Analysis of the Management Situation

John Day Basin Resource Management Plan

Analysis of the Management Situation and Preliminary Public Involvement

BLM

Prineville District Office

Fall 2006

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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Analysis of the Management Situation

John Day Basin
Resource Management Plan
Fall 2006

United States Department of the Interior
BUREAU OF LAND MANAGEMENT
Prineville District Office
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Prineville, Oregon 97754

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Greetings:

We are pleased to present to you the Analysis of the Management Situation (AMS) for the BLM administered Public Lands in the John Day Basin. This AMS evaluates existing management guidance, summarizes resource conditions and trends, and summarizes what we have heard the public say to us during our initial efforts to update and consolidate the John Day, Two Rivers, and Baker Resource Management Plans as they apply to the John Day Basin. We believe these two efforts – obtaining feedback from public land users, interests and stakeholders, and assessing the existing situation – has helped to focus the planning effort so that it will respond to identified concerns and problems.

The Central Oregon Resource Area began to work on updating the Resource Management Plan for BLM managed lands in 2005. One-day economic workshops were co-sponsored with several communities, several open forum public meetings were held, and contracts have been let to gather social, economic and resource data. The BLM also invited letters and email responses all of which resulted in a wealth of public response. We believe you will find the summary in Chapter 7thoughtful and interesting.

Our next steps will be to work with you to develop alternative ways of addressing the identified issues. We will be holding public meetings, working with the Snake-John Day Resource Advisory Council, and with our Co-operators Group of governmental and tribal representatives. In addition, we will be available informally to listen to your thoughts and ideas. We are excited about a web-based tool developed for us by the University of Colorado at Denver to help understand the travel and access issues in the area around the North Fork of the John Day River. We encourage you to participate in a survey on this topic by accessing http://agf.colorado.edu/JohnDayRMP. Included with this document is a CD containing an electronic version of this document plus other information, including Records of Decision for each of the RMPs reviewed in the AMS. These same documents may be viewed over the internet at: http://www.blm.gov/or/districts/prineville.

We appreciate your time and involvement in the planning process so far and encourage your continued participation. You may contact us by any of the methods indicated on the opposite page.

Working together we can generate effective and innovative strategies that will guide your Public Lands into the future. Together we can develop guidance that effectively protects resources while contributing to the social fabric and economic resilience of those who use and enjoy these lands.

Sincerely,

Christina M. Welch

Christina M. Welch
Field Manager, Central Oregon Resource Area

Editor's Thoughts

The sun crested the ridge and light beamed down, illuminating the tent wall. After a day and night of intermittent, sometimes intense rain the light announced the dawn of a new day along the North Fork John Day River. Emerging from the tent I encountered a brilliant blue sky and grass sparkling with drops of the previous night's rain. A layer cake of basalt rose above both banks of the river. To the south the slopes were covered by a jungle of green—trees, brush and shrubs. To the north I could clearly make out the dark cliffs separated by grassy slopes and punctuated by cinnamon bark ponderosa pine. My companion and guide, the river ranger, still slept in his tent a few feet away.

A morning stroll was in order. Though we were floating the river there is a road a few yards from our camp. I traveled down the road to a spot we had noticed the previous evening. The road squeezed between the river and a dark basalt outcrop some 20 to 30 feet high. From the distance it appeared that a small fire had burned through the rocks and some of the grassy bench above. After the rain there was no evidence of recent travel on the road. We had not seen another person since we had launched. We would not see another person for a day and a half. Approaching the outcropping I discovered we were misled by appearances. The darker rock was not scorched, it was wet. The patch of "burned" grass was, in fact, the top of the dark basalt rock over which soil had not yet formed, so hardly any grass had gained a foothold. What appeared to be barren rock outcropping from the distance up close was a sparsely planted rock garden with flowers and grasses establishing tenuous residence in random niches in the rock. A small gray hornet nest hung from a shallow indentation in the rock face. Since it was still cool the inhabitants were not yet up. Fine with me!

Ambling back to camp I reflected on the nature of a communal dwelling located in a beautiful yet harsh environment. One cannot help but be struck by the beauty surrounding you in the John Day Basin. From the windblown sea of grass at Horn Butte, to the river canyons of the John Day, to the broad Fox Creek and Long Creek valleys, and to the highlands of Sutton, Rudio, and the Aldrich Mountains the basin provides an expanse and variety of beautiful scenes. The rock outcropping is a microcosm of the basin—beautiful but harsh. The community of hornets is not unlike the communities in the basin—isolated. Many inhabitants scratch out a living but tenuously hang to their niche just as the hornets in their nest cling to the sloping ceiling of rock. Make no mistake this is a harsh land. During the summer the hornet nest is likely to experience 110º weather with temperatures off the rock as high as 130º or more. Inhabitants that survive the summer then must survive cold as low as -20º or lower.

It takes a special kind of person to adapt to these conditions in the basin--isolation, changing local economies, harsh climate, beautiful setting. These breed a community of fiercely independent yet interdependent inhabitants. They may quarrel amongst themselves but proudly note that when a member of the community is in need, everyone pitches in to help. But if they perceive a threat from outside the community even the hornets might learn something about defending "turf."

Humbled by the responsibility that has been entrusted to the BLM, it is with a profound sense of responsibility that our team of specialists embarks upon this planning effort. We will listen and we will learn. In the ebb and flow of social changes, economic shifts and ecologic variation, we will strive to balance the varied concerns and desires of those interested in using and preserving public lands for the benefit of generations to come.

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Support Documents on CD

Northwest Area Noxious Weed Control Program FEIS	1985
John Day RMP Record of Decision	1985
Two Rivers RMP Record of Decision	1986
Supplement to the Northwest area Noxious Weed Control Program FEIS	1986
Northwest Area Noxious Weed Control Record of Decision	1987
Baker RMP Record of Decision	1989
FEIS Vegetation Treatment on BLM Lands in 13 Western States	1991
Prineville Weed Management Documents	1994
John Day Land Tenure Adjustment	1995
Sutton Mountain Coordinated Resource Management Plan Environmental Assessment	1995
Decisions Record Sutton Mountain Coordinated Resource Management Plan	1996
Standards for Rangeland Health and Guidelines for Livestock Grazing Management	1997
Oregon Land Exchange Act of 2000	2000
John Day River Management Plan	2001
Prineville District Office Eligibility Inventory of Potential Wild and Scenic Rivers in the John Day Basin Resource Management Plan Planning Area	2006

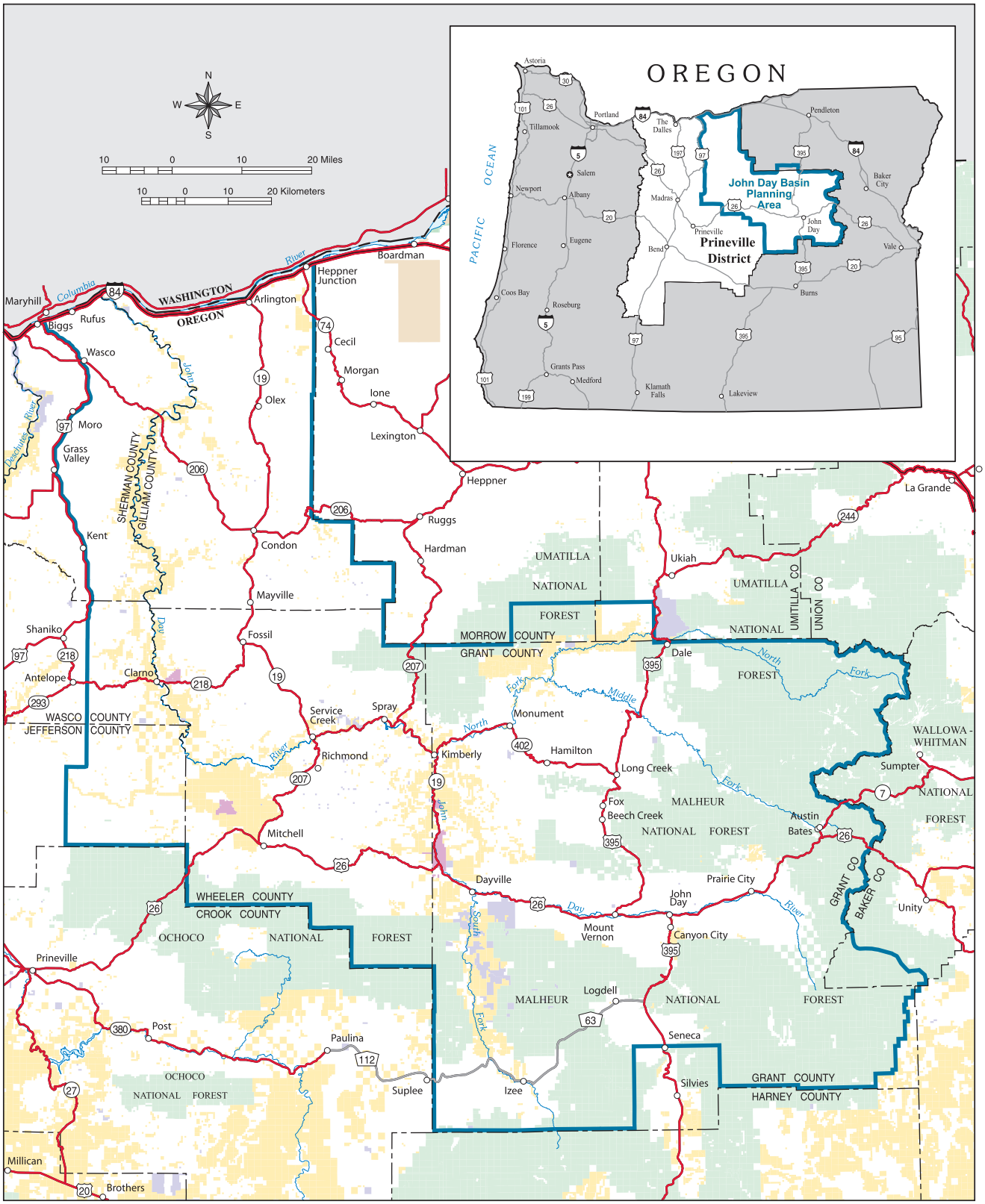
Acronyms and Abbreviations

ACEC	-	Area of Critical Environmental Concern
ADT	-	Average Daily Traffic
AMP	-	Allotment Management Plan
AMS	-	Analysis of the Management Situation
APHIS	-	Animal and Plant Health Inspection Service
ARPA	-	Archaeological Resources Protection Act of 1979
ASCO	-	Archaeological Society of Central Oregon
ASQ	-	Allowable Sale Quantity
ATV	-	All-Terrain Vehicle
AUM	-	Animal Unit Month
BA	-	Biological Assessment
BECA	-	Bald Eagle Consideration Area
BEMA	-	Bald Eagle Management Area
BLM	-	Bureau of Land Management
BMP	-	Best Management Practices
BOR	-	Bureau of Reclamation
BPA	-	Bonneville Power Administration
BS	-	Bureau Sensitive
CAA	-	Clean Air Act
CAFO	-	Confined Animal Feeding Operations
CEQ	-	Council on Environmental Quality
CFR	-	Code of Federal Regulations
CFS	-	Cubic Feet per Second
COFP	-	Central Oregon Fire Plan
CORA	-	Central Oregon Resource Area
COSSA	-	Central Oregon Shooting Sports Association
CRBG	-	Columbia River Basalt Group
CRNG	-	Crooked River National Grassland
CRR	-	Crooked River Ranch
CWA	-	Clean Water Act
DBH	-	Diameter at Breast Height
DEIS	-	Draft Environmental Impact Statement
DEQ	-	Department of Environmental Quality (Oregon)
DFC	-	Desired Functioning Condition
DMA	-	Decision Management Agency
DNF	-	Deschutes National Forest
DOI	-	Department of Interior
DOGAMI	-	Department of Geology and Mineral Industries (Oregon)
DR	-	Decision Record
DRMP	-	Draft Resource Management Plan
EA	-	Environmental Assessment
EIS	-	Environmental Impact Statement
EMS	-	Existing Management Situation
EPA	-	United States Environmental Protection Agency
ERMA	-	Extensive Recreation Management Area
ERU	-	Ecological Rating Units
ESA	-	Endangered Species Act
ESI	-	Ecological Site Inventory
FCRPA	-	Federal Cave Resources Protection Act
FEIS	-	Final Environmental Impact Statement
FLPMA	-	Federal Land Policy and Management Act

