



# ENVIRONMENTAL ASSESSMENT



Forest Service  
Pacific Northwest  
Region

## BOLOGNA BASIN SALVAGE

February 2004

- CONTENTS
- CHAPTER I – PURPOSE AND NEED

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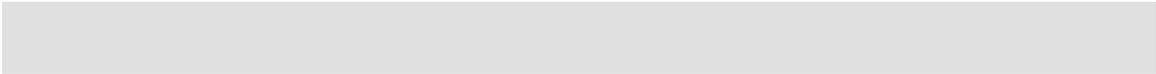
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# TABLE OF CONTENTS

<b>LIST OF TABLES .....</b>	<b>III</b>
<b>LIST OF FIGURES .....</b>	<b>VI</b>
<b>CHAPTER I – PURPOSE AND NEED .....</b>	<b>1</b>
Background .....	1
Purpose of and Need for Action .....	4
Proposed Action .....	5
Management Direction .....	9
Public Involvement .....	15
Treaty Rights .....	16
Issues .....	18
Decision Framework .....	22
<b>CHAPTER II - ALTERNATIVES.....</b>	<b>23</b>
Alternative Development.....	23
Alternatives Dropped from Consideration .....	24
Alternatives Studied in Detail .....	28
Potential Knudsen-Vandenburg Projects .....	43
Mitigation and Management Requirements .....	44
Monitoring .....	47
Comparison of Alternatives .....	48
<b>CHAPTER III - ENVIRONMENTAL CONSEQUENCES .....</b>	<b>54</b>
Forest Vegetation.....	54
Fire/Fuels .....	69
Terrestrial Wildlife .....	84
Soils .....	130
Hydrology.....	138
Fish Populations and Aquatic Habitat .....	155
Noxious Weeds.....	166
Economics .....	170
Visuals .....	175
Compliance with Other Laws, Regulations, and Policies .....	177
<b>CHAPTER IV - CONSULTATION AND COORDINATION.....</b>	<b>191</b>
<b>BIBLIOGRAPHY .....</b>	<b>192</b>
Forest Vegetation.....	192
Fire/Fuels.....	197
Terrestrial Wildlife .....	198
Soils .....	200

Hydrology .....	201
Fish Populations and Aquatic Habitat .....	202
Noxious Weeds .....	204
Economics .....	204
Visuals .....	206
Heritage Resources .....	206
<b>APPENDIX A – BEST MANAGEMENT PRACTICES .....</b>	<b>207</b>
Timber Management .....	207
Road System .....	213
Fire Suppression and Fuels Management .....	215
Watershed Management .....	215
<b>APPENDIX B – CUMULATIVE ACTIVITIES CONSIDERED .....</b>	<b>218</b>
Past Activities .....	218
Present Activities .....	219
Reasonably Foreseeable Future Activities .....	219
<b>APPENDIX C – SUMMARY OF PUBLIC COMMENTS BY ISSUE .....</b>	<b>220</b>
Water Quality .....	220
Economic Costs and Benefits .....	220
Soil Productivity and Erosion .....	220
Wildlife Habitat .....	221
Noxious Weed Spread .....	222
Riparian Habitat Quality .....	222
Forest Plan Amendment .....	222
Risk to Adjacent Lands .....	224
Field Trip 7/26/02 .....	225



# LIST OF TABLES

Table 1. Predicted Tree Mortality by Percent of Defoliation.....	3
Table 2. Land Ownership within the Bologna Basin Analysis Area.....	11
Table 3. Harvest Treatment by Management Area.....	11
Table 4. Responses to Scoping by Respondent Type.....	16
Table 5. Alternative 2 Proposed Salvage .....	30
Table 6. Alternative 2 Proposed Commercial Thinning.....	32
Table 7. Alternative 3 Salvage Units.....	39
Table 8. Alternative 3 Commercial Thinning Units.....	40
Table 9. Down Wood Retention per Acre by Plant Association Group .....	47
Table 10. Summary of Differences Between Bologna Basin Alternatives.....	49
Table 11. Comparison of Effects of Bologna Basin Alternatives by Needs and Issues .....	50
Table 12. Existing Cover Types of the Bologna Basin Analysis Area .....	56
Table 13. Potential Vegetation Groups (PVG) of the Bologna Basin Analysis Area .....	56
Table 14. Historical Range of Variability (HRV) Analysis for Vegetation Composition on Dry Upland Forest Sites .....	57
Table 15. Forest Density Analysis for the Bologna Basin Analysis Area .....	58
Table 16. Existing Forest Structural Classes of the Bologna Basin Analysis Area .....	59
Table 17. Historical Range of Variability (HRV) Analysis for Dry Upland Forest Structural Classes.....	60
Table 18. Summary of Effects of Alternatives on Vegetation Parameters .....	61
Table 19. Pre-Treatment and Post Treatment Comparison of Vegetation Composition (cover types) for the Bologna Basin Analysis Area .....	65
Table 20. Comparison of Pre-Treatment and Post Treatment Historical Range of Variability (HRV) Analysis for Vegetation Composition on Dry Upland Forest Sites.....	65
Table 21. Comparison of Pre-Treatment and Post-Treatment Forest Density Analysis for the Bologna Basin Analysis Area .....	66
Table 22. Comparison of Pre-Treatment and Post-Treatment Forest Structural Classes of the Bologna Basin Analysis Area .....	66
Table 23. Historical Range of Variability (HRV) Analysis for Dry Upland Forest Structural Classes.....	67

Table 24. Fire Regimes in Bologna Basin .....	70
Table 25. Bologna Basin Condition Classes .....	73
Table 26. Bologna Basin Fuel Models.....	74
Table 27. Crown Fire Potential Analysis for the Bologna Basin Analysis Area..	79
Table 28. Summary of Fire/Fuel Effects within Treatment Units .....	79
Table 29. Forest Plan Standards for Average Dead Standing Tree Density Compared with the Existing Condition in the Bologna Basin Affected Area. .....	87
Table 30. DecAid Tolerance Levels for the White-headed Woodpecker in the Ponderosa pine/Douglas-fir Forest.....	88
Table 31. Average Snag Replacement (green/live) Tree Density for the Affected Area in the Bologna Basin Analysis Area. ....	89
Table 32. Forest Plan Standards for Dead Downwood (logs) Density Compared with the Dead Downwood Density in the Lower John Day River/Kahler Creek Watershed.....	89
Table 33. Primary Cavity Excavators in the Bologna Basin Analysis Area.....	92
Table 34. Status of Threatened and Sensitive Species in Bologna Basin.....	93
Table 35. Species of Interest in Bologna Basin.....	96
Table 36. Priority Habitat Features and Associated Landbird Species for Conservation in the Northern Rocky Mountain Landbird Conservation Region of Oregon and Washington (Altman 2000).....	98
Table 37. Effects of Alternatives on Big Game Habitat within the Bologna Basin Analysis Area.....	104
Table 38. Snag Densities for Pre-harvest and Post-harvest Treatment in the Lower John Day River/Kahler Creek Watershed. ....	112
Table 39. Dominant Soil Characteristics and Interpretations by Unit .....	132
Table 40. Land Ownership within the Analysis Area by Subwatershed (Acres) .....	139
Table 41. Equivalent Clearcut Acres (ECA) by Disturbance Type for Bologna Basin's Forested Areas after Moth Outbreak of 2001.....	141
Table 42. National Forest Roads in the Bologna Basin Analysis Area .....	142
Table 43. Wolman Pebble Counts for East and West Bologna Creeks (Surveyed on 4/29 – 4/30/02) .....	144
Table 44. Annual Summary of Stream Temperature in East Bologna Creek (Degrees Fahrenheit) .....	144
Table 45. Annual Summary of Stream Temperature in West Bologna Creek (Degrees Fahrenheit) .....	145

