennial flow and riparian vegetation. The non-riparian gullies are depressions or swales that may or may not contain intermittent or ephemeral channels. Scab flats have dry upland vegetation and no flowing water, while the roadside and mixed hardwood and conifer sites can occur in wet, dry, steep, or flat areas. Cattle graze in many of the sites.

In general, management activities can affect hydrologic function by altering the capture, storage, and release of water and the production, storage, and routing of sediment. They can affect the hydrologic/watershed condition by altering the vegetative community, ground cover, stream shade, and bed and bank stability.

Although some perennial springs occur within the project areas, none of the streams draining the project areas are perennial. The project areas are drained by intermittent and ephemeral channels, which, due to their short and early season periods of flow, do not generally contribute to critical summer water temperatures. (McCown 2002)

Soils maintain productivity through the storing and release of nutrients, moisture, and air supplies to tree roots. Soil characteristics are developed from parent materials and include factors such as soil depth, compaction, loss of soil, and water retention. The best soils for hardwood growth are well-drained, loamy, and high in organic matter. Adequate available soil moisture and internal drainage, as well as the depth of the water table are important. Excess soil moisture or drought may inhibit growth. Soil temperature is one of the most critical environmental factors affecting the initiation of aspen suckers (Crowe 1997). Due to the lack of wildfire at regular intervals, many of the proposed restoration sites have some amount of dead, forest floor biomass that are contributing to available organic matter and nutrient recycling.

**Effects of Alternative 1** – No restoration activities would occur in the project areas and browsing and conifer encroachment would continue at the existing rate. In time, the combination of these activities could completely shade-out or out-compete the existing hardwoods thereby changing the vegetative community from hardwood to conifer dominated. Hydrologic and soil condition and function would continue as they are.

**Effects of Alternative 2** – The proposed activities would not adversely affect hydrologic and soil condition. Alternative 2 proposes protection and restoration of less than 5 acres of hardwood stands within intermittent RHCAs; a very small percentage of the thousands of acres of class 4 RHCAs. Riparian conditions would improve because the natural vegetative community would be reestablished and habitat provided by hardwood stands would increase.

PACFISH riparian objectives would be met by increasing the historical role the hardwoods played as riparian vegetation.

Stream temperatures would be unaffected by the proposed restoration activities because there are no perennial streams at any of the restoration sites. Most intermittent streams in the project area are dry or very low during the critical hot summer temperatures and do not substantially contribute to downstream water temperatures. Conifers at the individual restoration sites are not substantially contributing to stream shade and their removal would encourage the growth of new hardwoods that would provide shade.

In general, bare soils could become a threat to water quality during intense or sustained rainfall when runoff is more likely to transport sediment to streams or when erosion occurs within channels making sediment transport possible anytime. Since the encroaching conifers would be cut by hand and left on the ground, there would not be a mechanism for soil disturbance and would provide downed woody debris to trap erosion and contribute to the nutrient cycle. Fence building could cause some localized soil disturbance; however, the small amount of exposed soil would be buffered by remaining duff and vegetation, preventing sediment runoff. Soil crusts are most common in non-forest areas where little disturbance would occur with the proposed action. Macrobiotic crusts within fenced areas resulting from the proposed action would benefit from reduced grazing pressure from both wildlife and livestock.

Any disturbance that might occur would be of very limited extent and duration, thereby limiting any adverse long-term disturbance to soils. Neither soil disturbance nor erosion has been identified as a problem in the project area. Impacts to water quality would be immeasurable.

**Effects of Alternative 3** – The effects of this alternative would be similar to those of Alternative 2 but more distant to stream channels because no treatments would occur within designated Class 4 Riparian Habitat Conservation Areas (RHCAs). This would eliminate any possible potential affect on downstream water temperature or potential soil disturbance from 21 of the proposed hardwood restoration sites. There would be no impacts to water quality.

**Cumulative Effects** – Any adverse effect to hydrologic and soil condition by the proposed restoration activities would be of small magnitude and distributed over such a large area that their effect would be immeasurable. Macrobiotic crusts within fenced areas would benefit from reduced grazing pressure from both wildlife and livestock. Alternative 2 would keep livestock and big game from trampling and churning soils in spring areas with a potential reduction of sediment during spring thaw.

Reestablishment of a more diverse, natural plant community would tend to be beneficial for soil conditions helping to recover small areas of the dry meadow areas impacted by grazing of sheep early in the 20<sup>th</sup> century. There are no foreseeable adverse cumulative effects with grazing or landscape prescribed fire proposed in the Eden Bench or Lower Sheep fire reintroduction projects if the proposed hardwood restoration actions are implemented as mitigated and designed.

## Fire, Fuels, and Air Quality

**Existing Condition** – According to Crowe and Clausnitzer, above ground aspen stems are highly susceptible to all but the lowest severity surface fires because of their thin bark but trees greater than 6” dbh become more resistant to fire with age. Root systems can survive low, moderate, and possibly even high severity fires because they are protected by high soil moisture common at hardwood sties. Fires often stimulate vigorous sucker growth, with the heaviest growth occurring after moderate intensity fire. Most of the proposed restoration sites are located on gentle slopes with dense ground cover in the form of grasses, sedges, and shrubs typical of either Blue Mountain meadow environments or dry shrubby scablands.

Some downed material exists. Conifer encroachment has changed fuel cycling and conditions.