FR	-	Federal Register
FS	-	Forest Service
FY	-	Fiscal Year
GIS	-	Geographic Information System
HCA	-	Habitat Conservation Areas
HCP	-	Habitat Conservation Plan
HMP	-	Habitat Management Plan
HRV	-	Historic Range of Variability
HUC	-	Hydrologic Unit Code
IBLA	-	Interior Board of Land Appeals
ICBEMP	-	Interior Columbia Basin Ecosystem Management Project
IDT	-	Interdisciplinary Team
IMP	-	Interim Management Policy for Lands Under Wilderness Review
INFISH	-	Inland native strategies for managing fish-producing watersheds in eastern Oregon and Washington, Idaho, western Montana, and portions of Nevada
ISA	-	Instant Study Area
IWM	-	Integrated Weed Management Program
KLA	-	Known Linkage Area
LAC	-	Limits of Acceptable Change
LAU	-	Lynx Analysis Units
LWCF	-	Land and Water Conservation Fund
MBF	-	Thousand Board Feet
MLRA	-	Major Land Resource Area
MMBF	-	Million Board Feet
MMHOS	-	Millimhos (a millimho is a unit of electrical conductance)
MO	-	Management Objectives
MOU	-	Memorandum of Understanding
NF	-	National Forest
NHPA	-	National Historic Preservation Act
NEPA	-	National Environmental Policy Act
NMFS	-	National Marine Fisheries Service
NOALE	-	Northeast Oregon Assembled Land Exchange
NRCS	-	Natural Resource Conservation System
NRHP	-	National Register of Historic Places
NSO	-	No Surface Occupance
NSS	-	National Speleological Society
NWPCC	-	Northwest Power and Conservation Council
OAR	-	Oregon Administrative Rules
ODA	-	Oregon Department of Agriculture
ODEQ	-	Oregon Department of Environmental Quality
ODF	-	Oregon Department of Forestry
ODFW	-	Oregon Department of Fish and Wildlife
ODOT	-	Oregon Department of Transportation
OEF	-	Oregon Eagle Foundation
OHV	-	Off-Highway Vehicle
OMD	-	Oregon Military Department
ONHP	-	Oregon Natural Heritage Program
OPRD	-	Oregon State Parks and Recreation Department
ORV	-	Off-Road Vehicle or Outstandingly Remarkable Value
OSU	-	Oregon State University
OWQI	-	Oregon Water Quality Index
OWRD	-	Oregon Water Resources Department
PACFISH	-	Interim strategies for managing Pacific anadromous fish-producing watersheds in eastern Oregon and Washington, Idaho, and portions of California

PFC	-	Proper Functioning Condition
PILT	-	Payments In Lieu of Taxes
PNC	-	Potential Natural Conditions
PNW	-	Pacific Northwest
PRA	-	Pacific Recovery Area
PWR	-	Public Water Reserve
R&PP	-	Recreation and Public Purpose Act
RCA	-	Riparian Conservation Area
RCRA	-	Resource Conservation and Recovery Act
RD	-	Ranger District
RMO	-	Riparian Management Objective
RMP	-	Resource Management Plan
RNA	-	Research Natural Area
ROD	-	Record of Decision
ROW	-	Right of Way
RV	-	Recreational Vehicle
SAR	-	Soil Absorbancy Ratio
SCORP	-	Statewide Comprehensive Outdoor Recreation Plan
SF	-	South Fork
S&Gs	-	Standards and Guidelines
SHPO	-	State Historical Preservation Office
SOC	-	Species of Concern
SR	-	State Route
SRMA	-	Special Recreation Management Area
SRP	-	Special Recreation Permit
SSURGO	-	Soil Survey Geographic Database
SSW	-	State Scenic Waterways
STATSGO	-	State Soil Geographic Database
SUP	-	Special Use Permit
SVIM	-	Soil-Vegetation Inventory Method
SWCD	-	Soil and Water Conservation District
TCP	-	Traditional Cultural Property
T&E	-	Threatened and Endangered
TGA	-	Taylor Grazing Act of 1934
TNC	-	The Nature Conservancy
TMDL	-	Total Maximum Daily Load
UDRMP	-	Upper Deschutes Resource Management Plan
USC	-	United States Code
USDA	-	United States Department of Agriculture
USDI	-	United States Department of the Interior
USFS	-	United States Forest Service
USFWS	-	United States Fish and Wildlife Service
USGS	-	United States Geological Survey
VQO	-	Visual Quality Objectives
VRM	-	Visual Resource Management
WQMP	-	Water Quality Management Plan (State)
WQRP	-	Water Quality Restoration Plan (Federal)
WSR	-	Wild and Scenic River
WSA	-	Wilderness Study Area
WSRA	-	Wild and Scenic Rivers Act
WUI	-	Wildland Urban Interface

Chapter 1
Purpose and Need



LEGEND

- Planning Area Boundary
- Interstate Highway
- U.S. Highway
- State Highway
- County Road

Administered Land

- Bureau of Land Management
- Forest Service
- John Day Fossil Beds National Monument
- Other Federal
- State
- Private or Other

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John Day Basin
Resource Management Plan

2006

Map 1: John Day Basin Resource Management Plan

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Introduction

This Analysis of the Management Situation (AMS) is the first step in revising and consolidating three Resource Management Plans that provide guidance for managing Bureau of Land Management (BLM) lands within the John Day Basin: The Two Rivers Resource Management Plan (RMP) (1986) addresses management of BLM lands in the western portion of the Planning area. The John Day RMP (1985) addresses management of BLM lands in most of the eastern portion of the planning area, and the Baker RMP (1989) addresses management of BLM lands within small portions Morrow and Umatilla Counties that are within the planning area.

The new John Day Basin RMP will establish broad-scale desired conditions, goals, objectives and standards and guidelines for the management of BLM lands and resources within the planning area.

Purpose of the Analysis of the Management Situation

The purpose of the AMS is threefold:

1. To summarize the existing conditions, trends, and management guidance for a specified "planning area,"
2. To explain the need for change by identifying preliminary issues; and to identify management opportunities, and
3. The AMS is required to provide an initial description of the biological, physical, social and economic components of the environment that will be affected by the decisions made in an RMP.

The AMS is the foundation for subsequent steps in the planning process, such as the design of alternatives and analysis of environmental consequences (43 CFR 1610.4-4) which will be documented in the Draft and Final Environmental Impact Statements that accompany Draft and Proposed Resource Management Plans. The following briefly outlines the planning process.

Planning Process

- ***Prepare Scoping Report and AMS***
  - Refine Issue descriptions and characterize management situation with the AMS
  - Develop planning criteria and identify planning opportunities
- ***Prepare Draft EIS and RMP***
  - Refine issues, alternatives, and impact analysis input
  - 90 Day comment period
- ***Prepare Final EIS and Proposed RMP***
  - Develop an implementation and monitoring plan on preferred alternative
  - Provide 30 day protest period and 60 day Governor's Review
- ***Prepare ROD and Approved RMP***
  - Identify selected alternative and respond to public comments and protests
  - Implement, monitor and evaluate

Oregon Land Exchange Act of 2000

In the year 2000, Congress passed the Oregon Land Exchange Act. In exchange for public lands disposed of by this Act, the BLM acquired approximately 44,000 acres near the North Fork of the John Day River (see Map 2) . The Act directs management of these lands:
"Lands acquired…within the North Fork of the John Day subwatershed shall be administered in accordance with section 205(c) of the Federal Land Policy and Management Act, but shall be managed primarily for the protection of native fish and wildlife habitat, and for public recreation."

The Act also provides the foundation for future management decisions beyond the primary criteria:

"The Secretary may permit other authorized uses within the subwatershed if the Secretary determines, through the appropriate land use planning process, that such uses are consistent with, and do not diminish these management purposes."

Need for a New Resource Management Plan

The Central Oregon Resource Area, the BLM unit responsible for managing BLM lands within the planning area, must refer to three different management plans, each of which has been amended by one or more plan amendments, for direction. The complexity of this situation, in addition to changes in land uses, the acquisition of approximately 44,000 acres of land near the North Fork John Day River not covered by a resource management plan, and new information provided by the Interior Columbia Basin Ecosystem Management Project (ICBEMP) provides the impetus to complete a new, consolidated Resource Management Plan (RMP) for this area.

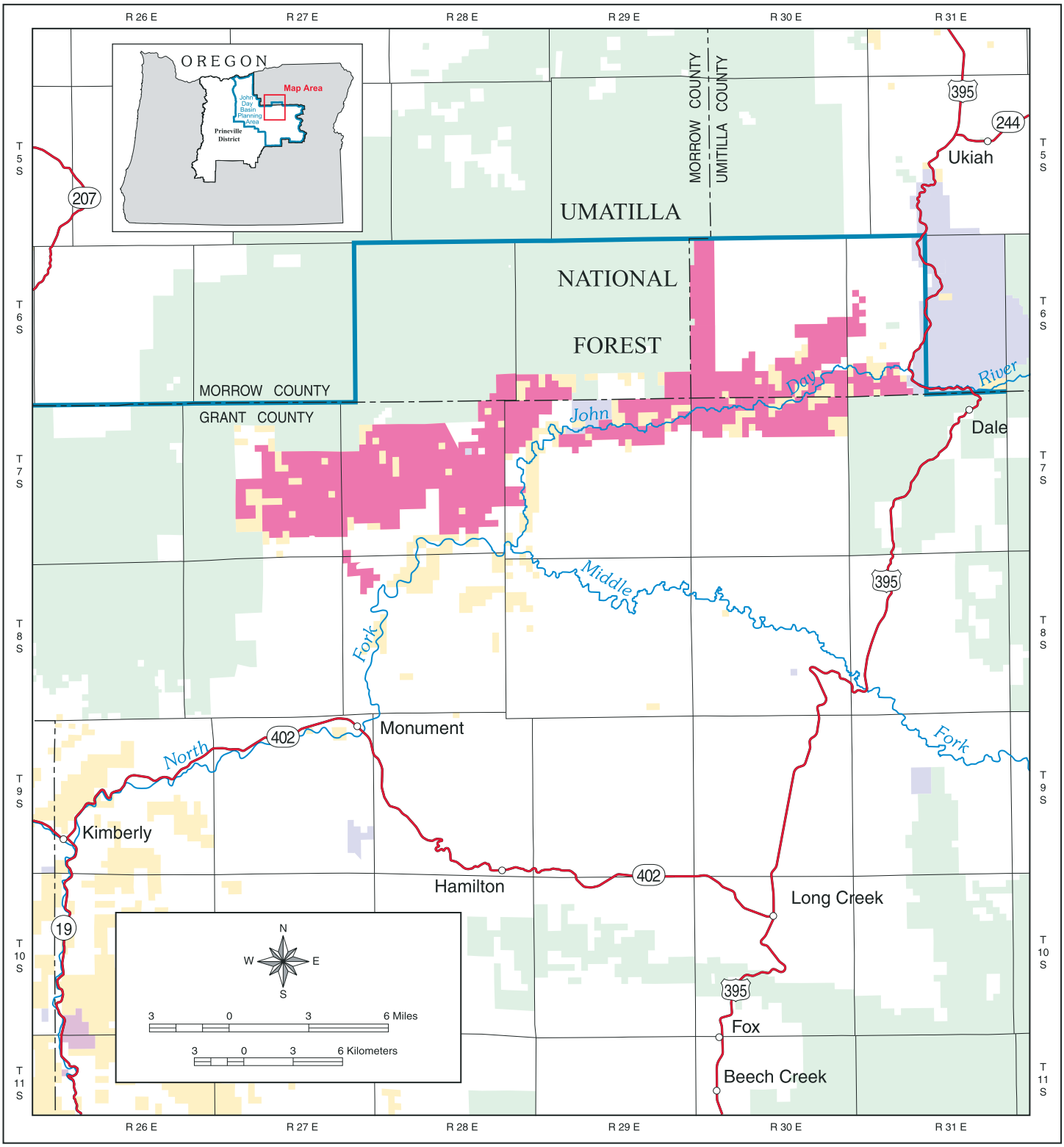
Purpose

The Federal Land Policy and Management Act of 1976 (FLPMA) directs the BLM to develop and revise the RMPs that guide activities on BLM managed lands. A RMP is a set of comprehensive, long-range decisions concerning the use and management of resources administered by the BLM which typically accomplishes two objectives:

1. Provides an overview of needs, objectives and goals for managing BLM lands for multiple uses;
2. Resolve multiple-use conflicts.