Table 46. Existing Condition of Threatened, Endangered, and Threatened Aquatic Species in Bologna Basin .....	157
Table 47. National Forest Road Density in the Bologna Basin Analysis Area (miles per square mile) .....	161
Table 48. Summary of Effects of Alternatives on Threatened, Endangered, and Sensitive Fish and Aquatic Species .....	161
Table 49. Projected Employment Effects, Income Effects, and Present Net Value of the Bologna Basin Salvage .....	172
Table 50. Emissions Associated with Planned Burn Treatments (tons).....	180
Table 51. Beneficial Uses and Associated Water Quality Parameters for the North Fork John Day Subbasin .....	181
Table 52. Forest Plan Standards and Guidelines for Riparian and Fish Habitat .....	186
Table 53. Previous Timber Sales in Bologna Basin .....	218
Table 54. Previous Wildfire in Bologna Basin .....	218
Table 55. Previous Non-commercial Thin Activities in Bologna Basin .....	218



# LIST OF FIGURES

Figure 1. Vicinity Map of Bologna Basin Salvage .....	2
Figure 2. Bologna Basin Analysis Area .....	6
Figure 3. Harvest Units in Bologna Basin Salvage Project.....	7
Figure 4. Forest Plan Management Areas in Bologna Basin Analysis Area .....	12
Figure 5. Alternative 1 .....	29
Figure 6. Alternative 2 Treatment Units.....	33
Figure 7. Proposed Road Use for Bologna Basin Salvage Alternative 2.....	34
Figure 8. Alternative 3 Treatment Units.....	41
Figure 9. Proposed Road Use for Bologna Basin Salvage Alternative 3.....	42
Figure 10. Defoliation with Respect to Fire Regime .....	71
Figure 11. Bologna Basin Condition Classes .....	72
Figure 12. Bologna Basin Fuel Models.....	77
Figure 13. Predicted Flame Lengths by Fuel Model (Feet) .....	79
Figure 14. Dry Creek Bald Eagle Management Area .....	95
Figure 15. Mean Annual Hydrograph for Camas Creek, 1914 to 1990 (USGS Station 14042500) .....	139
Figure 16. Percent Equivalent Clearcut Acres (ECA) in Bologna Analysis area for Selected Years after Harvest by Alternative .....	145
Figure 17. Areas of Inventoried Noxious Weed Infestation .....	167

# CHAPTER I – PURPOSE AND NEED

## BACKGROUND

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In 2001, many of the stands in the Bologna Basin project area (Figure 1) suffered severe defoliation from an outbreak of Douglas-fir tussock moth (*Orgyia pseudotsugata*). Native to the Blue Mountains, the Douglas-fir tussock moth exhibits cyclical population outbreaks that occur approximately ten years apart and persist for two to three years. At the peak of infestation, moth larvae can consume an entire tree's foliage in a few weeks. This level of activity has been observed in the Bologna Basin area where, on many acres, virtually every tree was defoliated by more than 90 percent. Throughout the analysis area there are varying proportions of tree damage and mortality, ranging from top killing for individual trees to whole-tree mortality in patches. Trees that are 90 percent defoliated have a 90 percent chance of dying from the defoliation alone (Wickman 1979). Of the treatment units, 52 percent sustained tussock moth damage to an extent where salvage tree harvest was recommended as a treatment measure. Stand exams show that there are an average of 32 trees per acre recently killed from defoliation.

In the summer of 2002, the outbreak appeared to have run its course and a number of affected trees showed new needle growth. However, trees with 75 percent or more defoliation are unlikely to survive in the long term. This is due, in part, to the trees' weakened condition that limits their ability to manufacture defensive chemicals. Also, the trees' energy reserves and ability to allocate carbon are depleted by the combination of defoliation and continuing drought (Waring and Schlesinger 1985). Federal entomologists have predicted that additional mortality is likely to occur from ensuing attacks by bark beetles or woodborers, particularly in densely stocked, partially defoliated stands (Scott 2002). It is much easier for bark beetles and woodborers to attack and kill these trees since they have weakened and compromised defenses. Indirect mortality from bark beetles usually occurs within three years (Mason and Wickman 1984). These conditions would further increase already high fuel loads and would likely contribute to more severe fires in the future.

The Forest Service used published research from historical tussock moth outbreaks (Mason and Wickman 1984) to estimate a survival probability for trees damaged during the recent tussock moth outbreak. This research relates tree defoliation caused by tussock moth feeding to a predicted tree survival probability (Table 1).

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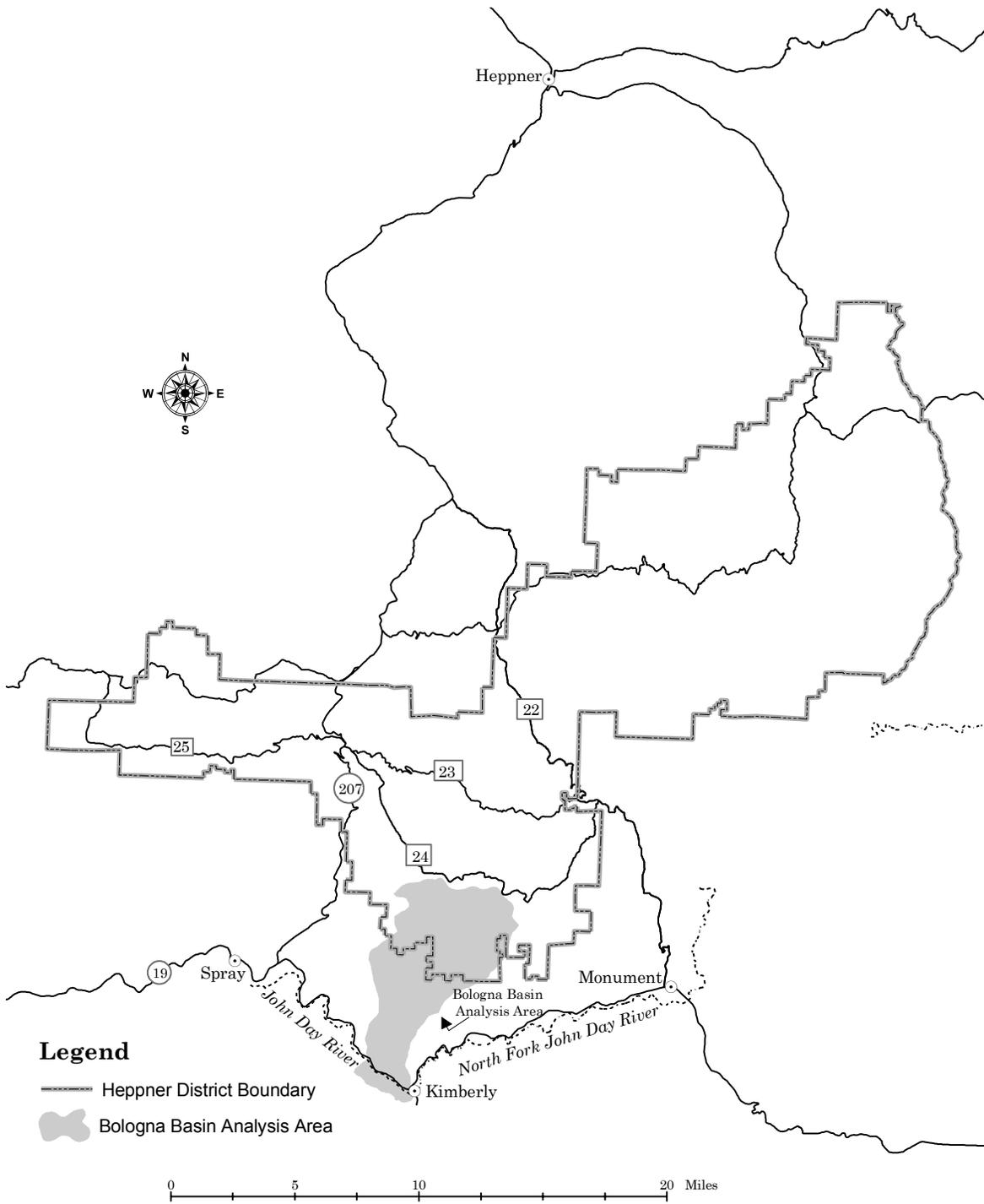