**Effects of Alternative 1** – Conifer trees would continue to encroach into hardwood sties across the landscape providing ladder and crown fuels that could contribute to a potential wildland fire. No recruitment or increase in large woody debris or lynx denning habitat would occur as a result of the felling of conifer trees.

**Effects of Alternative 2** – Conifer trees between 6”– 18” dbh removed from within and adjacent to each restoration site would be left on site, in part to provide barriers to big game and livestock to protect hardwood seedlings from browsing. Following conifer removal, large woody debris would be left on site. Over the long term, a dense stand of uneven-aged hardwood trees combined with any remaining conifers is expected to provide an adequate supply of large wood debris. In areas where trees are left on the ground to provide additional protection to the sprouts, branches would be lopped off the trees and piled for burning. Pile burning is expected to result in minimal disturbance and may stimulate sucker growth. At some sites, fallen trees may be hand-piled and later used for firewood. Smaller, hand-piled fuels may be left unburned at some sites

Unburned debris piles would increase the amount of fuels in the area, but not in significant quantities to provide a sustained fuel source to carry a fire. The piling would break up fuel continuity. Sites within the analysis area are generally scattered and would only create small pockets of downed fuels across the landscape.

Air Quality would remain unchanged throughout the analysis area.

**Effects of Alternative 3** – The effects of this alternative would be similar to those of Alternative 2 with no treatment occurring within designated Class 4 Riparian Habitat Conservation Areas (RHCAs) or within Lynx habitat.

**Cumulative Effects** – Due to the scattered nature of the hardwood areas, cumulative effects from fuels created through conifer removal are minimal to none. Alternative treats 41 stands totaling 16 acres and Alternative 3, 21 stands totaling 6 acres. They are isolated from forest by meadows or other natural breaks and would not create continuous surface fuel conditions. The small area of treatment would have little effect on the behavior of wildfires on the landscape but would reduce the severity of impacts to the hardwoods.

Activity fuels created from timber harvest on all Forest Service lands are treated to reduce the risk of wildfire propagation and spread. Therefore, the small amount of fuel created from hardwood treatments would add a minimal amount to the existing natural fuel load. The piling and burning of fine fuels reduces the severity of wildfire spreading through the hardwoods.

There may be hardwood areas located near or adjacent to private land where logging slash is not treated. Because the small (0-3”) fuels would be hand piled and burned in the action alternatives, the main source of fire spread would be eliminated thus reducing the intensity and severity of a wildfire on Forest Service land and increases the ease of control.

## Biological Resources

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### Riparian and Aquatic Habitat

**Existing Condition** – Several of the project sites are associated with intermittent streams and springs, which are typically the areas that support aspen and other hardwood species in the Blue Mountains. Historic and site-specific evidence indicate that aspen was the primary tree species on these sites and the extent of hardwood stands was likely greater than what currently exists. Aspen is a shade intolerant species. The proposed restoration sites are

located mostly on higher elevations in a variety of site types including wet and dry meadows, non-riparian gullies and draws, scab flats, mixed hardwoods, and mixed conifers.

Although aspen and cottonwood sites are generally associated with wet or moist basins, or streamside floodplains that sometimes function as headwaters to eventual perennial streams, none of the streams draining the proposed restoration sites are perennial. The closest fish-bearing stream to any of the projects sites is nearly one half mile away. (Crabtree 2003)

**Proposed, Threatened, Endangered and Sensitive Species-** Species designated as Proposed, Threatened, or Endangered are managed under the Endangered Species Act (ESA) to ensure that federal actions do not result in a downward population trend. Sensitive species are those species recognized by the Regional Forester of the Forest Service's Pacific Northwest Region as needing special management to prevent being placed on federal or state protection lists. Based on local studies, surveys and monitoring, as well as published literature regarding distribution and habitat use, the following Proposed, Endangered, Threatened, and Sensitive aquatic wildlife species have the potential to occur in or adjacent to the project areas:

### **Threatened Species –**

**Columbia River bull trout:** (*Salvelinus confluentus*) Habitat for this species may be present in lower elevation streams downstream and downslope from some of the proposed restoration sites. Field surveys have documented the bull trout in the Wenaha, Grande Ronde, South Fork Umatilla, North Fork Touchet, North Fork and South Fork of the Walla Walla rivers. Bull trout have also been found in the North Fork of Meacham, Lookingglass, Little Lookingglass, and Mill creeks.

**Middle Columbia River steelhead trout:** (*Oncorhynchus mykiss*) This fish may be present in lower elevation streams downstream and downslope from some of the proposed restoration sites. Field surveys have documented steelhead in the North and South Forks of the Umatilla, North Fork Touchet, North and South Forks of the Walla Walla rivers, as well as in Meacham and Mill creeks.

**Snake River steelhead trout:** (*Oncorhynchus mykiss*) This species may be present in lower elevation streams downstream and downslope from some of the proposed restoration sites, and have been documented in the Lookingglass and Little Lookingglass creeks, and the Wenaha and Grande Ronde rivers and in most fish-bearing streams tributary to these rivers.

**Snake River fall chinook salmon:** (*Oncorhynchus tshawytscha*) These fish may be present in lower elevation streams downstream and downslope from some of the proposed restoration sites, and have been documented in the Grande Ronde River.

**Snake River spring/summer chinook salmon:** (*Oncorhynchus tshawytscha*) These fish may be present in lower elevation streams downstream and downslope from some of the proposed restoration sites, and have been documented in the Wenaha and Grande Ronde rivers. In addition, they are currently being re-introduced into Lookingglass Creek by the Oregon Department of Fish and Wildlife.