Taking into account the present needs in the basin, the purpose of the current RMP effort is three-fold:

1. Address all aspects of federal land management for the acquired lands in the North Fork John Day River area;
2. Address problems or concerns that have occurred since the completion of the previous RMPs, where these plans do not provide adequate guidance;
3. Address problems or concerns where the guidance in the existing RMPs is insufficient or inadequate in light of current needs or demands.



LEGEND

- BLM Land Prior to Act
- BLM Lands-Acquisition Authorized by Oregon Land Exchange Act of 2000
- Planning Area Boundary

Administered Land

- Forest Service
- John Day Fossil Beds National Monument
- State
- Private or Other

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Map 2: North Fork John Day Acquired Lands Oregon Land Exchange Act 2000

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The RMP developed as a result of this process will amend and revise portions of the existing RMPs, and serve to describe management guidance for the acquired lands in the North Fork John Day River area. The legislative mandates and BLM policy documents described in Chapter 2 provide limits and direction for responding to the issues described later in this chapter.

Geographic Scope

This resource management planning effort will address lands primarily within the John Day River Basin that are managed by the Central Oregon Resource Area (CORA) of the Prineville District BLM. In addition lands within the Deschutes River Basin that lie within the boundaries of the northern portion of the Central Oregon Resource Area and lands that are located within the John Day Basin but fall within the Baker Resource Area of the Vale District will be included within the planning process. Finally the planning area includes an area covered by the present John Day RMP that is south of the John Day River in the Silvies and Malheur River Drainages. There are only three parcels of BLM land, totaling about 400 acres, in this last area. The planning area (Map 1) includes over 450 thousand acres of BLM managed lands within several Oregon counties – Grant, Wheeler, Gilliam, Wasco, Sherman, Umatilla, Jefferson and Morrow. The boundary of the planning area also includes portions of Baker and Malheur counties but there are no BLM lands that are both within these counties and in the planning area.

For purposes of display of detailed map information and general location references in the text of this document, the BLM lands within the planning area can be grouped into several geographical areas. These areas include:

1. Lower John Day River – these lands primarily in the canyon but also include uplands north of Clarno, including lands as far away as Horn Butte.
2. Sutton Mountain/Bridge Creek – the lands upstream of Clarno to Service Creek, including the Bridge Creek, Bear Creek and Sutton Mountain areas. The south western portion of this area is outside of the John Day Basin.
3. Rudio Mountain/Johnson Heights – the area upstream of Service Creek to Dayville, including the Rudio Mountain, Squaw Creek and Johnson Heights areas.
4. South Fork John Day River – the area from Dayville and along the South Fork of the John Day River, Cottonwood, Birch and Rock Creeks, south to the Harney County and east and north of the Crook County line.
5. Upper Mainstem – the lands in the Upper John Day Valley including Little Canyon Mountain, Dixie and Standard Creeks. Three BLM parcels within the planning area are to the south of the John Day Basin in the Silvies River watershed.
6. North Fork John Day River – the lands upstream of Monument, along the North Fork of the John Day River to Camas Creek, and north of Highway 402.

Key Findings

The AMS details several findings that are summarized in the following discussion. These findings describe information or concerns identified prior to and during the development of the AMS. Many of these findings are concerns expressed by the public or identified by BLM. As with concerns identified by the public during the scoping process these may be considered “significant planning issues” if they require changes in RMP guidance and there is a lack of consensus concerning how to address the problems.

Hydrology

Many streams are lacking the physical processes necessary to achieve proper functioning condition and will not reach desired conditions without changes in management. Juniper stands in densities and locations outside of the range of historic variability have altered hydrologic processes in the planning area.

Some rivers and streams within the planning area have been listed by the Oregon Department of Environmental Quality as water quality limited. The existing resource management plans do not provide the framework for fostering cooperative efforts to address problems identified in water quality limited streams.

Forest Resources

Due to high stem densities and high basal areas the overall health of forest stands is declining. Trees have become stressed and are succumbing to insects and diseases. Insect populations have reached excessive populations in scattered stands across the planning area.

Fire and Fuels

A Fire Regimes and Condition Class Assessment of the John Day Basin completed in 2002 indicated that much of the area has missed at least one disturbance event or fire. As the trees die and fall to the ground the stands are accumulating excessive slash loads and are becoming more susceptible to high intensity-stand replacement wildfires.

Current RMP guidance does not address this problem of local and national policy for fuels within defined wildland urban interface areas and throughout the planning area have not been formally incorporated into existing RMPs.

Restoration

Vegetative conditions at some riparian and upland sites may not be capable of returning to historic ranges without active restoration.

Paleontological Resources

Since the 1860's the Tertiary (65-2 million years ago) fossil resources of the John Day Basin have been both nationally and internationally recognized. The John Day Basin is one of the premiere Tertiary fossil mammal and plant areas in the world. Many fossil localities are on BLM managed lands.

Roads and Transportation

Many of the BLM transportation resources in the John Day Basin have never been designated with a maintenance level or described within a maintenance schedule.

Many parcels of public land are not accessible to the public because there are no public easements on potential access roads.

The gating of roads (that do not have formal easements), by private landowners, that have historically provided access to BLM lands has increased in the last 10-20 years.

Access is limited for fire suppression and fuels management activities within the planning area. This increases response times for suppression activities which in turn lead to larger fire sizes and greater suppression costs.

Recreation

There are no BLM designated motorized trail or motorized vehicle route systems despite increasing demand. There are also no designated hiking, horseback riding or mountain bike trails or any other designated non-motorized trail systems.

Use from OHVs and other motorized vehicles have continued to increase throughout the planning area. Due to new restrictions on OHVs on National Forests in and near the planning area we expect increased demand for use of BLM managed lands by OHV and other motorized vehicles.

BLM policy requires all OHV area designations to be completed at the RMP level. Existing Plans do not adequately address the impacts of widespread use by OHVs.

Land Tenure Zoning Designations

Since the completion of the existing RMPs significant land tenure adjustments have occurred including acquisition of Sutton Mountain and the North Fork John Day lands. Some current zoning designations that identify whether BLM lands should be retained or disposed may not reflect new ownership patterns in the planning area.

Special Designation Areas

The Wild and Scenic Rivers Act of 1968 required an eligibility and suitability assessment and determination to be conducted as a part of the resource management planning process. The John Day Basin includes several streams that have not been assessed.

Characteristics of wilderness such as solitude, naturalness and primitive recreation are resources which have not been previously inventoried in the North Fork John Day acquired lands area.

North Fork John Day River Acquired Lands

As a result of guidance provided in the Oregon Land Exchange Act of 2000, the full range of management direction from the existing RMPs cannot be applied to acquired lands adjacent to the North Fork John Day River. Consequently, there is no specific long-term direction for managing vegetation, fish and wildlife, fire and fuels, visual resources, transportation and access, recreation, OHV use, livestock grazing, silviculture, wilderness characteristics, and other resources or activities.

Preliminary Issues

Based on the Key Findings of the Analysis of the Management Situation and input from the public, other governments and tribes we have identified several Planning Issues. The Planning Issues may be revised or refined as a result of comments received about the AMS. Planning Issues are problems that require changes in RMP direction to resolve.

An "issue" is defined as a topic of controversy, dispute or concern over resource management activities or land uses within the planning area boundary. In order to be considered "significant" by the agency, an issue must be well defined, relevant to the proposed action(s) in question, and within the authority and ability of the agency to address in the development of a reasonable range of alternatives or mitigation measures. The agency must consider the issue in the environmental analysis of the various alternatives.

The following Planning Issues will be utilized to develop management guidance alternatives for the planning area. These alternatives, along with a description of the environmental consequences implementation of these alternatives would have on the public lands will be described in the Draft Environmental Impact Statement.

Water Resources

The public expressed concerns over the management of riparian areas:

Management of riparian areas should be consistent according to resources
Cooperative Management Efforts
Water quality efforts should be supported in the RMP

Forest Health

The public expressed concern regarding the management of timber resources

Management guidance should allow for a range of resource management objectives

Fire and Fuels Management

Much of the planning area has missed at least one disturbance event or fire
Current RMP guidance is unclear with respect to management in wildland urban interface areas

Public Land Access and Travel Management

BLM policy requires resource management plans to delineate travel management areas.
The need to identify roads and access to BLM and private lands has been anticipated by the BLM as the result of changes in land status and accessibility
Public concerns include recent reduction in access as the result of closure of routes on BLM lands and adjacent private lands

Off Highway Vehicle Use Designations

Designations are required by BLM policy, either open, limited or closed
The situation has changed since last plans.
The public expressed concern about OHV use in the Little Canyon Mountain Area—two viewpoints expressed:
- Close BLM lands to protect resources
- Designate large areas for OHV use to provide recreational opportunities

Land Tenure Zoning Designations

Under 43 CFR 2400 the BLM is required to identify lands that should be retained, disposed, or acquired to serve the national interest. Though the John Day, Baker, and Two Rivers RMPs did this the subsequent Oregon Land Exchange Act of 2000 significantly modified land ownership in the John Day Basin creating a need to review and possibly change some land tenure designations.
Public concerns include BLM acquisition or disposal of lands in the Rudio Mountain area.

Special Management Areas

Wild and Scenic River (WSR) suitability recommendations
- Suitability recommendations are required by BLM policy
  - Public concerns have a wide range:
    - Include wild and scenic rivers wherever possible to protect resource values
    - Exclude wild and scenic rivers because they restrict public use

Consider designations to protect specific resource values such as paleontological values

Areas with Wilderness characteristics
- Policy concerning wilderness review undergoing revision
- Public Concerns have a wide Range:
  - Protect lands with wilderness characteristics
  - Do not protect land with wilderness characteristics because it limits multiple use management

Management of Acquired Lands in the North Fork of the John Day Area

The Oregon Land Exchange Act of 2000 requires a development of a management plan for acquired lands before multiple uses can be considered.
- Guidance for all resources must be provided
- Visual Resource Inventory and Designations (Scenic Quality, etc.)
  - Designations are required by BLM policy

Public concerns include a broad range
- All issues described above (1-7) plus:
  - Grazing (comments for both pro and con)

Resolving each issue provides an opportunity to consolidate and update existing management into a single RMP. As a result, guidance will be tuned to the latest science and follow direction provided by the legislative and executive guidance described in Chapter 2 of the Full AMS. The ultimate result of this process will be a management plan that provides for a range of uses, protects natural resources, and is sensitive to the needs of local communities.

Contents of the AMS

The remainder of the AMS is organized as follows:

Chapter 2 – Legal Authorities

Listing of the laws and previous policy decisions providing a context for the types of decisions that must be made in an RMP.

Chapter 3 – Area Profile

Describes the physical, biological, social, and economic components of the planning area based on information available at the time of publication.

Chapter 4 – Existing Management Direction

Describes the current direction for resource management in the planning area. This information, combined with information presented in previous chapters, helps form the framework for developing the proposed management opportunities (see next chapter).

Chapter 5 – Management Opportunities

Describes the preliminary issues and management opportunities, including a range of actions and associated outcomes which will be analyzed in the RMP.

Chapter 6 – Collaborative Planning

Summary of the collaborative planning process and a projected time-line for completion of the RMP and associated planning and decision steps.