Figure 1. Vicinity Map of Bologna Basin Salvage

Table 1. Predicted Tree Mortality by Percent of Defoliation

<b><u>Defoliation %<sup>1</sup></u></b>	<b><u>Predicted Tree Mortality</u></b>
0-30	Very high probability of survival
30-50	Moderate to high survival probability
50-75	Trees rarely die from defoliation alone, but moderate losses occur from bark beetles; some topkilling begins to occur
75-90	Low survival probability from defoliation; high losses from bark beetles are expected
90-100	Very low survival probability from defoliation: 90% of trees in this defoliation class will die from defoliation effects alone

<sup>1</sup> Percentage of tree foliage missing from tussock moth feeding

Source: Mason and Wickman 1984.

Although the Douglas-fir tussock moth is endemic, the current level and spread of insect outbreaks and fuels conditions in Bologna Basin are symptoms of an underlying problem. The composition, structure, and function of these dry-forest ecosystems are currently outside of the historical ranges of variability<sup>1</sup> for similar ecosystems and vegetation conditions. The existence of this condition is documented in the Historical Range of Variability study done for this project by the Forest Silviculturist (see the Analysis File) and referenced in the *Forest Vegetation* section of this Environmental Assessment (page 54). Several reports in the 1990s specific to the Blue Mountains also support this conclusion:

- In 1991, Gast et al. compiled the Blue Mountains Forest Health Report which indicated that health problems in the Blue Mountain forests were aggravated by overstocking, multi-storied stands, and a shift in stand species compositions.
- In July 1992, a panel of Forest Service specialists used an ecosystem approach to identify river basins in most urgent need of restoration. The Bologna Basin area occurs in one of the basins determined to have conditions far outside naturally sustainable ranges (Caraher et al. 1992).
- In 1995, then Oregon Governor Kitzhaber asked a panel of scientists to assess forest health and timber harvest in the Blue Mountains. The panel concluded, in part, that a major portion of the live forest is under stress because stands are too dense. The panel also determined that forest conditions that increase the risk of costly high-intensity wildfires and insect attacks threaten human values and alter forest ecosystems, and time is of the essence if we wish to economically utilize dead timber.

<sup>1</sup> Historical Range of Variability: A characterization of fluctuations in ecosystem conditions or processes over time. Defines the bounds of ecosystem behavior that remain relatively consistent through time (Morgan et al. 1994).

- The Integrated Scientific Assessment for Ecosystem Management in the Interior Columbia Basin (Quigley and others, 1996) found that intermediate-aged forests have increased dramatically in area and connectivity, becoming more densely stocked with more complex and layered forest canopies. Stands have become more susceptible to severe fire, insect, and pathogen disturbances. Fire severity has increased (lethal fires have increased by approximately 17 percent) and fire frequency has generally decreased in the last 200 years.

Compounding the impacts of the departure from historical ranges of variability is the increase in the amount of juniper trees over historical levels. Juniper can out-compete most other vegetation for available soil moisture by producing wide-spreading root systems, retaining leaves, and transpiring<sup>2</sup> year-round. They also have allelopathic<sup>3</sup> influences on other plants that attempt to establish themselves under juniper canopies. These traits result in increased competition for other trees, making them even more susceptible to insects and diseases.

The existing habitat effectiveness index for the Monument winter range is 67. Implementation of the Bologna Basin Salvage proposed action or alternative actions would result in a habitat effectiveness index of 67 across the winter range. The Forest Plan (page 4-152) currently reads:

*“Elk habitat will be managed on designated big game winter ranges to achieve a habitat effectiveness index of no less than 70, including discounts for open roads to motorized vehicular traffic, as described in Wildlife Habitats in Managed Forests (Thomas and others 1979). The habitat effectiveness standard will be measured on an individual winter range basis.”*

The method prescribed for the calculation of Habitat Effectiveness Indices is described in Appendix C of the Forest Plan.

Although there is no anticipated change in habitat effectiveness index, an index of no less than 70 was not achieved as described for the C3 – Big Game Winter Range management area (Forest Plan, page 4-152).

## **PURPOSE OF AND NEED FOR ACTION**

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Based on these current conditions and vegetative trends, dry upland forests in the Bologna Basin area need to be restored to stocking levels, species compositions, and fuel loads within their historical range of variability. To address this situation, the Heppner District Ranger has determined the need to:

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<sup>2</sup> Transpiration: The exchange of moisture and oxygen from plant leaves to the atmosphere.

<sup>3</sup> Allelopathic: The capacity to suppress growth or occurrence of other nearby plants through the release of natural chemicals from foliage or roots.

- Reduce the amount of standing fuel within the East and West Bologna Creek subwatersheds resulting from the tussock moth infestation to decrease future fire severity and improve fire control.
- Recover the maximum possible salvage value of dead and dying timber in severely defoliated stands, subject to ecological constraints. The Forest Plan allocated land in this area to scheduled timber harvest (see *Management Direction* section, page 9) and local communities rely on timber for employment. The remote location has also been prone to wood theft in the past, which could become more prevalent given the increase in tree mortality. If this occurs, there would be no protection of soil, live trees, or desirable snags.
- Reduce the probability of the spread of bark beetles and woodboring insects. Bark beetles and woodboring insects, having already begun to invade the dead trees, are expected to spread to the remaining healthy trees and to adjacent healthy stands.
- Reduce stocking of juniper, Douglas-fir, and grand fir trees and restore forest species compositions in partially infested, densely stocked stands of live trees in the Bologna Basin area.
- To fully address the site-specific purpose and needs stated above for the project and to implement the proposed action or alternative actions, an amendment is needed to bring the actions into consistency with the Forest Plan (as amended).