### **Sensitive Species –**

**Columbia spotted frog:** (*Rana luteiventris*) Columbia spotted frogs have been observed in the analysis area and appropriate habitat may be present. Field surveys have documented this species at several locations in the northern Blue Mountains including Mottet Creek and Jarboe Meadows, both within the analysis area.

**Margined sculpin:** (*Cottus marginatus*) Little is known about habitat requirements for this species, but their range includes the Walla Walla and Umatilla river systems, so they probably inhabit some streams downstream from some of the proposed restoration sites.

**Northern leopard frog:** (*Rana pipiens*) Review of existing data indicates that habitat for this species does not exist near any of the proposed restoration sites. This species has not been

sighted, they are not known to be present downstream, and appropriate habitat for them is scarce or non-existent.

**Pacific lamprey:** (*Lampetra tridentate*) The Pacific lamprey is an anadromous fish that is being re-introduced into the Umatilla River system by the Confederated Tribes of the Umatilla Indian Reservation. In the past this species may have spawned in gravels in streams downstream of some of the proposed restoration sites. Larval stages may also have occupied some downstream reaches as well.

**Painted turtle:** (*Chrysemys picta*) This species has not been recorded here and appropriate habitat for them is scarce or non-existent.

**Redband trout:** (*Oncorhynchus mykiss*) Field surveys have documented the presence of redband trout in all fish-bearing streams on the Walla Walla Ranger District.

**Westslope cutthroat trout:** (*Oncorhynchus clarki lewisi*) Review of existing data indicates that habitat for this species is not present or downstream from any of the proposed restoration sites.

**Effects of Alternative 1** – No restoration activities would occur in the project areas and browsing and conifer encroachment would continue at the existing rate. In time the combination of these activities could completely shade-out or out-compete the existing hardwood and change the vegetative community from hardwood to conifers. Increasing the density of conifer trees would continue to absorb more water and nutrients and provide less shade than hardwood stands would if they are allowed to regenerate, potentially affecting stream temperature downstream of some sites.

**Effects of Alternative 2** – The effects of the proposed restoration treatments are related to the proximity of the restoration sites to fish listed as threatened or endangered under the Endangered Species Act. None of the streams that occur near the proposed treatment sites are perennial fish bearing streams. These sites do not provide fish habitat. The overall risk to any listed fish is very low because the closest fish-bearing stream is over 2,000' away. There would be "no effect" to listed ESA fish species and no impact to Regional Forester sensitive species.

There would be no direct effects to fish or other stream fauna because none of the proposed restoration sites are located within riparian areas inhabited by any listed species. Because of the small size of the restoration sites, distances to the nearest streams, and adjacent vegetative cover, forest floor duff and debris would trap any sediment or small amount of soil disturbed by the proposed restoration activities before it could reach a stream channel (McCown 2002). There would be no reduction of input of large woody debris into perennial streams.

There would be no measurable effect on stream temperature by felling of encroaching conifer trees because the affected intermittent streams contribute only minimal amounts of water to the overall subwatershed and do not flow during the critical time of the year when flows are at their lowest and temperatures are critical. The Hydrology Report (McCown 2002) for this EA concluded that conifer trees at the restoration sites within Class 4 RHCAs are not substantially contributing to late summer stream shade or downstream water temperatures because shade would not be reduced over perennial streams. McCown concluded that stream temperature would be unaffected by the proposed restoration activities except in a few cases where conifer removal would slightly reduce shade over intermittent streams. There could be a very small, insignificant change in water temperature in spring or early summer, which could theoretically affect the timing of steelhead or redband trout (management indicator species) spawning. Spawning habitat is distant to the hardwood stands and would not threaten successful spawning or maintaining viable populations. Increasing hardwood density at these sites would provide greater shade to the intermittent streams when water is present than the sparsely stocked conifer stands that currently occupy these sites.

There could be a potential impact to spotted frogs from the felling of conifer trees and fence construction because some of the restoration sites are located in wet meadows. The short-term harassment of the frogs would not impact viable populations.

**Effects of Alternative 3** – The effects of this alternative would be similar to those of Alternative 2 except that for Alternative 3, no conifer removal would occur within designated Class 4 RHCAs. There would be no potential change in water temperature due to reduction in shade or risk of sediment from the project. Hardwood within the RHCAs would eventually be lost due to the encroachment of conifers.

**Cumulative Effects** – The implementation of the proposed action could theoretically contribute to an increase in water temperature but the amount and timing of the proposed changes would not affect listed fish species. The few acres, less than 5 scattered over the District, within RHCAs would not contribute to measurable temperature or sediment impacts with harvest or landscape prescribed fire in other areas because any those activities would not occur within RHCAs. There would be no timber harvest within RHCAs. Even though prescribed fire would be allowed to back into RHCAs, the fire would be low intensity and would not reduce shade or burn large wood. Impacts to water quality and fish habitat would be immeasurable.

## Terrestrial Wildlife Habitat

**Existing Condition** – Hardwood stands, especially quaking aspen, provide valuable wildlife habitat in the Blue Mountains. They are important sites for foraging, nesting, breeding and resting for a wide variety of birds and mammals (Clausnitzer and Crowe 1997). Aspen stands provide valuable late season and early spring forage for both deer and elk when other plants are scarce. Elk and deer also use hardwood stands for hiding cover, thermal cover, and rearing habitat.