Chapter 7 – Scoping Report

Describes process for collecting feedback from the public and stakeholders. Describes key concerns of public and stakeholders

References

List of Preparers

Glossary

Appendices

Provide detailed information referenced in text.

Support Documents

Available on CD only. Contains Record of Decisions for all RMPs subject to amendment or revision by this planning effort. Also includes some key documents that provide guidance for day to day management within the John Day Basin.

Chapter 2
Legal Authorities

How BLM employees get direction to Manage Public Lands

Direction for management of public lands administered by the BLM is multi-tiered.

First, Congress authorized the BLM to manage lands and passed laws that provide overall objectives for management of those lands. While one Law, the Federal Land Policy and Management Act, authorizes the BLM to manage specific lands, other laws can provide direction to many government agencies. For example, the Endangered Species Act establishes guidance that must be followed by all federal agencies to protect threatened and endangered species.

The Department of the Interior or the BLM then creates regulations and policies that describe how the BLM will act to implement the direction of Congress. Regulations are initially published in the Federal Register and subsequently in the Code of Federal Regulations.

Policy direction is then provided to the BLM staff in the form of Manuals and Handbooks. For teams preparing Resource Management Plans the primary references are the NEPA Manual and Handbook and the Planning Manual and Handbook.

Executive Orders can also direct and guide management. These orders are issued under the authority of and are signed by the President. An executive order generally recognizes one or more laws and provides instructions for implementing those laws to one or more federal agencies.

Laws created by congress (legislative guidance) and executive direction (executive guidance) provided through Department of the Interior or BLM regulations and policy and executive orders that apply to this planning process are listed and briefly described in this chapter.

Resource management plans establish specific objectives and guidance for managing lands within a defined planning area or describe specific project level stipulations. The Resource Management Plan and other more site specific guidance will be described in Chapter 4, Existing Management.

Project level guidance is the equivalent of a blueprint and architect instructions. Depending on the size and type of project, planning at this level may be almost as complex as developing a Resource Management Plan or may result in very simple and small document. Project specific guidance will not be addressed or described in this document.

A final note is that certain regulations, generated by the BLM and other Agencies, provide guidance that directly applies to day to day BLM activities. These include regulations for the management of cultural resources, protecting endangered species, many lands procedures, and several other activities.

Legal Authorities

This section briefly describes the legal authorities and planning guidance that provide direction for the BLM land use planning process. These, when combined with the purpose and need for action, establish the scope of the land use plan and set the framework for the decisions to be made in the John Day Basin Environmental Impact Statement and Resource Management Plan. This direction may come from several sources, including Congress, the President, or the Legislature. Guidance and information on how to

implement these directives and laws are developed by resource management agencies such as the BLM, and the departments that oversee them, such as the Department of the Interior.

The following is a list of the primary legal authorities relevant to the John Day Basin RMP.

1. The Federal Land Policy and Management Act of 1976 (FLPMA), as amended, 43 U.S.C. 1701 *et seq*, provides the authority for BLM land use planning.

2. The National Environmental Policy Act (NEPA), as amended, 42 U.S.C. 4321 et seq., requires the consideration and public availability of information regarding the environmental impacts of major Federal actions significantly affecting the quality of the human environment. This includes the consideration of alternatives and mitigation of impacts.

3. The Clean Air Act, as amended, 42 U.S.C. 7418, requires Federal agencies to comply with all Federal, State and local requirements regarding the control and abatement of air pollution. This includes abiding by the requirements of State Implementation Plans.

4. The Clean Water Act, as amended, 33 U.S.C. 1251, establishes objectives to restore and maintain the chemical, physical, and biological integrity of the Nation's water.

5. The Federal Water Pollution Control Act, 33 U.S.C. 1323, requires the Federal land manager to comply with all Federal, State, and local requirements regarding the control and abatement of water pollution in the same manner and to the same extent as any non-governmental entity.

6. The Safe Drinking Water Act, 42 U.S.C. 201, is designed to make the Nation's waters "drinkable" as well as "swimable." Amendments establish a direct connection between safe drinking water, watershed protection, and management.

7. The Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531 et seq.), as amended, directs BLM to 1) conserve Threatened and Endangered Species and the ecosystems upon which they depend, and 2) not contribute to the need to list a species.

8. The Pacific States Bald Eagle Recovery Plan (USFWS 1986) covers the states of Washington, Oregon, Idaho, Montana, Wyoming, California and Nevada. The Plan established recovery population goals, habitat management goals, and 47 management (recovery) zones. The High Cascades and Blue Mountain Zones (zone 11 and 9 respectively) includes the John Day Resource Management Planning Area. The Pacific States Bald Eagle Recovery Plan described specific criteria for the Pacific Recovery Area (PRA) as necessary for delisting.

9. The Wild and Scenic Rivers Act, as amended, 16 U.S.C. 1271 et seq., requires the Federal land management agencies to identify river systems and then study them for potential designation as wild, scenic, or recreational rivers.

10. The Wilderness Act, as amended, 16 U.S.C. 1131 et seq., authorizes the President to make recommendations to the Congress for Federal lands to be set aside for preservation as wilderness.

11. The Antiquities Act of 1906, 16 U.S.C. 431-433, provides guidance for protecting cultural resources on Federal lands and authorizes the President to designate National Monuments on Federal lands.

12. The National Historic Preservation Act (NHPA) of 1966, as amended, 16 U.S.C. 470, expands protection of historic and archaeological properties to include those of national, State, and local significance and also traditional cultural properties, and directs Federal agencies to consider the effects of proposed actions on properties eligible for or included in the National Register of Historic Places.

13.The Archaeological Resources Protection Act of 1979 (ARPA) 16 USC 470, as amended, defines and provides for the protection of archaeological resources on Federal lands, irrespective of eligibility for the National Register of Historic Places, establishes a permit system for resources over 100 years old, and requires agencies to provide for public education and continuing inventory of Federal lands.

14. Executive Order 11593 of 1971, directs Federal agencies to inventory public lands and to nominate eligible properties to the National Register of Historic Places.

15. Executive Order 13287 of 2003 (Preserve America), directs Federal agencies to provide leadership in preserving America's heritage by actively advancing the protection, enhancement, and contemporary use of historic properties managed by the Federal Government, and by promoting intergovernmental cooperation and partnerships for the preservation and use of historic properties, and establishing agency accountability for inventory and stewardship.

16. Native American Graves Protection and Repatriation Act of 1990, 25 U.S.C. 3001, establishes rights to Indian tribes and Native Hawaiians to claim ownership and repatriate human remains, and also funerary, sacred, and other objects, controlled by federal agencies and museums. Agency discoveries of such "cultural items" during land use activities require consultation with appropriate tribes to determine ownership and disposition.

17. The Treaty with the Tribes of Middle Oregon signed June 25, 1855, ratified March 8, 1859 (14 STAT. 751), reserved rights for the Confederated Tribes of Warm Springs to fish, off-reservation, at usual and accustomed stations and to hunt, gather resources, and pasture animals on public lands in common with other citizens of the United States.

17b. The Treaty with the Walla Walla, Cayuse, Etc., signed June 9, 1855, ratified March 8, 1859 (12 STAT. 945), reserved rights for the Confederated Tribes of the Umatilla Indian Reservation to fish, off-reservation, at usual and accustomed stations and to hunt, gather resources, and pasture animals on public lands in common with other citizens of the United States.

18. The American Indian Religious Freedom Act of 1978, 42 U.S.C. 1996, establishes a national policy to protect and preserve the right of American Indians to exercise traditional Indian religious beliefs or practices including but not limited to access to religious sites. Agencies are to avoid unnecessary interference with traditional tribal spiritual practices. Also, compliance requires consultation with tribes when land uses might conflict with Indian religious beliefs or practices.

19. The Recreation and Public Purposes Act, as amended, 43 U.S.C. 869 et seq., authorizes the Secretary of the Interior to lease or convey BLM managed lands for recreational and public purposes under specified conditions.

20. The Onshore Oil and Gas Leasing Reform Act, 30 U.S.C. 181 et seq., provides:
a. Potential oil and gas resources be adequately addressed in planning documents;
b. The social, economic, and environmental consequences of exploration and development of oil and gas resources be determined; and
c. Any stipulations to be applied to oil and gas leases be clearly identified.

21. The General Mining Law, as amended, 30 U.S.C. 21 et seq., allows the location, use, and patenting of mining claims on sites on public domain lands of the United States. Amendments established a policy of fostering development of economically stable mining and minerals industries, their orderly and economic development, and studying methods for disposal of waste and reclamation.

22. The Taylor Grazing Act, 43 U.S.C. 315, authorizes the Secretary of the Interior to establish or add to grazing districts in vacant unappropriated and unreserved lands from any part of the public domain which are chiefly valuable for grazing and raising forage crops.

23. The Public Rangelands Improvement Act, 43 U.S.C. 1901, provides that the public rangelands be managed so that they become as productive as feasible in accordance with management objectives and the land use planning process established pursuant to 43 U.S.C. 1712.

24. Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations), (49 FR 7629), requires that each Federal agency consider the impacts of its programs on minority populations and low income populations.

25. Executive Order 13007 of 1996 (Indian Sacred Sites), (61FR104), explicitly does not create any new right for Indian tribes, but does requires Federal agencies to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions to:
a. Accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners;
b. Avoid adversely affecting the physical integrity of such sacred sites; and
c. Maintain the confidentiality of sacred sites.

26. Executive Order 13175 of 2000 (consultation and Coordination with Indian Tribal Governments) provides, in part, that each Federal agency shall establish regular and meaningful consultation and collaboration with Indian tribal governments in the development of regulatory practices on Federal matters that significantly or uniquely affect their communities.

27. Executive Order 13112 (Invasive Species) provides that no Federal agency shall authorize, fund or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk or harm will be taken in conjunction with the actions.

28. Secretarial Order 3206 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act) requires DOI agencies to consult with Indian Tribes when agency actions to protect a listed species, as a result of compliance with ESA, affect or may affect Indian lands, tribal trust resources, or the exercise of American Indian tribal rights.

29. The Federal Cave Resources Protection Act of 1988, 16 USC 4301, requires federal agencies to identify, protect and maintain significant caves. The locations of such caves may be kept confidential. Protection is afforded not only to the geologic structure, but also the associated decorations, inhabitants, artifacts, and water resources.

30. Resource Conservation and Recovery Act (RCRA, Pub. L. 94-580), as amended. In 1976 RCRA established a system for managing non-hazardous and hazardous solid

wastes in an environmentally sound manner. Specifically, it provides for the management of hazardous wastes from the point of origin to the point of final disposal (i.e., "cradle to grave"). RCRA also promotes resource recovery and waste minimization.

31. Executive Order 13212. "It is the policy of this Administration that executive departments and agencies (agencies) shall take appropriate actions, to the extent consistent with applicable law, to expedite projects that will increase the production, transmission, or conservation of energy."

32. Wild Horse and Burro Act of 1971, as amended, gave responsibility for the management and protection of these animals to the U.S. Department of the Interior to be administered by the BLM and to the Department of Agriculture to be administered by the Forest Service.

33. Executive Order 11644 (37 FR 2877), on February 8, 1972, provided that OHV use will be controlled and managed to protect resource values, promote public safety and minimize conflicts with uses of public lands. This executive order directed federal agencies to designate specific areas and trails on public lands where OHV use may be permitted and areas where OHV use may not be permitted.

34. On May 24, 1977, President Carter amended this order with Executive Order 11989. This executive order further defined OHV, administrative use exemptions, and directed agencies to immediately close areas and trails whenever the agency determines that the use of OHV will cause or is causing considerable adverse effects on the soil, wildlife, and wildlife habitat, cultural or historic resources (42 USC 4321).

35. The Bureau of Land Management's National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands (2001) provides agency guidance and offers recommendations for future actions to improve motorized vehicle management.

36. The Bureau of Land Management, "National Sage-Grouse Habitat Conservation Strategy" (2004) sets broad goals and specific actions to meet the goals for protecting sage grouse and sage grouse habitat.