These project objectives comply with the forest management goals and objectives stated in the Forest Plan and would promote the development of stands more compatible with the Forest Plan's desired future conditions for the associated management areas.

## **PROPOSED ACTION**

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The Heppner Ranger District proposes to salvage and commercially thin a volume of approximately 1,151,200 cubic feet (11,512 Ccf) (6.0 million board feet (Mbf)) of wood fiber from 1,003 acres in Bologna Basin. Salvage would occur on 528 acres and commercial thinning would occur on 475 acres. Within this area, 555 acres would be non-commercially thinned. The proposed action would be implemented as early as the summer of 2004.

The project area is in Grant County, Oregon, T.8 S., R. 26 E., Willamette Meridian surveyed (Figure 2). It is in the southern portion of the Heppner Ranger District, approximately 7 air miles north of Kimberly, Oregon. It is located within the Bologna Basin subwatershed, which drains into the main stem of the John Day River. Climatic conditions are representative of low-altitude, dry, southern exposures.

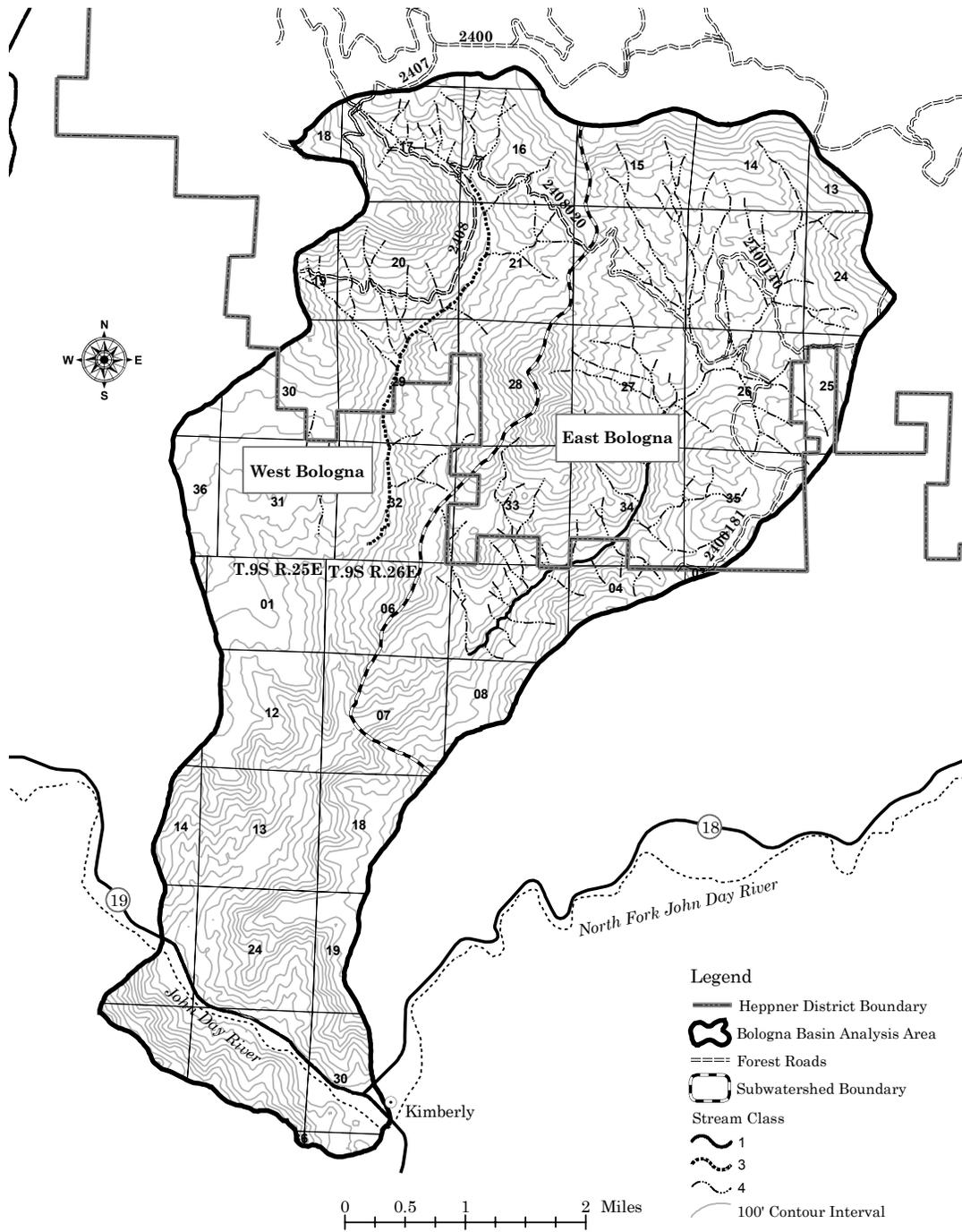


Figure 2. Bologna Basin Analysis Area

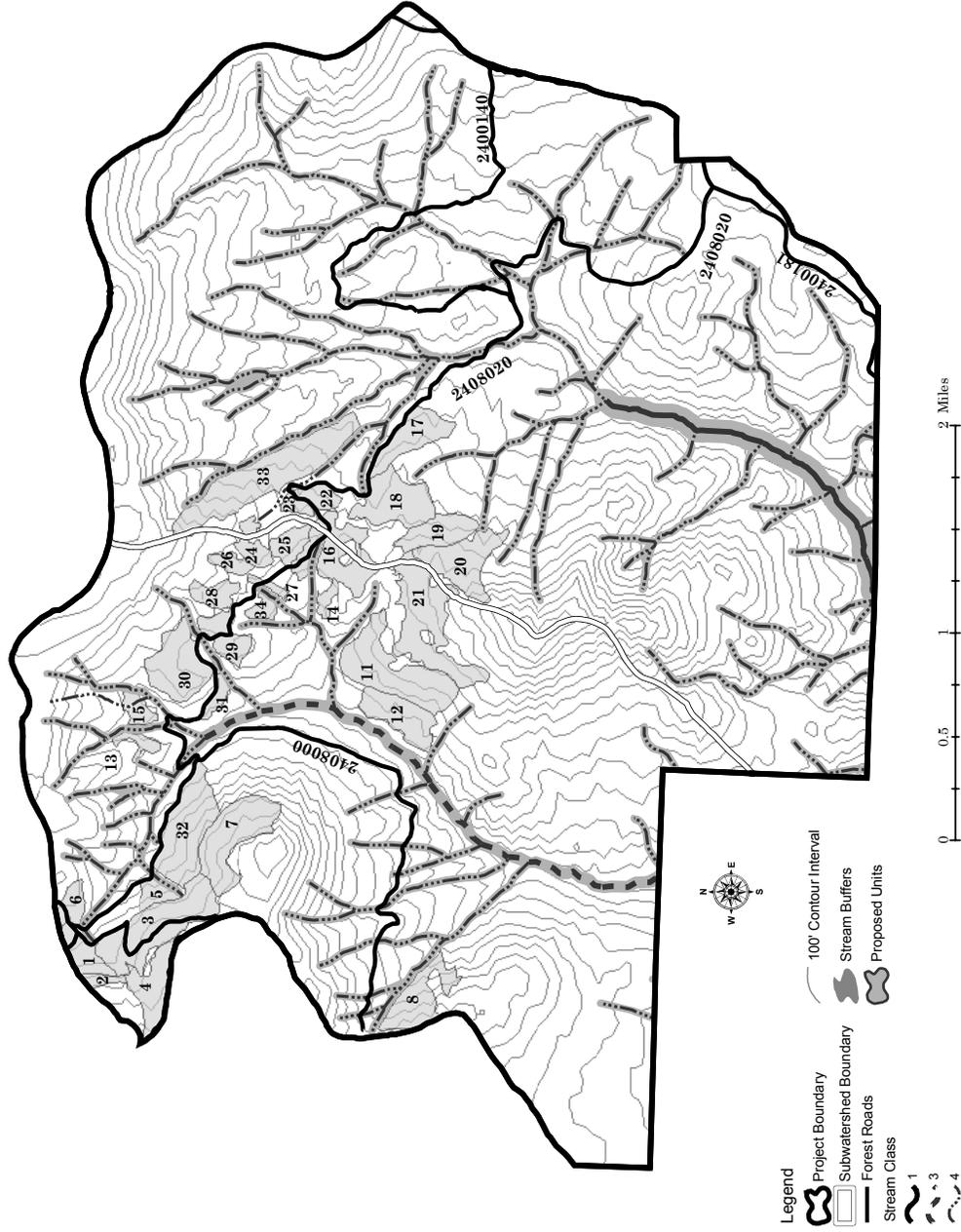


Figure 3. Harvest Units in Bologna Basin Salvage Project

All proposed harvest units would be treated using ground-based logging systems (Figure 3). No harvest activities would occur in Riparian Habitat Conservation Areas<sup>4</sup> with the exception of 0.1 mile of forwarder trail that would be used within the Riparian Habitat Conservation Area of an unnamed Class 4 stream<sup>5</sup>. Harvest activities would avoid Threatened, Endangered, and Sensitive species habitat.

## **CONNECTED ACTIONS**

Activities that would occur concurrently or in association with harvest include:

- Maintenance of existing roads as necessary to conduct harvest;
- Temporary opening of 9.9 miles of existing closed roads;
- Construction of 0.9 mile of temporary roads to access harvest units;
- Removal of some of the juniper trees from 571 acres (all overlapping the non-commercial thinning areas, plus an additional 16 acres in units designated for prescribed burning). No cutting within juniper rangeland ecosystems is proposed. However, cutting of juniper is proposed within plant associations where juniper would typically not occur in significant numbers (and it currently is). Juniper that is cut will be left on site, so associated nutrients will remain.
- Prescribed burning of 448 acres to reduce fuels to the Forest Plan standard of 9 tons per acre in the 0- to 3-inch size class and an average residue depth of 6 inches, recycle nutrients, and prepare the site for tree planting
  - 199 acres, all on commercial thinned units, would be underburned<sup>6</sup>; and
  - Harvest debris exceeding 9 tons per acre on 249 acres, all on salvaged units, would be piled, either by machine or by hand, and pile burned<sup>7</sup>;

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<sup>4</sup> Riparian Habitat Conservation Area: Portions of watersheds where riparian-dependent resources receive primary emphasis, and management activities are subject to specific standards and guidelines. These areas include traditional riparian corridors, wetlands, intermittent streams, and other areas that help maintain the integrity of aquatic ecosystems by (1) influencing the delivery of coarse sediment, organic matter, and woody debris to streams, (2) providing root strength for channel stability, (3) shading the stream, and (4) protecting water quality.

<sup>5</sup> Class 4 Stream: An intermittent stream.