Many birds and small mammals are attracted to aspen stands by the grass and berry-producing shrubs that commonly grow in the understory for the nesting habitat and cover they provide. Rabbits, hares, and other small rodents such as squirrels, pocket gophers, mice, and voles also use aspen for food. Young, densely regenerating aspen stands provide excellent habitat for snowshoe hares and other potential prey species for Canada lynx. Aspen community types, especially those that include snowberry, serviceberry, and chokecherry in the understory, are highly productive foraging habitat for lynx prey species (USDA 2000).

Hardwood stands fulfill a variety of habitat needs for many bird species including cavity nesting habitat for both primary and secondary cavity nesters and cover and forage for upland game birds. Bird species that frequent hardwood stands in the Blue Mountains include grouse, ducks, nuthatches, sapsuckers, grosbeaks, crossbills, and several varieties of woodpeckers. Ruffed grouse use aspen stands as important breeding, foraging, and nesting sites. Insects that feed on aspen pollen are an important food source for birds. Few reptiles and amphibians occur in aspen stands.

### **Management Indicator Species –**

Management Indicator Species were designated in the Umatilla National Forest Land and Resource Management Plan (USDA 1990) to represent the welfare of a larger group of wildlife species presumed to share the same habitat requirements. The management indicator species considered for this analysis include the following:

**American marten:** (*Martes americana*) Marten prefer mature and old growth mixed conifer forests at high elevations. They are generally found in moist forest types with developed

riparian areas and high down wood densities. Hardwood stands generally do not provide this type of habitat and marten are not associated with aspen.

**Rocky Mountain Elk:** (*Cervus elaphus*) Rocky Mountain elk are common in the analysis area and use aspen stands year round and deer frequent stands until the snows are too deep. (Clausnitzer and Crowe 1997) Aspen stands provide valuable late season and early spring forage and elk use hardwood stands for hiding cover, thermal cover, and rearing habitat.

**Pileated and Northern three-toed woodpeckers:** (*Dryocopus pileatus*) Pileated woodpeckers are found in habitat consisting of snags and downed trees in mature and old growth mixed conifer stands, while northern three-toed woodpeckers prefer the same characteristics in lodgepole pine stands. These habitat types have limited association with hardwood plant communities.

**Other primary cavity excavators** represent a vast array of vertebrate species that depend upon dead standing trees and down logs for reproduction and/or food gathering. Sapsuckers in particular are drawn to aspen and cottonwood groves.

#### ***Neotropical Migratory Birds -***

Aspen is addressed as a unique habitat in the Conservation Strategy for Landbirds (Altman 2000). Primary bird species benefiting from the conservation of aspen are: red-naped sapsucker, Williamson's sapsucker, northern flicker, tree swallow, house wren, northern pygmy owl, western screech owl, and mountain bluebird. Large dead and decaying trees (both hardwood and conifer) are important for these species. Recommended conservation strategies to maintain populations of these species include: implementing strategies to restore aspen; maintaining all standing dead or diseased trees and initiating active snag creation; and eliminating livestock grazing.

#### **Proposed, Threatened, Endangered and Sensitive Wildlife Species-**

Species designated as Proposed, Threatened, or Endangered are managed under the Endangered Species Act (ESA) to ensure that federal actions do not result in a downward population trend. Sensitive species are those species recognized by the Regional Forester of the Forest Service's Pacific Northwest Region as needing special management to prevent being placed on federal or state protection lists. Based on local studies, surveys and monitoring, as well as published literature regarding distribution and habitat use, the following Proposed, Endangered, Threatened, and Sensitive terrestrial wildlife species have the potential to occur in or adjacent to the project areas:

#### ***Threatened and Endangered Species -***

**North American Bald Eagle:** (*Haliaeetus leucocephalus*) It is well-documented that bald eagles winter along the Wenaha River, the Tucannon River and in the upper Umatilla River drainage, however, this bird is not expected to occur in or adjacent to these aspen sites.

**Canada Lynx:** (*Lynx Canadensis*) The Blue Mountains are considered to be on the fringe of the range for Canada Lynx. A few lynx are known to have occurred in the Blue Mountains historically, and there have been several recent, but unconfirmed, sightings on the Umatilla National Forest. The majority of potential lynx habitat is found in cool, moist habitat types at elevations over 4,000 feet. There have been no lynx sightings adjacent to any of the proposed hardwood stands in the analysis area.

**Gray Wolf:** (*Canis lupis*). Individual gray wolves have dispersed from Idaho into the Blue Mountains in recent years, but no packs are known to have established on the Walla Walla Ranger District. There have been several anecdotal reports of singular wolves on the southern portion of the Umatilla National Forest. The Idaho wolf population has been increasing steadily; therefore wolves may become established in the Blue Mountains in the

near future. There is no current evidence that wolves have become established and there are no known denning or rendezvous sites on the Umatilla National Forest.

### **Sensitive Species –**

**California Wolverine:** (*Gulo gulo*) Wolverines are wide-ranging carnivores. There have been sightings on the Umatilla National Forest. None of these sightings have been at or adjacent to any of the proposed hardwood sites in the analysis area, and no denning sites are known. Given the history of these sightings, there is a possibility that on rare occasion a solitary wolverine may pass through the general project areas. There is nothing to indicate that wolverines use the area for anything more than a travelway during their extensive wanderings.