37. The Carlson-Foley Act (PL 90-583 codified in 43 USC 1241) establishes legal guidance and responsibility for the management of weeds on federal lands. This law authorizes federal agencies to allow states to take weed control measures on federal lands.

38. Oregon Land Exchange Act of 2000, as described in Chapter 1, requires that "lands acquired…within the North Fork of the John Day subwatershed be managed primarily for the protection of native fish and wildlife habitat, and for public recreation but that other authorized uses may be allowed if, through a land use planning process, it is determined that such uses are consistent with, and do not diminish the primary management purposes."

39. BLM planning regulations (43 CFR 1610.4-3 and 1610.4-6) require that resource management plans consider social, economic, and institutional information.

41. Federal Wildland Fire Management Policy 2001

42. The 1995 Interim Strategies for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California (USDA-FS & USDI-BLM 1995), commonly referred to as PACFISH, provides guidance for managing and monitoring grazing lands adjacent to streams where anadromous fish are present or potentially present.

Chapter 3
Resource Area Profile

Bend, fold, spindle, and/or mutilate!

A Journey Through Time is the name of a scenic motor route through the heart of the John Day basin. It is a neck wrenching drive because one's vision is constantly redirected from (in the spring at least) the greenish gray water of the river past brilliant green fields to pastel colored slopes covered by grass or brush or barren clays to layer upon layer of red to chocolate covered basalt. Once, approaching Picture Gorge my passenger became nervous because, as I was driving, I was counting obvious layers of rock the river had spindled through—11, 12, no 14 then I was certain that I had noted 17 layers. Besides making my passenger nervous there was a logical reason for doing this. Time! How much time was taken to create each layer? These were created as rapidly as it took for lava to spread across the landscape. Bracketing these thick rapidly created layers are sedimentary layers created over many millennia by dead things such as leaves, sticks, palm trees, and the remains of creatures ranging from microscopic sea creatures to extremely large prehistoric rhinoceros. Caps of volcanic ash spewed by ancient volcanoes separated these layers and, not inconsequently, frequently preserved the remains of plants and animals that no longer exist.

Today's landscape is the result of a contest between the landbuilding processes and degradation process. Land building includes the introduction of flow after flow of lava, the deposition of dead plants and animals and other sediments, the drifted ash from violent volcanic eruptions, and the physical forces that have bent, folded, and mutilated the layers created by the other processes. These physical forces are caused by the shifting of huge plates of rock deep below the surface of the earth, usually at rates much slower than we can perceive. The occasional earthquake is evidence of brief periods of rapid movement as these plates slip across each other. The bending, folding and mutilating of the strata created by the other landbuilding processes do crazy things to the sensible layering process.

The National Park Service staff at the Thomas Condon Paleontology Center has published a diagram of the sedimentary and igneous (mostly basalt but also ash) layers. Some of the craziness includes: These strata are over three miles thick but uppermost layer is "only" 3,000 feet above the "Goose Rock" stratum (lowest layer in this area) visible just a few miles downstream from Picture Gorge. Sheep Rock, about 1,100 feet above the John Day River is capped by a few layers of basalt but one mile south in Picture Gorge basalt flows are layered from the level of the river to about 800 feet above the river and the bottom layers near the river correspond to the "cap layer" on Sheep Rock." Shifts deep below the surface have tilted, bent and folded these layers and as a result our view of the strata, made visible by the erosion of the layers by the John Day River is distorted. The tilting of the strata explains why the three miles of thickness results in only 3,000 feet of elevation gain—the thickness of a layer is actually better measured in many places by measuring the actual distance between the beginning and end of a layer rather than the vertical thickness. So if one measures from Goose rock to the top layer on the crest to the immediate east you get a little over 3 miles.

Layers visible near the National Monument do not necessarily exist throughout the planning area. What is important to remember is the general process. What is common throughout the planning area is a process that involves building up through a combination of volcanism and sedimentation; bending, folding and tilting resulting from the movement of underlying plates; and the process of erosion initiated by water moving gently at first and then rushing down rivers and streams within the planning area.

As a result of this process the landform of the planning area has developed and continues to change. The variations in landform provide conditions for the development of varying combinations of plants and animals. On the broadest scale these areas have been referred to as Ecoregions. The planning area falls within two broadscale ecoregions, the Columbia Plateau and the Blue Mountains. These ecoregions are further broken into subecoregions that reflect variations in elevation and other topographic variables.

The following pages describe in more detail the geologic history and the characteristics of ecoregions and subecoregions within the planning area. This information provides the foundation for understanding the plant and animal communities within the planning area, why people live, work and play here, and how the natural resources are affected and used by residents and visitors.

Introduction

At first sight, the John Day Basin does not seem to change much. The river, green fields, pastel hills, brown rimrock and gentle mountains alter so slowly they don't seem to change at all. This illusion dispels us when the earth suddenly moves beneath us in an earthquake, a landslide covers the road, or the river rapidly covers the valley in a flood. Other processes are hidden deep in the earth; slowly forming rocks by the inch. These changes are the heart of the John Day Basin landscape.

But the weather changes the landscape, too. Rains soak it in the fall, snow blankets it in the winter, and intense thunderstorms chew it up in the summer.

Context

In January 2003 the Regional Executives for the USDA Forest Service, Forest Service Research, USDI Bureau of Land Management, US Fish and Wildlife Service, the National Marine Fisheries Service and the Environmental Protection Agency signed a Memorandum of Understanding to cooperatively implement The Interior Columbia Basin Strategy and to utilize the scientific findings of the ICBEMP Science, and new information and best available science as they are developed. The agencies developed an Aquatic/Riparian Habitat Framework (July 2004) to clarify the Interior Columbia Basin Strategy relative to the aquatic and riparian habitat components. This science will be used to guide the amendment and revision of this plan, and project implementation. This will help to meet community needs for goods and services in an ecologically sustainable way.

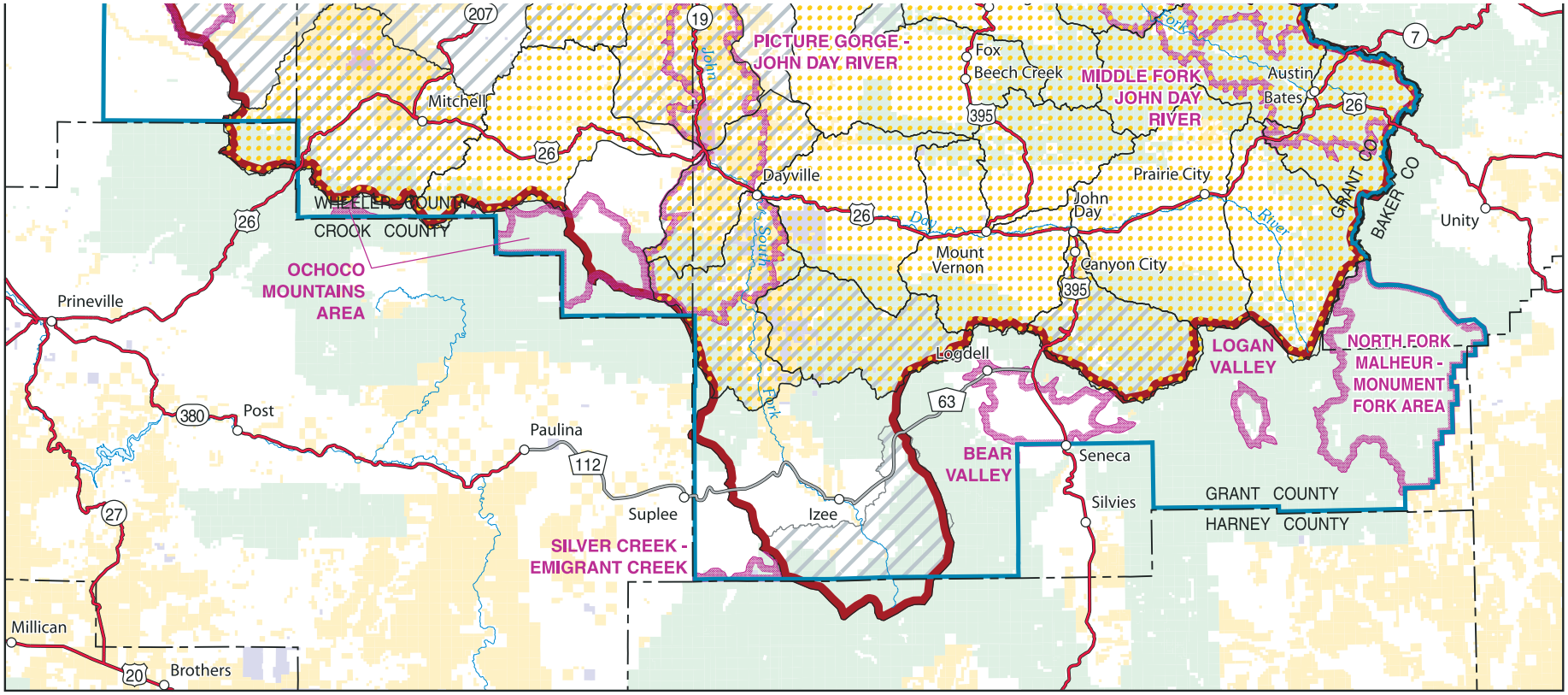
The Aquatic/Riparian Habitat Framework includes the following six components: Riparian Conservation Areas (or appropriate direction accomplishing the same end, Protection of Population Strongholds for Listed or Proposed Species and Narrow Endemics, Multiscale Analysis, Restoration Priorities and Guidance, Management Direction (Desired conditions, objectives, management actions), and Monitoring/Adaptive Management.

The Prineville District BLM has completed the Multiscale Analysis component by conducting a Subbasin assessment and prioritizing watersheds for restoration. This prioritization is presented in Map 3. This map also displays Subbasin ratings and opportunities based on assessments by other agencies.

Ecoregions

Combinations of landscape and climate create different Ecoregions. The John Day Planning Area falls within the Blue Mountains and the Columbia Plateau Ecoregions. To better understand the planning area we will look at these two Ecoregions, as well as "Subecoregions" or Level 4 Ecoregions. . See Map 2 and following Table 1.

OREGON
PACIFIC OCEAN
Astoria
Portland
Tillamook
Newport
Salem
Albany
Florence
Eugene
Coos Bay
Roseburg
Grants Pass
Medford
Klamath Falls
Lakeview
The Dalles
Madras
Bend
Prineville
Pendleton
Baker City
John Day
Vale
Burns
John Day Basin Planning Area
Prineville District
N
W
E
S
10 0 10 20 Miles
10 0 10 20 Kilometers
WASHINGTON
OREGON
Columbia River
Maryhill
Biggs
Rufus
Wasco
Moro
Grass Valley
Deschutes River
John Day River
Kent
Shaniko
Antelope
Clarno
Condon
Mayville
Fossil
Olex
Arlington
Boardman
Heppner Junction
BOARDMAN AREA
Cecil
Morgan
Ione
Lexington
Heppner
Ruggs
Hardman
La Grande
Ukiah
Dale
Monument
Hamilton
Long Creek
Sumpter
Kimberly
Richmond
Service Creek
Spray
SHERMAN COUNTY
GILLIAM COUNTY
LOWER JOHN DAY RIVER
LOWER JOHN DAY RIVER AREA
NORTH FORK JOHN DAY RIVER
MORROW COUNTY
GRANT COUNTY
WASCO COUNTY
JEFFERSON COUNTY
UMATILLA CO
UNION CO
North Fork John Day River
Middle Fork John Day River
North Fork John Day River



LEGEND

Interior Columbia Basin Ecological Management Plan

- Low Ecological Integrity

Prineville District BLM Subbasin Assessment for Priority Restoration

- Bonneville Power Administration Subbasin Assessment for Priority Restoration
- Prineville District BLM Subbasin Assessment for Priority Restoration
- Oregon Department of Fish and Wildlife Conservation Opportunity Areas

- Planning Area Boundary

Administered Land

- Bureau of Land Management
- Forest Service
- John Day Fossil Beds National Monument
- Other Federal
- State
- Private or Other