<sup>6</sup> Underburning: The controlled use of fire under mature forest canopies to achieve specific forest management objectives, such as reduction of fire hazard, control of competing vegetation, creation of seedbeds and planting spots, and overall improvement of the efficiency of silvicultural operations by removing impediments to reforestation and stand management.

<sup>7</sup> Pile Burning: Burning of debris that is either manually or mechanically removed from stands, leaving heavier debris behind, and stacked in piles. Piles are located so that burning would not cause damage to designated leave trees and snags. Piles are burned when weather conditions allow debris to be consumed and when the risk of escape is low. Areas that have been

- Planting coniferous seedlings on approximately 190 acres;
- Control of damage to planted seedlings by animals (using non-poisonous methods such as Vexar<sup>®</sup> tubing and gopher trapping).
- A Forest Plan Amendment that would change the habitat effectiveness index standard from 70 to 67 only in the Monument winter range for the site-specific project called Bologna Basin Salvage.

## MANAGEMENT DIRECTION

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This Environmental Assessment hereby incorporates by reference the Project Record (40 CFR §1502.21). The project record contains Specialist Reports and other technical documentation used to support the analysis and conclusions in this Environmental Assessment. These specialist Reports are for Forest Vegetation, Fire and Fuels, Terrestrial Wildlife, Soils, Hydrology, Fisheries, Noxious Weeds, Economics, Transportation and Access Management, Botany, and Cultural Resources.

Relying on Specialist Reports and the Project Record helps implement the CEQ Regulations' provision that agencies should reduce NEPA paperwork (40 CFR §1500.4), that Environmental Assessments should be analytic rather than encyclopedic, and that Environmental Assessments shall be kept concise and no longer than absolutely necessary (40 CFR §1502.2). The objective is to furnish enough site-specific information to demonstrate a reasoned consideration of any environmental impacts of the alternatives and how these impacts can be mitigated, without repeating detailed analysis and background information available elsewhere. The Project Record is available for review at the Heppner Ranger District, Heppner, Oregon.

This Environmental Assessment process and documentation has been done according to direction contained in the *National Forest Management Act* (NFMA), the *National Environmental Policy Act* (NEPA), the *Council on Environmental Quality regulations*, *Clean Water Act*, and the *Endangered Species Act*. This Environmental Assessment is tiered to the *Umatilla National Forest Land and Resource Management Plan Final Environmental Impact Statement, Record of Decision*, and incorporates by reference the accompanying *Land and Resource Management Plan* (USDA Forest Service 1990), dated June 11, 1990. This includes the clarifying direction of Plan Amendment #10, *The Interim Strategies for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California* (PACFISH) dated February 24, 1995, and the 1995 Regional Forester's Forest Plan Amendment #2, also known as the "Eastside Screens." This Environmental Assessment incorporates by reference the Umatilla National Forest Interim Snag Guidance dated April, 1993;

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mechanically treated usually contain a combination of piles and residual fuels on the ground. These areas usually require two different treatments of prescribed fire: one to remove the piles and a second to reduce the residual ground fuel.

the Environmental Assessment for the Management of Noxious Weeds and its Record of Decision dated May 24, 1995; and other sources of information, specialist reports, published studies, and books referred to in this document and its analysis file.