The following wildlife species are also listed as Sensitive, but are not found in this project area:

American peregrine falcon (*Falco peregrinus anatum*)

Upland sandpiper (*Bartramia longicauda*)

Gray flycatcher (*Empidonax wrightii*)

Rocky Mountain bighorn sheep (*Ovis canadensis canadensis*)

**Effects of Alternative 1 –** Without active management, a large percentage of these unique wildlife habitat areas could be lost in the next 50 years as conifers out compete the aspen.

No restoration activities would occur in the 41 proposed stands and browsing and conifer encroachment would continue at the existing rate. In time conifers could completely shade-out or out-compete the existing hardwoods thereby changing the vegetative community from hardwood to conifer dominated. The quantity and quality of these habitats would decline and could result in decreased wildlife diversity in these areas. The overall benefit of hardwood stands as habitat for various wildlife species including elk, deer, small mammals and many bird species would probably decrease.

**Effects of Alternative 2 –** The proposed restoration activities would improve and maintain vegetative species diversity as well as enhance and improve both fish and wildlife habitat. The proposed restoration projects would primarily occur in the summer and fall months to avoid spring calving season for **Rocky Mountain elk**. Proposed conifer removal activities would decrease hiding cover for elk in the short-term where trees are felled and conifer saplings removed. The percentage of hardwoods in the stands would be improved through natural regeneration of the hardwood canopy. Adequate hiding cover would be available adjacent to most hardwood sites. In addition, big game forage would be enhanced over the long-term through the increased vigor of the hardwood vegetation. The small acres of treatment, 16 acres in Alternative 2 spread over 41 stands and 6 acres over 20 stands in Alternative 3, would not impact forage and cover ratios; HEI would be unchanged. The fencing would have an immeasurable impact to elk behavior.

Conifer felling would provide additional down logs foraging habitat for **primary cavity excavators** and other bird species and small mammals. Existing large snags within project areas would be left undisturbed unless there are safety concerns, and opportunities to create snags would be pursued. The effect of the proposed action on these species would be immeasurable and not impact viable populations. There would be no impact to Pileated woodpeckers or primary cavity nesters.

Enhancement of aspen and cottonwood habitat as well as retention and creation of snags and down wood would be highly beneficial to several Neo-tropical migratory bird species of concern. This type of restoration is specifically recommended in order to maintain

populations of many bird species (Altman 2000). Approximately 16 acres of habitat would be restored.

*The Terrestrial Wildlife Biological Evaluation* (Johnson 2003) for this project determined that fencing and/or conifer removal at the project sites may have small effects to **wolverine and Canada lynx, and no effect to gray wolf and bald eagle**. No other wildlife species listed as Threatened, Endangered or Sensitive would be affected.

**Gray wolf and wolverine** are both wide-ranging species with limited potential to occur in or near the project sites. No denning sites for either species are known on the District, and no wolf rendezvous sites have been identified. Human activities as well as habitat modification of the project sites would not create enough of a disturbance to impact these species.

Fencing and/or conifer removal around 11 hardwood stands mapped as lynx habitat in the Timothy and Langdon Lynx Analysis Units (LAUs) **may affect, but would not likely adversely affect Canada Lynx**. The other 30 stands are not in lynx habitat and therefore would have no effect to lynx. The source of poles for fencing would also be outside of lynx habitat.

Lynx habitat in the Langdon LAU is currently below the 70% suitable habitat threshold recommended in the *Lynx Conservation Assessment and Strategy* (USDA 2000). No change in the amount of suitable habitat in the Langdon LAU would occur as a result of this project. Habitat in the Timothy LAU is above the 70% threshold. Only 1.25 acres would be temporarily converted from suitable to unsuitable lynx habitat in the Timothy LAU, which is not enough to change the percentage calculation. The quantity and quality of foraging habitat for prey species would increase once the stands start responding to protection from browsing and a reduction in competition for water. Less than 8 acres of lynx habitat would be entered and improved by increased large wood and forage opportunity from the sprouting of new hardwoods.

An increase in denning habitat could result from the proposed conifer removal activities. Following conifer removal, leaving large woody debris on site provides some level of habitat for snowshoe hares and other small mammals, primarily as cover during summer months. Large logs left on-site could provide cover for lynx movements across openings and retention of unburned debris piles on the landscape may provide habitat for lynx prey (USDA 2000).

None of the proposed actions would affect potential lynx movement between LAUs (for example in a travel corridor or linkage area) as the changes in horizontal cover values (due primarily to removal of conifers) would be in the small "islands" that would not impede potential for lynx movement through the respective areas.

### **Effects of Alternative 3 –**

Effects to **management indicator species** and **Neo-tropical migratory birds** would be similar to those discussed under Alternative 2, with the exception that fewer acres of wildlife habitat would be maintained or restored. Approximately 6.25 acres of habitat in 20 stands would be restored.

The effects of this alternative would be similar to those of Alternative 2 for all **threatened, endangered, or sensitive species**. No treatments would occur within habitat designated as suitable lynx denning or foraging habitat. Therefore, the proposed restoration activities under Alternative 3 would have **No Effect on Canada lynx**.

**Cumulative Effects** – Implementation of these aspen and cottonwood restoration projects in combination with other past, ongoing, and future foreseeable projects would not result in any negative cumulative effects to terrestrial wildlife species. Given the limited amount of disturbance in time and space, the effects of the actual project activities are negligible. This project in addition to past aspen restoration efforts would cumulatively benefit wildlife. After

the vegetation begins responding and habitats are maintained for the long term, real benefits to wildlife species would be realized.