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

PRINEVILLE DISTRICT

John Day Basin Resource Management Plan

2006

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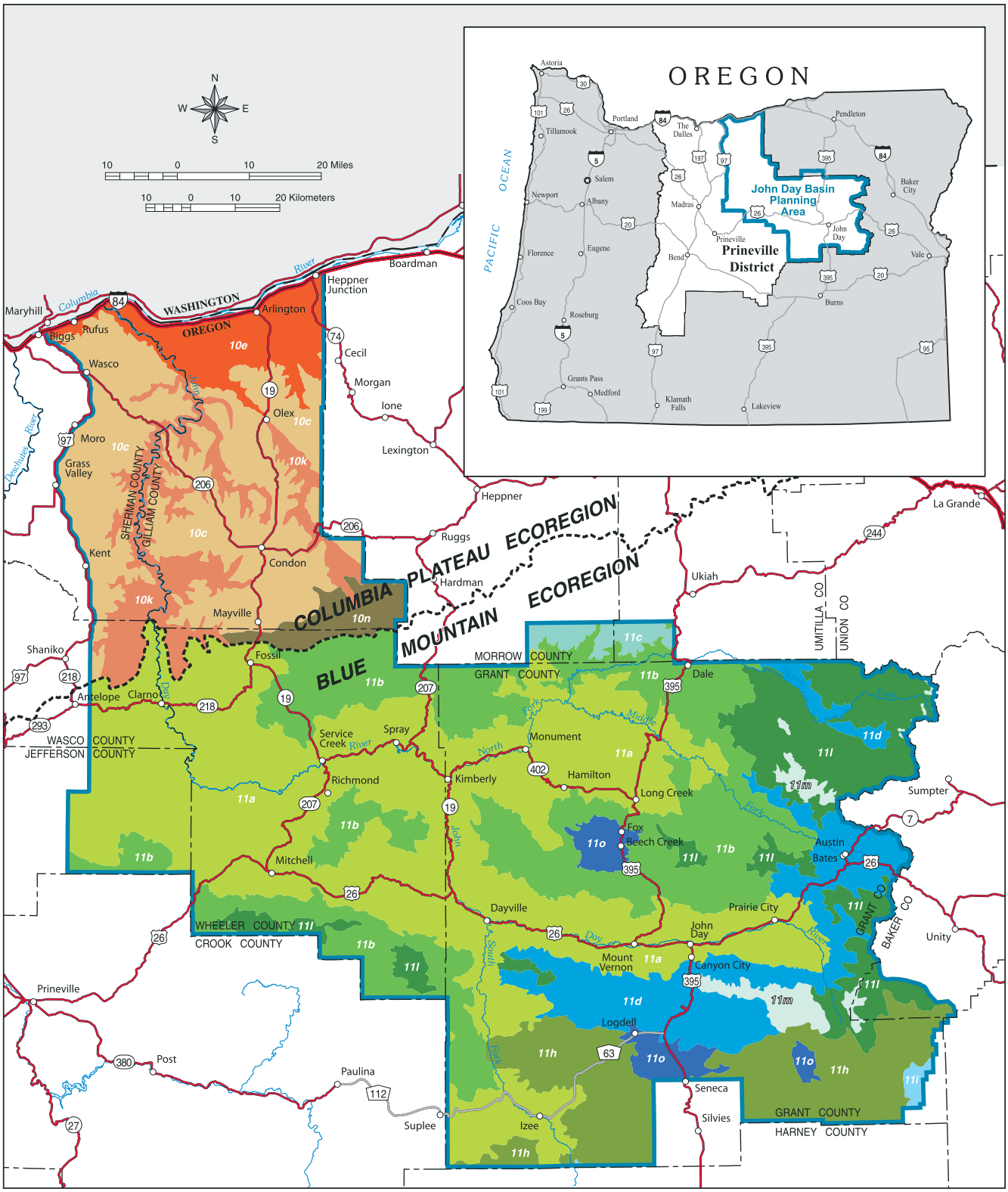
Map 3 : Subbasin Assessment Ratings



LEGEND

- Planning Area Boundary
- Oregon Level Three Ecoregions

Columbia Plateau Ecoregion

- 10c - Umatilla Plateau
- 10e - Pleistocene Lake Basins
- 10k - Deschutes / John Day Canyons
- 10n - Umatilla Dissected Uplands

Blue Mountains Ecoregion

- 11a - John Day / Clarno Uplands
- 11b - John Day / Clarno Highlands
- 11c - Maritime-Influenced Zone
- 11d - Melange
- 11h - Continental Zone Highlands
- 11i - Continental Zone Footlands
- 11l - Mesic Forest Zone
- 11m - Subalpine - Alpine Zone
- 11o - Cold Basins

Map 4: Environmental Protection Agency Ecoregions

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PRINEVILLE DISTRICT
John Day Basin
Resource Management Plan

2006

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Table 1: Ecoregion Acres		
Ecoregion	**Subecoregion**	**BLM Plan Area Acres**
Columbia Plateau	Pleistocene Lake Basins	12,603
	John Day Canyons	79,319
	Umatilla Plateau	10,351
	Umatilla Dissected Uplands	885
Blue Mountains	John Day/Clarno Uplands	275,983
	John Day/ Clarno Highlands	56,440
	Maritime-Influenced Zone	2,503
	Cold Basins	40
	Melange	8,559
	Subalpine-Alpine Zone	45
	Mesic Forest Zone	561
	Continental Zone Highlands	8,678
	Continental Zone Foothills	184
Plan Area	**TOTAL**	**456,151**

Columbia Plateau Ecoregion

The Columbia Plateau Ecoregion, which covers about 32,100 square miles, occurs in portions of Idaho, Oregon, and Washington. About 20 percent of the planning area (6630 square miles) is within this Ecoregion. The Oregon portion of the Ecoregion extends from the eastern slopes of the Cascades Mountains, south and east from the Columbia River to the Blue Mountains. The centerpiece of the Ecoregion, the Columbia River, has greatly influenced the surrounding area, with cataclysmic floods and large deposits of wind-borne silt and sand. Over time, winds scoured the floodplain, depositing silt and sand across the landscape and creating ideal conditions for agriculture: rolling lands, deep soil, and plentiful flowing rivers including the lower stretch of the John Day River. The Ecoregion is made up entirely of lowlands, with an arid climate, cool winters and hot summers.

The Columbia Plateau produces the vast majority of Oregon's grain, and grain production is the heart of the agricultural economy. The Columbia Plateau produces the second-highest agricultural sales per year for any ecoregion in Oregon. More than 80 percent of the Ecoregion's population and employment is located in the Umatilla County portion of the Ecoregion, which includes Pendleton and Hermiston. Other population centers include The Dalles, Condon, and Heppner. Almost all of the Columbia Plateau Ecoregion is privately owned.

The foundation of the Columbia Plateau Ecoregion is its geology. Beginning 17 million years ago, massive eruptions of basalt flowed out of cracks or "vents" in the earth. These vents were located in northeastern Oregon, central western Idaho and southeastern Washington and produced lava flows over a period of 11 million years. This layering of basalt flows formed the Columbia River Basalt Group (CRBG) (Orr et al., 1992). Erupting from large fissures measuring 10 to 25 miles in length, the molten basalt filled basins in southeastern Washington and northeastern Oregon (Orr et al., 1992). The average volume of each flow was more than 100 cubic miles of basalt with some single flows exceeding 500 cubic miles. In total, approximately 42,000 cubic miles of basalt flowed over an area almost the size of the state of Washington, ranking the CRBG as the second largest flood basalt group in the world (Bishop, 2003; Orr et al., 1992). Southward, the CRBG continues to thin and tapers out in the Blue Mountains. Individual flows can be up to 200 feet thick, but vary substantially.

The flood basalt flows of the CRBG had dramatic effects on the Columbia River. Prior to eruption of the basalt flows, the ancestral Columbia River was situated far south of its present location. Gorge-filling basalt flows periodically plugged and disrupted the flow of the Columbia River, eventually forcing it northward to its modern day location.

Subecoregions of the Columbia Plateau

Within the Planning Area the Columbia Plateau contains 4 Subecoregions: the Pleistocene Lake Basin, Umatilla Plateau, Deschutes/John Day Canyons, and Umatilla Dissected Uplands.

The **Pleistocene Lake Basin** is a nearly level to undulating lake plain with very little surface water runoff. Surface geology consists of ancient lake and flood deposits associated with ice plugged lakes from 2 million years ago. These glacial lakes backed up water then suddenly released catastrophic flood waters that permanently scarred the landscape on its' way to the ocean. Lake Condon in the northeastern portion of the plan area is one of these ancient glacial lakes. Major vegetation is sagebrush steppe includes needleandthread grass, Indian ricegrass, bluebunch wheatgrass, Sandberg bluegrass, and basin big sagebrush. Alien cheatgrass covers broad areas. The sagebrush steppe is used primarily for irrigated cropland; some rangeland; and irrigated poplar tree farms for pulp. Crops include winter wheat, potatoes, alfalfa, and silage corn.

Elevations range from 300 to 1200 ft. There is very little relief to the landscape; only 10-200ft. The climate is very dry. The Pleistocene Lake Basins generally receive the most precipitation from November through February. These winter storms bring rain to lower elevations and snow to higher ridges and peaks. Mean annual precipitation ranges from 7 to 10 inches. Mean annual frost free days range from 140 to 200.

The **Umatilla Plateau** is a nearly level to rolling, loess-mantled plateau. Glacial features such as patterned-ground are common. Most streams are ephemeral. Surface geology was created by the Wapanum and Grande Rhonde flows of the Columbia River Basalts. The basalt occasionally displays erosion or deposition from glacial activity. Vegetative cover of the Umatilla Plateau is primarily bluebunch wheatgrass with scattered sagebrush steppe, Sandberg bluegrass, and Idaho fescue. Stiff sagebrush occupies very shallow soils sites. Introduced cheatgrass covers broad areas of this Subecoregion. Agriculture consists of mostly cropland and some grassland. Non-irrigated winter wheat is grown using the crop–fallow rotation method. Irrigated land grows winter wheat, alfalfa, and barley

Elevations range from 1000 to 3200 feet. Occasionally, valleys cut down several hundred feet from the plateau. The nearly level to rolling relief varies between 200 and 600 feel. Mean annual precipitation ranges from 9 to 15 inches. Most streams are ephemeral. The mean annual frost free days vary from 100 to 170.

The **Deschutes/John Day Canyons** are very steep to precipitous canyonlands containing the Deschutes and John Day rivers. Surface geology is the same as the Umatilla Plateau but the rivers have exposed the depth of these layers. The land is sparsely covered by grasses and shrubs. Land is used for livestock grazing and wildlife habitat. Soils contain a significant amount of fragmented rock. Vegetation across this sagebrush steppe includes bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, Wyoming big sagebrush, and cheatgrass. White alder, mockorange, western clematis, and choke cherry run along narrow canyon riparian areas.

Elevations range from 200 to 3600 feet, with deep valleys cutting down 1000 to 2000 feet. Mean annual precipitation ranges from 9 to 14 inches. The mean annual frost free days vary from 100 to 190.

The **Umatilla Dissected Uplands** are dissected, hilly uplands with a terrace-like appearance. Slopes are rolling to very steep. Surface geology consists of Grand Rhonde Basalts with canyons cutting down through the older John Day and Clarno Formations. These uplands are mostly used as rangeland and wildlife habitat. In higher elevations, north-facing slopes are forested. Vegetation is primarily wheatgrass–bluegrass/ Idaho fescue, bluebunch wheatgrass, and Sandberg bluegrass. Forested, higher elevation, north-facing slopes contain Douglas-fir, ponderosa pine, snowberry, pinegrass, and ninebark.

Elevations range from 1600 to 4400 ft. Hills rise and fall 500 to 1500 ft. Mean annual precipitation ranges from 9 to 14 inches. Mean annual from free days vary from 100- 160.