The *Umatilla National Forest Land and Resource Management Plan* (USDA Forest Service 1990) (Forest Plan), as amended, recognizes the following forest management goals (pp. 4-1 – 4-3):

- To provide land and resource management that achieves a more healthy and productive forest and assists in supplying lands, resources, uses, and values which meet local, regional, and national social and economic needs
- To provide for production and sustained yield of wood fiber and insofar as possible meet projected production levels consistent with various resource objectives, standards and guidelines, and cost efficiency
- To protect forest and range resources and values from unacceptable losses due to destructive forest pests through the practice of integrated pest management
- To provide and execute a fire protection and fire use program that is cost-efficient and responsive to land and resource management goals and objectives

The proposed action and action alternative were designed to achieve these goals.

With the exception of terrestrial wildlife, cumulative effects of this project were considered within analysis areas that either encompass or occur within the subwatersheds of East Bologna Creek and West Bologna Creek. These subwatersheds cover 10,697 and 7,523 acres, respectively. Table 2 shows the land ownerships within the analysis area.

Table 2. Land Ownership within the Bologna Basin Analysis Area

<u>Ownership</u>	<u>Analysis Area</u>		<u>Forest Plan Management Areas</u>	<u>Acres</u>
	<u>Acres</u>	<u>%</u>		
USDA Forest Service	9,184	50	C1 – Dedicated Old Growth	392
			C3 – Big Game Winter Range	7,682
			C5 – Riparian	44
			E1 – Timber and Forage	1,066
USDI Bureau of Land Mgt.	1,891	10		
Total Private	7,145	40		
<b>Total Analysis Area</b>	<b>18,220</b>			

The Forest Plan identifies the type and intensity of management that may occur on Umatilla National Forest lands through designation of “management areas.” These areas are shown on Figure 4.

Table 2 also shows the management areas that occur within the National Forest portion of the Bologna Basin analysis area. The proposed action would occur within only two of those management areas: C3 – Big Game Winter Range, and E1 – Timber and Forage (compare Figure 3 and Figure 4). The harvest treatments being considered for each management area are shown in Table 3.

Table 3. Harvest Treatment by Management Area

<u>Management Area</u>	<u>Salvage Acres</u>	<u>Commercial Thin Acres</u>	<u>Total Acres</u>
C3	470	219	689
E1	58	256	314
<b>Total Acres</b>	<b>528</b>	<b>475</b>	<b>1,003</b>

## **FOREST PLAN GOALS, STANDARDS, AND GUIDELINES**

Management of these areas would follow the Standards and Guidelines for the C3 (Forest Plan, pages 4-151 through 154) and E1 (Forest Plan, pages 4-178 through 181) management areas as defined in the Forest Plan:

### **C3 - BIG GAME WINTER RANGE**

The C3 management area in the Bologna Basin Analysis Area is in the Monument Winter Range.

Figure 4. Forest Plan Management Areas in Bologna Basin Analysis Area

## **GOAL**

The goal is to *“manage big game winter range to provide high levels of potential habitat effectiveness and high quality forage for big game species.”*

## **STANDARDS AND GUIDELINES**

### **TIMBER**

Standards and Guidelines for timber harvest allow for salvage of mortality, consistent with wildlife objectives. Commercial thinning may also be utilized consistent with the need to maintain satisfactory<sup>8</sup> cover.

### **WILDLIFE**

*“Elk habitat will be managed to achieve a habitat effectiveness index of no less than 70. . . The habitat effectiveness standard will be measured on an individual winter range basis.” Marginal<sup>9</sup> and satisfactory cover will be managed to the extent possible to meet optimal size and distribution criteria (refer to Habitat Effectiveness Index for Elk on Blue Mountain Winter Ranges). . . Where possible, a minimum of 10 percent of each winter range will be maintained and managed as satisfactory cover. . . Where possible, a minimum of 30 percent of an area will be managed as total cover (marginal and satisfactory). . . All management activities will be restricted, where necessary within big game winter range during the big game winter use period of December 1 through March 30 or April 15.”*

### **FUELS**

*“Fuels should not exceed an average of 9 tons per acre in the 0- to 3-inch class and an average residue depth of 6 inches. . . All types of prescribed fire may be used . . .”*

### **VISUAL**

*“A range of visual quality objectives from Retention to Maximum Modification will apply.”*

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<sup>8</sup> Satisfactory cover: Cover used by animals to ameliorate the effects of weather. For elk, satisfactory thermal cover includes stands of coniferous trees 40 feet or more in height with an average crown closure of 70 percent or more; and for deer, cover may include saplings, shrubs, or trees at least 5 feet tall with 75 percent crown closure. Marginal thermal cover includes coniferous stands of trees 10 feet or more in height with a 40-69 percent crown closure.

<sup>9</sup> Marginal Cover: A vegetative stand comprised of trees 10 or more feet high with an average canopy closure of at least 40 percent and generally capable of obscuring at least 90 percent of a standing elk from the view of humans at a distance of 200 feet or less.

## **E1 - TIMBER AND FORAGE**

### **GOAL**

*“The goal is to manage forestlands to emphasize production of wood fiber and encourage production of forage.”*

### **STANDARDS AND GUIDELINES**

#### **TIMBER**

Standards and guidelines for timber harvest state that harvest will emphasize uneven-aged management in ponderosa pine plant communities. Salvage of mortality may occur as needed. All timber management practices and intensities will be permitted.

#### **WILDLIFE**

*“Elk habitat will be managed to achieve a habitat effectiveness index of at least 30. . . Dead and down wood will be maintained at 40 percent of the potential population level for all primary excavators and maintained for other cavity users . . . Fuels should not exceed an average of 9 tons per acre in the 0- to 3-inch size class and an average residue depth of 6 inches.”*

#### **VISUAL**

*“Manage areas to meet at least the Maximum Modification visual quality objective.”*

### **DESIRED FUTURE CONDITIONS**

The Forest Plan identifies desired future conditions for each management area to serve as a guide of what the forest should look like at the end of 10 years and at the end of 50 years, given full implementation of Forest Plan direction:

#### **C3 – BIG GAME WINTER RANGE**

*“Big game winter ranges will appear primarily as a mosaic of managed forests, brush patches, and large grasslands. Forested areas will contain a mix of harvested even-aged, uneven-aged, and natural stands, creating patterns of cover patches and forage areas for big game. . . [C]reated openings will range up to 25 acres in size. Where natural potential exists, cover areas will be developed and/or maintained to occur as groups of larger trees, 10 acres or more in size, with dense canopies. . . During an “average” winter, most of the wintering big game will remain on public lands, keeping impacts to private lands low” (Forest Plan, page 4-151).*

## **E1 – TIMBER AND FORAGE**

*“Intensive management of forest for timber production and other commodity products will be apparent. The Forest will primarily be a diverse mosaic of even-aged stands of many age classes, with trees somewhat uniformly spaced and well stocked. Regenerated stands will generally range from 20 to 40 acres. Stands managed using uneven-aged principles will also be apparent, particularly in the ponderosa pine types. . . . Accumulated fuels will generally be light, and large destructive fire will seldom occur . . . .”* (Forest Plan, page 4-178).