## Plant Diversity

**Existing Condition** - The Walla Walla Ranger District has inventoried over 100 small aspen stands. Mature aspen trees rarely live beyond 150 years. Quaking aspen is shade intolerant and clonal by nature. A single stand may share one root system (Crowe and Clausnitzer 1997). For an aspen stand to persist, new trees must grow from root suckers and reach a size where they are able to maintain a crown and nourish the root system. The hardwood stands proposed for restoration in this EA are not regenerating successfully due to browse pressure from large ungulates, fire suppression, competition from conifers, and advanced age. Because this is occurring across the landscape, quaking aspen and black cottonwood are considered to be in decline throughout northeastern Oregon.

Surveys and DNA testing have shown evidence that large, contiguous aspen corridors once existed in many areas. Efforts have been made to restore this important species and maintain the species diversity through active management treatment at many sites. Management activities have included protecting stands from grazing pressure using fences. These fences protect aspen regeneration from browse damage from livestock, deer, and elk while permitting access to small mammals and birds. It is imperative to protect some portion of the stand so that it may continue to reproduce, grow, and feed the root system. Fencing has provided an immediate and often remarkable response, in growth and resurgence of aspen.

In addition, competition by encroaching conifers has been reduced using silvicultural treatments to encourage different age classes of hardwoods. Some stands are being maintained in a heavily stocked, sapling stage to provide cover for elk calving and rearing of young grouse. Carefully planned thinning of conifer trees within other stands assists young aspen to move more quickly into larger diameter classes, providing cover, release from browse damage, and homes for cavity nesters. This Environmental Assessment proposes to continue these restoration activities on an additional 38 aspen and 3 cottonwood stands to enhance and continue to provide plant species diversity.

All of the proposed restoration sites within the analysis area have had botanical surveys for threatened and endangered species completed. No federally listed, proposed for listing, candidate plant species or plants currently listed on the Region 6 Regional Forester's Sensitive Plant List were found.

Two species of sedges that were added to the Regional Forester's Sensitive Species List for Oregon in May 1999 are suspected to occur on the Walla Walla Ranger District, *Carex crawfordii* and *Carex interior*. Both species grow in perennially wet areas with surface water present for the majority of the year. Although many of the restoration sites occur in wet meadows where sedges are generally found, plant surveys completed during optimal floristic periods since these two species were listed as sensitive, have found no specimens of these sedges.

Spalding's silene (*Silene spaldingii*) is a plant known to occur on the Umatilla National Forest, primarily in open grasslands with deep Palousian soils. This plant is proposed for federal listing. No known populations of this plant are known to occur within any of the proposed restoration sites and this project would have No Affect on *Silene spaldingii*.

**Effects of Alternative 1** – Without active management, it is estimated that more than 50 percent of the remaining habitat provided by hardwood stands could be lost within the next 10-20 years. (Shirley 2003) Under Alternative 1, no restoration activities would occur in the 41 proposed stands and browsing and conifer encroachment would continue at the existing rate. In time, the combination of these activities could completely shade-out or out-compete the existing

hardwoods thereby changing the vegetative community from hardwood to conifer dominated. Continuing current management would not have any impact on any threatened, endangered, sensitive, or candidate plant species within the analysis area.

**Effects of Alternative 2** – Restoration of 38 aspen and 3 cottonwood stands would enhance and continue to provide plant species diversity across the Walla Walla District. Buck and pole fences would be used to protect hardwood regeneration from browse damage from livestock, deer, and elk while permitting access to small mammals and birds. Protecting some portion of the stand would allow the trees to continue to reproduce, grow, and feed the root system. Past fencing projects have provided an immediate, and often remarkable, response in growth and resurgence of aspen and cottonwood trees.

Competition by encroaching conifers would be reduced using silvicultural treatments to encourage different age classes within hardwood stands. Carefully planned removal and thinning of conifer trees within and around the hardwood stands assists young aspen and cottonwood trees to move more quickly into larger diameter classes, providing cover, release from browse damage, and homes for cavity nesters. The proposed restoration activities would not have any impact on any threatened, endangered, sensitive, or candidate plant species within the analysis area.

**Effects of Alternative 3** – The effects of this alternative would be similar to those of Alternative 2 with treatment only occurring on 19 aspen sites and one cottonwood site. Additional effects would be the eventual reduction of overall species diversity as some untreated sites cease to exist because they are no longer naturally regenerating due to grazing pressure and conifer encroachment.

**Cumulative Effects** – Efforts to manage and restore the proposed hardwood sites would assure that these important species continue to exist, or reoccupy sites historically dominated by aspen and cottonwood trees. The value of retaining these stands in all stages of development would preserve their genetic diversity and distribution range across the landscape. It would preserve options for future landscape evolution.

## **Noxious Species**

**Existing Condition** – There are over 25 known noxious weed species located throughout the analysis area and identified in various noxious weed surveys. Species include bull and Canada thistle, hounds tongue, diffuse and spotted knapweed, tansy ragwort, flannel mullein, reed canarygrass, and klamathweed. Currently treatment and prevention measures follow those listed in the *Environmental Assessment for the Management of Noxious Weeds* (USDA 1995), and the Prevention Strategy of the *Managing Competing and Unwanted Vegetation EIS and Record of Decision* (USDA 1988, amended 1992) for control of noxious weeds on the Walla Walla Ranger District.