Blue Mountains Ecoregion

At 27,380 square miles, the Blue Mountains Ecoregion is the largest in Oregon, accounting for about 80 percent of the planning area (6630 square miles). Named for its largest mountain range, the Blue Mountains, this Ecoregion is a diverse complex of mountain ranges, valleys and plateaus containing deep rocky-walled canyons, glacially cut gorges, sagebrush steppe, juniper woodlands, mountain lakes, forests, and meadows. Broad river valleys support ranches surrounded and the surrounding irrigated hay meadows and wheat fields. Elevation influences a varied climate that ranges in temperature and precipitation. Overall, the Ecoregion has short, dry summers and long, cold winters. Much of the precipitation falls as snow and snow melt gives life to the rivers and irrigated fields.

Timber products and cattle production are the economic mainstays of the Ecoregion, but dryland wheat and alfalfa are important in the river valleys. The Ecoregion supports some of the finest big game hunting in Oregon and attracts tourists year-round to the scenic lakes and rivers, geologic features, and alpine areas that characterize the area. The cities of Mitchell, Dayville, Monument and John Day benefit from this thriving tourist industry.

While the Blue Mountain Ecoregion contains some of the largest intact native grasslands in Oregon and several conservation areas, fire suppression, selective timber harvest, and unsustainable grazing management have impacted habitat for wildlife. These changes have resulted in changes in vegetation which has increased vulnerability of forests to insects, disease, and effects of severe wildfire. The result has become a new compliment of invasive species that gain a foothold after sagebrush steppe fires move through the area. .

The foundation of the Blue Mountains Ecoregion is its geology. Approximately 200 million years ago, seas covered the entire state of Oregon. The Pacific Coast shoreline was in Idaho and eastern Washington (Orr et al., 1992). The Blue Mountains were a series of volcanic island chains (similar to present day Hawaii) off the Mainland Coast. These islands were perched on top a slab or plate of oceanic crust in the Pacific Ocean. (See Figure 1)

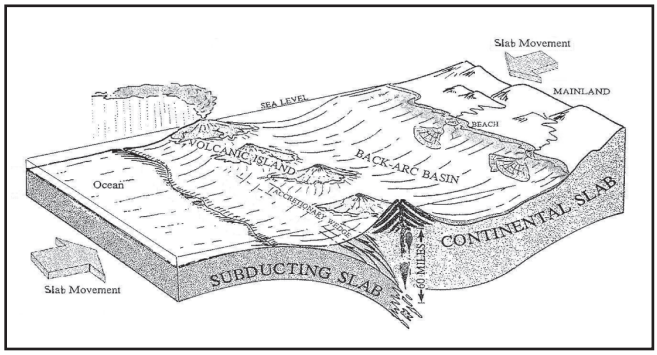


Figure 1: Underlying Geology

Drawing modified from William and Elizabeth Orr, published with permission of the authors.

As the slabs moved toward each other, the Oceanic slab sunk beneath the North American Continental Slab. The Oceanic slab scrapped off the Volcanic Islands onto the Mainland before diving down or “subducting”under the mainland. Across 400 million years, many chains of volcanic islands sprouted and were scrapped or “accreted” onto the North American Continent. Oceanic sediment and ash from the volcanoes were sandwiched onto the mainland in between the volcanic islands. These series of collisions created new landmasses called “terranes.” This succession of terranes displaced the coast to its current location.

Three terranes are recognized in the John Day planning area: Baker, Grindstone, and Izee. Each terrane contains unique groups of rocks and fossils. The Grindstone terrane contains some of the oldest rocks in Oregon. Limestone and other layered rocks from about 380 million years old. The Baker terrane is composed of heated and folded rocks from the oceanic crust. Table 2 displays the major rock types and ages of all three terranes.

Between 120 and 160 million years ago, these terranes were intruded by magmas that later cooled to form masses of granodiorite and gabbro (Orr et al., 1992). Along with the magma came hot fluids that mineralized the surrounding rocks with gold-bearing veins (Brooks and Ramp, 1968; Bishop, 2003).

Figure 2:
Clarno Formation

Table 2: Accreted terranes in the planning area with rock types and age

Terrane	Major Rock Types	Age
Grindstone	limestone, mudstone, siltstone, sandstone, chert, argillite	about 380 – 235 million years agp
Izee	volcanic and volcaniclasitc sedimenatary rocks	about 220 – 175 million years
Baker	Peridotite, gabbro, basalt, shale, argillite, chromite, and dioroite	about 285 – 175 million years

The oldest rocks that formed on the local surface of the Blue Mountain Ecoregion are of the *Clarno Formation*.(see Figure 2) Placement of these rocks began approximately 50 million years ago during the birth of a the Clarno volcanoes in eastern Oregon (Bishop, 2003). The Cascade Mountains were not present at that time and the Pacific Ocean shoreline was east of the modern day location of the Cascades (Orr, et al., 1992). Moist air from the Pacific Ocean created a wet tropical climate and supported lush woodlands and open grasslands. The Clarno volcanoes erupted large quantities of ash, rhyolite, and andesite. Thick, loose ash was deposited on steep volcano slopes. The ash frequently mixed with water to form large mudflows. These flows moved like molasses over the landscape, entombing both plants and animals, and preserving them as fossils. Plant fossils found in these deposits include petrified wood, leaves, nuts, fruits, and seeds of tropical hardwoods (Retallack et al., 1996). Fossilized remains of prehistoric horses and other mammals are also found in the Clarno Formation.

About 33 million years ago, the climate shifted from tropical to temperate, Clarno volcanism ceased and a short period of erosion ensued (Bishop, 2003). Then, a new episode of volcanic activity commenced, producing the rocks and ash beds of the *John Day formation* (See Figure 3). The volcanoes of the John Day produced explosive ash eruptions and flows that blanketed much of the region. Dense clouds of hot ash swept across the landscape and fused into “tuffs”. Basalt, andesite, and rhyolite lavas also flowed from these volcanoes. Rapidly deposited ash and mud from volcanic activity provided ideal conditions for fossilization of the plants and animals living in the region at the time. Preserved leaves from dawn redwood (metasequoia) and alder are common in these deposits (Retallack et al., 1996). Animal fossils include various prehistoric cats, dogs, horses, camels, rodents, and rhinoceroses.

Approximately 16 million years ago, massive flows of basalt erupted from large cracks holes near Monument and Kimberly. The lava flowed out at speeds up to 30 miles per hour. Layer upon layer of columnar basalt form the Picture Gorge Basalts (Orr et al., 1992). Between the basalt layers are thin bands of silt and limestone, telling us that there was often a lull between successive volcanic flows. The Picture Gorge Basalts cap the John Day and Clarno Formations.

Figure 3: John Day Formation

Figure 4: Picture Gorge Basalts on top of Clarno Formation US Park

Service Photo from 1925

Subecoregions of the Blue Mountains

The Blue Mountains includes nine Subecoregions in the planning area, including: JohnDay/Clarno Uplands, JohnDay/Clarno Highlands, Maritime Influenced Zone, Melange, Continental Zone Highlands, Continental Zone Foothills, Mesic Forest Zone, Subalpine Zone, and Cold Basins.

The **JohnDay/Clarno Uplands** are moderately to highly dissected hills and low mountains. Hills are rolling to steep and mountain slopes are steeply sloping. Scattered buttes occur, throughout the hills and mountains. Major valleys are formed by the John Day River. Surface geology consists of volcanic ash, alluvium, and piedmont gravels from the Clarno and John Day formations. Basalt, tuff, andesite, rhyolite, and breccia from Picture Gorge Basalt and other isolated volcanic activity are also part of the surface geology. Dominant vegetation associations include wheatgrass–bluegrass and juniper steppe woodland. The vegetation includes Bluebunch wheatgrass, Idaho fescue, basin wildrye, Wyoming big sagebrush, and Thurber needlegrass. Western juniper woodland transitions into higher elevation ponderosa pine forest. Riparian areas express white alder, mockorange, chokecherry, clematis, willows, black cottonwood, and water birch.

Elevations range from 1600 to 4400 feet and relief varies from 400 to 2500 feet. Mean annual precipitation ranges from 10 to 16 inches. Mean annual frost free days vary from 70 to 150.

The climate of the John Day/Clarno Uplands has a noteworthy history of intense thunderstorms. Occasional thunderstorms produce intense precipitation that localized flooding (“flash floods”) occurs.

Dr. John Merriam, a University of California paleontologist, experienced just such a flood during a fossil hunt in 1900. On June 23, Merriam and a companion were digging near Bridge Creek, 6 miles downstream from Mitchell in central Oregon. They were working in the shade of a low cliff under a partly cloudy sky. Suddenly,

> *...there began to fall what might best be called balls of water. Thinking the shower would soon pass, we kept at work, but heavy clouds swung across the sky. During the next hour, as we made our way out of the area, we were exposed to one of the hardest rain storms I have ever seen.*

That storm devastated a large area in Wheeler County. Crops were destroyed, mud- and rockslides were common, and farm buildings were destroyed. Eyewitnesses reported hailstones up to 6 inches in diameter. Fortunately, no lives were lost. Not far away from the site of that storm, in a secluded graveyard, are buried Nancy Wilson and three of her children. They died on June 2, 1884, when an intense thunderstorm sent a “wild torrent of muddy boulder-laden water over the flatlands of what is now Painted Hills State Park.”

The same area was also the scene of one of the largest flash floods in the United States. On July 13, 1956, intense thunderstorms and heavy rain occurred near Mitchell between 5 and 6 in the evening. During the event Bridge Creek rose from its depth of 1 foot to a torrent, that destroyed upwards of 20 buildings including houses, businesses, a garage, and a post office. A highway was blocked by washouts and mud and rock slides. People who had accidentally left open containers out during the 50-minute storm calculated that the rainfall was 3.5 inches in Mitchell and 4 inches in Girds Creek. This was more than 25% of the area’s annual average rainfall!

Intense thunderstorms similar to those in the Mitchell area have been observed near Spray and most recently along the South Fork John Day River. These intense thunderstorms frequently wash across the John Day/Clarno Uplands, taking out roads and creating new river features.

The **John Day/Clarno Highlands** consist of moderately to highly dissected, steeply sloping low mountains and rolling hills. The area includes broad streams fed more by springs than by snow melt. Surface geology is similar to that of the John Day/Clarno Uplands, but also includes colluvium from the eroding Picture Gorge Basalts. Dominant vegetation includes western ponderosa pine forest/ open ponderosa pine, Douglas-fir, and western juniper. Vegetation includes mountain-mahogany, snowberry, mountain big sagebrush, antelope bitterbrush, elk sedge, Idaho fescue, and bluebunch wheatgrass. Riparian areas express grand fir, mountain alder, red-twig dogwood, ninebark, Wood’s rose, Rocky Mountain maple, and various willows. These forest and woodland areas are used for woodland grazing, logging, and recreation.

Elevations range from 3000 to 6200 feet. The mountains and hills rise from 200 to 2000 feet. Mean annual precipitation ranges from 16 to 28 inches. Mean annual frost free days vary from 30 to 100.

The **Maritime-Influenced Zone** consists of gently-sloping to hilly volcanic plateaus and mountain valleys. Springs occur throughout this zone. Most of the surface geology consists of the Grande Rhonde Basalt flow which was part of the Columbia River Basalt Flows. Major vegetation associations include Western ponderosa pine forest, and grand fir–Douglas-fir forest. Most of the forest is composed of ponderosa pine with scattered Douglas-fir and grand fir. Dense forest understory and riparian shrub cover consists of snowberry, spirea, ninebark, serviceberry, and red-twig dogwood. Herbaceous ground cover includes heartleaf arnica, pinegrass, elk sedge, Idaho fescue, Sandberg bluegrass, and bluebunch wheatgrass. This forested landscape is primarily used for logging, grazing, wildlife habitat, and recreation.

Elevations range from 3000 to 6000 feet. The plateaus drop down 150 to 1600 feet to valley bottoms. The climate is moderated by moderate maritime weather and oceanic trends. Mean annual precipitation ranges from 20 to 40 inches. Most of this annual precipitation arrives in the late winter and early spring. Compared to other areas in Oregon, the monthly precipitation values are fairly evenly distributed. Mean annual frost free days range from 40 to 80.