## **ACCESS AND TRAVEL MANAGEMENT**

The District’s Motorized Access and Travel Management Plan designates the entire area encompassed by the proposed harvest units as Elk Winter Range. This area includes Management Areas designated by the Forest Plan as C3 – Big Game Winter Range and E1 – Timber and Forage. Within the C3 Management Area, no off-road logging is allowed during the winter use period. Use of open roads is allowed during the winter use period.

Within the E1 Management Area, the Forest Plan authorizes off-road logging in the winter. The District’s Motorized Access and Travel Management Plan allows the District Ranger to authorize use of closed roads, in the E1 area under separate permit if it is determined that there will be no adverse effects to wildlife. No snowplowing would take place in either the C3 or E1 areas to implement the Bologna Basin Salvage project.

## **PUBLIC INVOLVEMENT**

Scoping is the process the Forest Service uses to identify potential concerns (or “issues”) associated with the proposed action, develop alternatives to the proposed action, and determine the extent of environmental analysis necessary for reaching an informed decision. Scoping was initiated when the project was listed in the Spring 2002 quarterly edition of the Umatilla National Forest Schedule of Proposed Activities.

Scoping letters (dated April 8, 2002 and April 11, 2002) were sent to two local Tribes and another (dated April 12, 2002) was sent to 95 organizations, individuals, and other agencies that had indicated an interest in this type of project. A notice describing the project and requesting public comment was published in the East Oregonian on April 23, 2002.

A public meeting, sponsored by the Heppner Ranger District, Oregon Department of Forestry, and Prairie Wood Products (a local business) was held on March 27, 2002, in the nearby community of Monument to discuss the tussock moth epidemic and possible treatment options. The meeting was well attended, but no list of participants was kept so the actual number of people is unknown. A tour of the Bologna Basin area was held on July 26, 2002, to give interested

publics an opportunity to discuss concerns associated with the defoliation and possible treatment alternatives with the District Ranger and specialists. Eight people attended this trip. These scoping efforts resulted in responses from 18 individuals and organizations, and two government agencies (Table 4). In addition, a petition was received from 151 local residents (three of whom also responded in separate letters) supporting removal of insect-infested trees. A summary of scoping comments is provided in Appendix C.

Table 4. Responses to Scoping by Respondent Type

<b>Type</b> <sup>1</sup>	<b>Number of Responses</b>
Confederated Tribes of the Warm Springs Reservation of Oregon	1
Individuals	12 <sup>2</sup>
Industry Group	3
Environmental Group	5 <sup>2</sup>
Government Agency	2

<sup>1</sup> Not including the petition

<sup>2</sup> Includes two responses from one group.

<sup>3</sup> Includes two responses from two groups

An Environmental Assessment for this project was previously released for public comment in June of 2003. Those comments and further analysis brought about the need for revisions to the original Environmental Assessment, including a Forest Plan Amendment. Scoping for the amendment was done through a letter to 154 interested parties, including all respondents to previous scoping and comment solicitations.

## TREATY RIGHTS

The Forest Service, through the Secretary of Agriculture, is vested with statutory authority and responsibility for managing resources of the National Forests. No sharing of administrative or management decision-making power is held with any other 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 System land that may affect tribal rights.

In 1855, two treaties that affect the Umatilla National Forest were signed between the United States government and several Indian tribes. The treaty with the Walla Walla, Cayuse, and Umatilla tribes and bands of Indians in Washington and Oregon Territories (today referred to as the Confederated Tribes of the Umatilla Indian Reservation) was signed on June 9, 1855. On June 26, 1855, a treaty was signed with the Tribes of Middle Oregon (these groups are now known as the Confederated Tribes of the Warm Springs Indian Reservation).

In the treaty between the Confederated Tribes of the Umatilla Indian Reservation and the United States, the Tribes reserved for themselves the following provisions:

*“ . . . That the exclusive right of taking fish in the streams running through and bordering said reservation is hereby secured to said Indians, and at all other usual and accustomed stations in common with citizens of the United States, and of erecting suitable buildings for curing the same; the privilege of hunting, gathering roots and berries and pasturing their stock on unclaimed lands in common with citizens, is also secured to them”*  
(Treaty with the Walla Walla, Cayuse and Umatilla, June 9, 1855).

The Bologna Basin Salvage Environmental Assessment analysis area lies within the area ceded to the United States by the Warm Springs Indian tribe and Confederated Tribes of the Umatilla Indian Reservation (CTUIR), as a result of the 1855 Treaty. The treaty was subsequently ratified by Congress and proclaimed by the President in 1859. As a result of the treaty, elements of the Tribes' culture, such as tribal welfare, land and resources were entrusted to the United States government. Trust responsibilities resulting from the Treaty dictate, in part, that the United States government facilitate the execution of treaty rights and traditional cultural practices of the Tribes 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.

Although no comments were received from the Tribes, the effects of the proposed action and alternatives were evaluated according to past statements of tribal interest that expressed concerns regarding similar projects and outlined Treaty Rights resources that could be affected by the project. These concerns have included:

- Potential impacts to fish habitat and population
- Implementation of adequate measures to protect the fishery resource and production in the John Day Basin
- Potential impacts of the proposed projects on salmonid species listed as threatened and endangered under the Endangered Species Act
- Impacts of the proposed projects on PACFISH and water quality standards, and measures the Forest Service will implement to adhere to those standards
- Impacts to wildlife in the usual and accustomed use areas
- Project impacts on archaeological sites and Traditional Cultural Properties

Because tribal trust activities often occur in common with the public, the Umatilla National Forest will strive to manage tribal ceded land in favor of the concerns of the tribes, as far as practicable, while still providing goods and services to all people.

## ISSUES

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Using comments received from the public, the interdisciplinary team identified issues that were within the scope of this project. Two of those issues were considered to be “key” or significant to the development of alternatives to the proposed action. Significant issues are defined as “*unresolved conflicts between alternative uses of available resources*” [NEPA §102(2)(E)].

### **KEY ISSUE 1: SOILS**

Some of the comments received in response to scoping indicated a concern for effects on soils as a result of the proposed action. Salvage and commercial thinning has the potential to disturb and compact soil. In addition, the Umatilla National Forest Soil Resource Inventory identified a potential for high erosion hazard in many of the units proposed for harvest, as well as some potential for compaction and soil displacement. Without treatment, high intensity fire could occur in the long term as a result of fuel build-up, and soil cover would be removed on a large scale, which would expose a larger amount of soil to erosion and instability. The measurement used to compare the result of each alternative in response to this issue will be:

- Percent of activity unit area with detrimental soil effects as per Forest Plan. These include:
  - Soil compaction
  - Displacement
  - Puddling
  - Burning
  - Erosion
  - Loss of organic matter
  - Altered soil moisture regimes

### **KEY ISSUE 2: WATER QUALITY**

Threatened steelhead and regionally Sensitive redband trout exist downstream of the project area in East Bologna Creek (Unterwegner 2002). Removal of dead trees and thinning of densely stocked stands could disturb soil, which could increase sediment in East Bologna Creek in the short term. This could further increase stream temperatures by making the stream shallower and wider. Sediment could also increase the amount of fine sediment in the streambed or substrate, further decreasing fish habitat quality (particularly for young fish).