**Effects of Alternative 1** – No restoration activities would occur in any of the project areas and the occurrence and spread of noxious weeds would not be affected.

**Effects of Alternative 2** – The risk of noxious weed spread and introduction at the restoration sites within the project areas is primarily related to vehicle use and soil disturbance. Because both of these activities would be minimal, no increase in spread of noxious weeds would be expected. Soil is not expected to be exposed and the increase of canopy cover by the regenerating hardwoods would limit the establishment of noxious weeds. Activities would utilize prevention methods listed in the Umatilla National Forest Noxious Weed EA to reduce the risk of spreading noxious weeds.

**Effects of Alternative 3** – The effects of this alternative would be similar to, but less than those of Alternative 2 because less acres would be treated.

**Cumulative Effects** – No cumulative effects on invasive species is expected from the proposed restoration activities. The road system possesses the greatest threat to spreading noxious weeds to new sites. Since soil would not be exposed, the risk for noxious weeds becoming established on any of the sites is small. Any ATVs used for the transport of materials would be cleaned prior to use.

## Social Resources

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### Recreation Opportunities

**Existing Condition** – Aspen is highly valued for its esthetic qualities, especially during the fall when their leaves turn bright yellow. Aspen and cottonwood trees provide a natural appearing character along major travel routes.

Although some of the proposed restoration sites within the analysis area may attract forest visitors for activities such as birding, wildlife viewing, photography, or dispersed camping, only one site (#99) occurs adjacent to a developed recreation area, Target Meadows Campground. This site consists 4-5 small aspen sprouts transplanted to two separate locations within Target Meadows several years ago as a Boy Scout project. Each location is currently protected with small woven wire cages.

One site (#58) is located adjacent to the Lick Creek Trailhead. This highly visible site consists of only two mature aspen trees and is currently heavily browsed and choked by large conifer trees making it a high priority for treatment. Several of the proposed restoration sites occur along forest roads frequented by recreation visitors of all kinds. The scenic and visual quality these sites provide to overall recreation values is high.

**Effects of Alternative 1** – Without active management, it is estimated that more than 50 percent of the remaining hardwood stands could be lost within the next 10-20 years. Under Alternative 1, no restoration activities would occur in the 41 proposed stands and browsing and conifer encroachment would continue at the existing rate. In time, the combination of these activities could completely shade-out or out-compete the existing hardwoods, thereby changing the vegetative community from hardwood to conifer dominated and affecting scenic values and wildlife habitat across the landscape. Recreation activities such as hiking, hunting, camping, scenic driving, birding, and wildlife viewing would be negatively impacted.

**Effects of Alternative 2** – Protecting the sprouts in Target Meadows campground (Site #99) with two small buck and pole fences and monitoring the survival rate would add to the aesthetic value of the meadow as the trees mature. Monitoring the sprouts on an annual basis would determine if these meadows might be an appropriate site to transplant additional sprouts from a nearby stand, adding additional scenery and species diversity to the aesthetics of the developed campground. In addition, replacing the current cages with small buck and pole fences would be more attractive. Adding a small interpretive sign at this highly visible site in the future might have the additional benefit of helping the public better understand why restoration activities are needed. No conifer removal is needed at the site and, because of its proximity to the campground the site is easily accessible for carrying in fence building supplies.

Protecting the two aspen trees at the Lick Creek Trailhead (Site #58) with a buck and pole fence would enhance the visual attractiveness at the site and bring attention, through possible future interpretive signing, to the benefits of this project in restoring and maintaining critical and unique hardwood habitat. Removing the conifer trees surrounding the site would

provide the aspen with much needed sunlight. Protecting the naturalness of the immediate area would be a priority.

In the long-term, scenic values and recreation activities such as hiking, hunting, camping, scenic driving, birding, and wildlife viewing would be enhanced by the expansion of hardwood stands.

**Effects of Alternative 3** – The effects of Alternative 3 would be similar to Alternative 2 except that under Alternative 3, no restoration activities would occur in 21 of the proposed stands and browsing and conifer encroachment would continue at the existing rate. In time, the combination of these activities could completely out-compete the existing hardwoods, and change the vegetative community from hardwood to conifer dominated. This transition would adversely affect scenic values and recreation activities.

**Cumulative Effects** – No adverse cumulative effects on recreation facilities or opportunities is expected from the proposed restoration activities. The protection and regeneration of hardwoods would not increase recreation use in the areas or the District. The majority of sites are distant to roads and the location not known by the vast majority of Forest users. The increase of hardwoods near the road system would increase visual quality particularly for fall users. The unique character of aspens would become more visible as the stands increase in size.

## **Compliance with other Laws, Regulations, and Policies**

### **Endangered Species Act and Regional Forester's Sensitive Species**

The Endangered Species Act requires protection of all species listed as "threatened" or "endangered" by federal regulating agencies (Fish and Wildlife Service and NOAA Fisheries). The Forest Service furthermore maintains through the Federal Register a list of species which are proposed for classification and official listing under the Endangered Species Act, species that appear on an official state list, or that are recognized by the Regional Forester as needing special management to prevent their being placed on federal or state lists. The Environmental Consequences section identifies the action taken to comply with the Endangered Species Act. Analysis indicates there would be no effect on Snake River chinook salmon, Snake River steelhead, Columbia River bull trout, Mid-Columbia steelhead, bald eagle, or gray wolf. Alternative 2 would have a may effect not likely to adverse effect on Canada lynx. The would be a temporary loss of 1.25 acres becoming unsuitable in the Timothy LAU, an immeasurable change in unsuitable habitat in an LAU with greater than 70 percent suitable habitat. There are no listed plant species. There would be no impact to sensitive species either because they do not utilize the hardwood habitat or because of the small acres proposed for treatment.