If no action is taken at this time, the dead trees will fall and densely crowded stands will thin themselves via more insect infestations or disease. This would increase fuel loads, which could result in more intense wildfires in the long-term. A high intensity wildfire would likely increase stream temperatures due to more

extensive loss of vegetation, as experienced on neighboring districts after the large fires of 1996. Such a fire would also increase sedimentation and decrease the quality of fish habitat in East Bologna Creek in the long term.

The measurement criteria used to compare the result of each alternative in response to this issue will be:

- Water Yield and Peak Flow
- Water Quality – Sediment
- Water Quality – Temperature

## **TRACKING ISSUES**

Issues that were not considered key, but which relate to existing regulations or which help to better understand the consequences of proposed activities were considered as issues to be tracked throughout this document. These tracking issues are generally of high interest or concern to the public, or are necessary to understand the full extent of the alternatives. Where appropriate, ways to address these issues were included in alternative design or mitigation (see Chapter II).

## **WILDLIFE HABITAT QUALITY**

A number of respondents support harvest to control spread of the tussock moth and secondary insects because they feel the damage to wildlife habitat would be greater if nothing is done. One commenter observed that big game avoid grazing under or near infested trees due to a scent given off by the tussock moth.

Others feel harvest to control the spread of insects is unfounded. They assert that as long as sufficient forest canopy exists within or near the area of tree mortality numerous forest species (woodpeckers, songbirds, arthropods, parasitic wasps, etc.) would keep the insect population in balance. They are concerned that the salvage and thinning would further degrade forest habitat, reducing populations of the very wildlife and insect species that keep tree-killing insects in balance in the ecosystem. They are particularly concerned that no harvest occur in old growth.

Elk and other big game use the Bologna Basin area for forage mostly during winter and spring. The defoliation of the tree canopy has reduced thermal cover (both satisfactory and marginal) for big game, and this will continue until a new canopy develops. Commercial thinning would reduce stress on the remaining live trees, improving tree growth and more quickly developing a closed canopy for thermal cover.

Salvage of dead and dying trees to recover their value would not affect thermal cover, since the canopy has already been lost; however, the dead trees do

provide marginal cover and hiding cover<sup>10</sup>, which protects big game during hunting seasons. Both thinning and salvage would reduce hiding cover, making big game more vulnerable. Also, harvest activities and the increased traffic associated with harvest could change big game use patterns, thus increasing their vulnerability to hunting as well. This disturbance could also displace elk and deer to private lands resulting in impacts to crops (i.e. hay and grains) and pastures.

The criteria used to compare the result of each alternative in response to this issue will be the measurable effects to:

- Late and Old Structure
- Dead Wood Habitat
- Management Indicator Species
- Threatened, Endangered, Proposed, Candidate, and Sensitive Species
- Species of “Interest”
- Neotropical Migratory Birds

## **NOXIOUS WEED SPREAD**

Some commenters are concerned that soil disturbance caused by harvest and construction of the temporary access road can provide a seedbed for noxious weeds. Noxious weeds are easily spread by vehicular traffic, establish easily where mineral soil is exposed, and certain species are favored by the burning of harvest and thinning debris. The measurement used to compare the result of each alternative in response to this issue will be:

- Percent of the treatment area that would be subject to soil disturbance and compaction

## **RIPARIAN HABITAT QUALITY**

Several commenters are concerned that activities within riparian areas (whether associated with perennial or seasonal streams, springs, and seeps) could damage riparian habitat. They want to know how the Riparian Management Objectives identified in PACFISH would be affected by harvest, burning, and road activities. Others encourage reducing adjacent fuels in order to protect riparian habitats from severe fire impacts in the long-term. The measurement criteria used to compare the result of each alternative in response to this issue will be:

- Sediment/Substrate Embeddedness
- Temperature
- Total Road Density

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<sup>10</sup> Hiding cover: Any vegetation capable of hiding 90 percent of a standing adult elk from the view of a human at a distance of 200 feet or less; generally any vegetation used by elk for security or escape from danger and at least 6½ feet tall.

## RISK TO ADJACENT LANDS

### WILDFIRE

The majority of letters received as well as a consensus of attendees at both the fieldtrip and meeting in Monument were concerned with increased fire risk and associated loss of vegetation due to the amount of dead fuel produced by the insect outbreak. One comment seemed to summarize these concerns well: *“The fire danger is already high and with these trees dying, the moths are adding fuel to a potential powder keg.”* Though the risk of fire starts would remain constant, they believe that reducing fuel continuity and the potential for crown fires would reduce the spread of fire to private property, as well as reduce the severity of fire effects.

The measurements used to compare the result of each alternative in response to this issue are:

- Fuel Loads (tons per acre)
- Time (the longer current fuel profiles exist, the higher the risk of uncontrollable wildfire)

### INSECTS

A number of people were also concerned that the tussock moth and secondary bark beetles and woodborers would spread further if not treated. Landowners are concerned that the insects would spread to their property, damaging the value of their timber and decreasing the quality of wildlife habitat. Some expressed concern about the potential human allergic reaction to the tussock moth caterpillar. This issue drove the development of both the proposed action and the action alternative because one of the purposes of the project was to satisfy this concern. The measurement used to compare the result of each alternative in response to this issue is:

- Acres treated

## ECONOMIC COSTS/BENEFITS

In the short-term, implementing the proposed action would cost the Forest Service more than leaving the area alone. However, these costs would be offset by timber sale proceeds as well as income to local communities for the duration of harvest-related activities. In the long-term, economic benefits would be realized through development of healthier stands and lower risk of intense wildfire on both National Forest and adjacent properties.

Measurements used to compare the effects of each alternative in response to this issue will be:

- Direct Employment (Jobs per Ccf)
- Indirect Employment (Jobs per Ccf)

- Total Employment (Jobs per Ccf)
- Direct Income (Dollars per Ccf)
- Indirect & Induced Income (Dollars per Ccf)
- Total Income (Dollars)
- Present Net Value (Dollars)

## **DECISION FRAMEWORK**

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The District Ranger will serve as the deciding official for this project. He will decide whether to implement the proposed action, another action alternative, or the no action alternative, and his decision will be based on the following criteria:

- Short-term and Long-term risks      Which alternative best balances short-term risk of resource impacts from harvest with the long-term risk of resource impacts from fire?
- Fuel Loads      Which alternative decreases fuel loads to the point of lessening the risk of high intensity wildfire?
- Secondary Infestation      Which alternative reduces the likelihood of spread of secondary insects?
- Timber Value      Which alternative maximizes the recoverable value of timber?

If implementation is chosen, the District Ranger will also determine which mitigation and monitoring measures are necessary.