### **Clean Air Act**

The project is not expected to impact air quality. Impacts to air quality would be through the burning of a few piles of limbs. The scale of the burning would be low, piles generated by the felling and clearing of conifers on less than 3 acres per year. The burning would not cause measurable air quality impacts in adjacent communities. The low levels of particulates would not create cumulative effects of concern with any large scale landscape prescribed fire on Eden Bench, in the Phillips Creek or Umatilla drainage, or Sheep Creek area. The estimated particulates that would be produced by this project are within tolerance levels as set by the National Ambient Air Quality Standards and Oregon Department of Environmental Quality regulations and restriction contained in the Oregon Smoke Management Plan Smoke Management Plan (ODEQ Directive 1-4-1-601). When atmospheric conditions are expected that would trap smoke, the state places restrictions on burning and acres of burning within air basins is limited.

## **Clean Water Act**

The Clean Water Act of 1977 focuses on the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. This act was amended in 1987 to protect waters against pollution from both point and non-point sources. As part of the implementation of this act, the State of Oregon maintains an inventory of water quality limited streams, based on standards developed by the Oregon Department of Environmental Quality. Neither alternative would have a measurable effect on water quality. This project uses Best Management Practices and is in compliance with the Clean Water Act (McCown 2002).

## **Wetlands and Floodplains**

Executive Order 11988 requires government agencies to take actions that reduce the risk of loss due to floods, to minimize the impacts of floods on human health and welfare, and to restore and preserve the natural and beneficial values served by floodplains. Project design and objectives comply with the requirements of this executive order.

Executive Order 11990 requires that government agencies take action to minimize the destruction, loss or degradation of wetlands. Streamside riparian areas, seeps, springs, and other wet habitat exists within the project area. Best Management Practices (BMPs) and the mitigation measures identified in the Alternatives section would be used to protect riparian habitat. The treatments restore vigor to the riparian hardwoods. These measures are judged to meet the intent of Executive Order 11990.

## **Irreversible and Irretrievable Effects**

An irreversible commitment of resources refers to a loss of future options with nonrenewable resources. An irretrievable commitment of resources refers to loss of opportunity due to a particular choice of resource uses. The proposed action and alternatives would not result in any irreversible or irretrievable commitment of resources. Because no restoration activities would occur through Alternative 1, the no action alternative, browsing and conifer encroachment would continue at the existing rate and, in time, the combination of these activities could out-compete the existing hardwoods thereby changing the vegetative community from hardwood to conifer dominated, possibly causing an irreversible effect.

## **National Historic Preservation Act**

Cultural surveys have been completed for this project. Prior to project implementation, State Historic Preservation Office consultation was completed under *Programmatic Agreement among the United States Department of Agriculture, Forest Service, Pacific Northwest Region (Region 6), The Advisory Council on Historic Preservation, and the Oregon State Historic Preservation Officer regarding Cultural Resource Management on National Forests in the State of Oregon*, dated March 10, 1995, pursuant to stipulated Forest Archeologist review dated November 15, 1996. There would be no effect on cultural heritage sites. The Project Review for Heritage Resources report, dated September 19, 2002, determined that there are adequate standards, guidelines, and procedures to protect cultural resources and to meet the goals of the cultural resource program.

## **Environmental Justice**

Executive Order 12898 requires that federal agencies adopt strategies to address environmental justice concerns within the context of agency operations. Project implementation would cause no disproportionately high and adverse human health or environmental effects on minority or low-income populations. The project retains access to the National Forest and restores riparian habitat conditions that would benefit fish production and improve water quality.

## **Consumers, Minority Groups, and Women**

Portions of this project would be governed by Forest Service contracts, which are awarded to qualified purchasers regardless of race, color, sex, religion, etc. This contract also contains nondiscrimination requirements. While some treatment activities identified here might create jobs and provide consumer goods, no quantitative output, lack of output, or timing of output associated with these projects would affect the civil rights, privileges, or status quo of consumers, minority groups, and women.

## **CONSULTATION AND COORDINATION**

The Forest Service consulted the following individuals, Federal, State, and local agencies, Tribes and non-Forest Service persons during the development of this environmental assessment:

### **INTERDISCIPLINARY TEAM MEMBERS:**

Jill Bassett, *Archeologist*

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Su Meredith, *Silviculturist*

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Nancy Rencken, *Fuels Specialist*

Rod Johnson, *Wildlife Biologist*

Glen Westlund, *District Planner*

### **FEDERAL, STATE, AND LOCAL AGENCIES:**

Oregon Department of Environmental Quality, Pendleton, Oregon

### **TRIBES:**

Confederated Tribes of the Umatilla Indian Reservation

### **OTHERS:**

Grant County Conservationist, John Day, Oregon

Hells Canyon Preservation Council, La Grande, Oregon

Malheur Timber Operators, Inc., John Day, Oregon

National Audubon Society, Blue Mountain Chapter, Walla Walla, Washington

Northwest Environmental Defense Center, Portland, Oregon

Terry Morris, Grazing Permittee, Troy, Oregon

The Lands Council, Spokane, Washington

Tom Smith, Retired Forester, Athena, Oregon

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