The **Melange** consists of mid-elevation mountains with few perennial streams. The surface geology was created by the sandwiched ocean sediments during accretion events and intrusions of magma through those layers. Stiff flows of the Strawberry volcanics cover portions of this Subecoregion. These events combine to create a surface geology consisting of a mix of colluvium, basalt, andesite, rhyolite, granite, partly metamorphosed limestone, marble, chert, argillite, shale, greywacke, serpentine, greenstone, and schist. Major vegetation associations are western ponderosa pine forest, juniper steppe woodland. Vegetation includes ponderosa pine, Douglas-fir, subalpine fir, lodgepole pine, western larch, grand fir, grouse huckleberry, snowberry, prince's pine, sidebells pyrola, twinflower, pinegrass, elk sedge, and heartleaf arnica. Riparian areas are vegetated with mountain alder, red-twig dogwood, prickly currant, black currant, Columbia monk's hood, and bluebells. This forested landscape is used for woodland grazing, wildlife habitat, and mining. Only limited logging occurs due to the difficulty in reforesting the droughty, exposed soils. Historic placer mining for gold has altered the structure of many streams.

Elevations range from 3500 to 7400 ft. The local relief varies from 600 to 3400 ft. Mean annual precipitation ranges from 16 to 35 inches. Mean annual frost free days range from 30 to 90.

The **Continental Zone Highland** consists of moderately dissected, mountainous volcanic plateaus. Mountain slopes are steep and scattered with cinder cones. Surface geology consists of colluvium and volcanic ash from the Strawberry Volcanics. Major vegetation associations are western ponderosa pine forest, grand fir–Douglas-fir forest, and sagebrush steppe/ Ponderosa pine. Vegetation includes Douglas-fir, grand fir, juniper, antelope bitterbrush, snowberry, mountain-mahogany, mountain big sagebrush, stiff sagebrush, elk sedge, pinegrass, bluebunch wheatgrass, and Idaho fescue. This forested area has a xeric shrub or bunchgrass understory. These highlands are used for livestock grazing, logging, and recreation.

Elevations range from 4000 to 6700 feet. Local relief varies from 400 to 2000 feet. Mean annual precipitation ranges from 16 to 30 inches. Mean annual frost free days vary from 50 to 80.

The **Continental Zone Foothills** consist of hills and scattered buttes. A few perennial streams occur and originate in the surrounding mountain ranges. Much of the surface geology is basalt and ashflows from the Strawberry volcanics. Some of the Jurassic and Triassic graywacke, siltstone, and limestone are present across the foothills. Triassic layers consist of gabbro and metamorphic rock. Vegetation associations include sagebrush steppe/ Bluebunch wheatgrass, mountain big sagebrush, Idaho fescue, Wyoming big sagebrush, Sandberg bluegrass, and, on schist, Nevada greasebush. The shrub- and grass-covered land is utilized for livestock grazing and wildlife habitat

Elevations range from 1800 to 6000 feet. Local relief varies from 200 to 2500 feet. Mean annual precipitation ranges from 9 to 18 inches. Mean annual frost free days vary from 50 to 140.

The **Mesic Forest Zone** is a dissected, volcanic plateau with some mid-elevation mountains. Intermittent headwater streams or perennial streams that are fed by snow melt from adjacent mountains. Surface geology and bedrock includes basalt flows, volcanic ash and colluvium, associated with Picture Gorge Basalts. The Mesic Forest Zone geology also includes some older areas of granite, sedimentary rock, volcanic and partly metamorphosed sedimentary and volcanic rocks. Major Vegetation associations include grand fir–Douglas-fir forest. Cold slopes contain Sub alpine fir, Engelmann spruce, mountain hemlock, lodgepole pine, big huckleberry, grouse huckleberry, Utah

honeysuckle, side bells pyrola, round leaved violet, and northwestern sedge. Cool moist slopes exhibit grand fir, western larch, queen's cup beadlily, and prince's pine. The vegetation on drier slopes includes Douglas-fir, ponderosa pine, mountain maple, ninebark, pinegrass, elk sedge, and bigleaf sandwort. This forested landscape is used for logging, woodland livestock grazing, wildlife habitat, and recreation.

Elevations range from 4000 to 7000 feet. Local relief varies from 400 to 2500 feet. These areas are influenced by marine air coming through the Columbia River Gorge to the west. Mean annual precipitation ranges from 30 to 60 inches. This comes mostly in the form of snow and persists into late spring. Mean annual frost free days vary from 15 to 70.

The **Subalpine-Alpine Zone** includes high elevation, glaciated mountains with arêtes, cirques, mountain slopes, tarns, permanent snowfields, and a remnant glacier. The high gradient streams have boulder and cobble substrates. Surface geology includes volcanic ash and colluvial deposits from the Strawberry Volcanics and Picture Gorge Basalts. Intrusive formations of basalt and andesite are the result of magma pushing up through layers of older rocks that changed the rocks as they cooled. The area is dotted with rock. Surface geology includes remnant glacial deposits associated with glaciers from glacial Lake Missoula, e.g., about 2 million years ago. The dominant vegetation associations are western spruce–fir forest and alpine meadows–barren. Common species include subalpine fir, whitebark pine, Engelmann spruce, and lodgepole pine. Dry south-facing slopes have mountain big sagebrush and Idaho fescue. Wet meadows contain heather and Parry's rush. The treeline is vegetated by krummholz. Alpine meadows are marked by green fescue and Hood's sedge. The highest elevations consist of rock outcrops, rubble land, and snowfields. This expanse of forest, meadowland, and bare rock is used for recreation, and wildlife habitat. The land is used for summer livestock grazing. The Subalpine-Alpine Zone is an important water source for lower elevation areas.

Elevations range from 6500 to 9900 feet. Local relief varies from 600 to 3000 feet. Mean annual precipitation ranges from 35 to 80 inches and is mostly snow. Mean annual frost free days vary from 10 to 30.

The **Cold Basins** are cold, wet valleys and basins. Most streams have been channelized, but undisturbed reaches are meandering, with well developed floodplains. Surface geology consists of recent alluvium and lacustrine deposits. Older layers are formed from ash and sediment. The dominant vegetation associations are sagebrush steppe and wetlands. Common vegetation includes sedges, mountain big sagebrush, low sagebrush, and Idaho fescue. Wetlands and wet meadows are covered with tufted hairgrass, Baltic rush, and alien Kentucky bluegrass. The pastureland, shrubland, grassland, and wetlands are heavily grazed by cattle and elk. Meadow hay is harvested for winter livestock feed.

Elevations range from 3600 to 6000 feet. Local relief is mostly level. Mean annual precipitation ranges from 12 to 25 inches and is mostly snow. Mean annual frost free days vary from 20 to 50.

Mineral Resources

Much of the early history of the North, Middle and Upper John Day basins involves the search for the "motherlode." For a few the search continues even today. More common material, such as sand, gravel, and aggregate literally form the foundation of community and regional infrastructure. Modern roads and building foundations would not be possible without these common materials.

The BLM categorizes minerals as locatable, leasable, or saleable minerals. Locatable minerals are minerals for which mining claims can be located under the 1872 mining laws, as amended. These include precious and base metals and some non-metallic minerals. Saleable Minerals include common variety mineral materials such as sand, gravel, rock, and cinders. Leasable minerals include oil, gas, and geothermal and some solid mineral resources such as coal and oil shale. The distribution of mineral resources is described below.

Locatable Minerals

The potential for the occurrence of locatable minerals in the central and northern parts of the planning area is generally low because of the prevalence of relatively recent non-mineralized Columbia River Basalt flows in the Columbia Plateau Ecoregion and the northern portion of the Blue Mountain Ecoregion. The southern and eastern parts of the planning area generally have a moderate to high potential for locatable minerals due to scattered pockets of mineralization in the John Day and Clarno formations and in the accreted terrane rocks.

Gold and Silver

Lode and placer deposits of gold and silver are present in the southern and eastern part of the planning area around Antone, John Day, Prairie City, Granite, and in the Greenhorn Mountains. Like most gold deposits, the gold found in the area is a naturally occurring alloy with silver (Lindgren, 1901). As a result, silver was produced as a byproduct of gold mining. Silver was also produced from ores including tetrahedrite, stephanite, and pyrargyrite.

Copper and Lead

Ores of Copper are found in the Spanish Gulch, Canyon, Greenhorn, Susanville, Granite, and Quartzburg Mining Districts (Brooks and Ramp, 1968). The copper ores are present in the same veins that were mined for gold and silver. Copper is also present in the Granite District, in the Quartburg District.

Copper deposits are also found on the Strawberry Range crest between the summit of Canyon Mountain and Indian Creek Butte; a few other deposits occur just outside the western boundary of the Strawberry Mountain Wilderness (Thayer et al., 1981). Chalcopyrite, malachite, and chrysocolla are the primary copper-bearing minerals and occur mainly in lenticular quartz veins placed in gabbro host rock. All known copper deposits in the area are either too small or have an insufficient grade for production under current economic conditions. Occurrences of galena (ore of lead) are similar to that of copper in the planning area mining districts.

Chromium

Deposits of chromite (ore of chromium) are located in the southeast part of the planning area in Grant County. Most of these deposits are in the Strawberry Range though a few also occur in the Greenhorn Mountains. Individual chromite deposits, ranging from a few hundred kilograms to 115,000 tons, occur as pods and lenses in peridotite, dunite, and serpentinite (Thayer, 1940; Thayer et al., 1981). At least 100 chromite deposits are recognized but most occurrences contain less than 100 tons.

Mercury

Cinnabar (ore of mercury) was discovered in eastern Jefferson County in 1933. Small, isolated cinnabar deposits occur on the east and west sides of Canyon Creek in the southern part of the planning area. A notable mercury deposit was discovered in 1963 near the confluence of the East Fork of Canyon Creek and Canyon Creek (Thayer et al., 1981) where cinnabar occurs as fracture fillings and replacements in greywacke host rock. Cinnabar is also present in the Greenhorn Mining District (Brooks and Ramp, 1968).

Bentonite

Bentonite clay is another locatable mineral found within the planning area. Active mining claims are located in the area about 1.5 miles northwest of Clarno.

Other Minerals

Deposits chrysotile asbestos, nickel, and platinum-group metals (platinum, palladium, and rhodium) are found in the Strawberry Range and surrounding areas (Thayer et al., 1981). Zinc, lead, iron, arsenic, antimony, cobalt, bismuth, molybdenum, and manganese are all present in one or more of the mining districts in the planning area (Brooks and Ramp, 1968). Like copper and lead, these minerals are present in the same veins that contain gold and silver. Thus, minor amounts of these metals were produced from the gold and silver mines.

Saleable Mineral Materials

Most of the planning area has a moderate to high potential for the occurrence of mineral materials. The high potential areas are in and around existing mineral material quarries and in rock deposits with known value for aggregate uses. Most of the high potential areas occur in alluvial deposits of sand and gravel, the Columbia River Basalt flows and other volcanic rock units known or likely to have a sufficient quality for use in asphalt.

Leasable Minerals

Leasable mineral resources include oil, gas, and geothermal and some solid mineral resources such as coal and oil shale. Owing to the prevalence of volcanic and volcaniclastic sedimentary rocks in the planning area and the lack of any discoveries, coal, coal bed methane, oil shale and tar sands are considered to be absent from the planning area and are not addressed.

Oil and Gas

The potential for oil and gas ranges from low to high across the planning area. The presence of oil and gas has occurred in exploratory wells drilled near the NE-SW trending axis of the Blue Mountains anticline. This fold represents a potential trap for oil and gas and is therefore considered to have a high potential for oil and gas accumulation. Farther away from the fold axis, the oil and gas potential falls to moderate and then to low.

Geothermal

The potential for the occurrence of geothermal energy is moderate to high across the planning area. Available information on existing geothermal resources comes from 8 natural hot springs and 18 exploratory geothermal wells in the planning area. Data from other wells adjacent to the planning area were used to interpolate the geothermal energy potential to the planning area boundaries.

All of the hot springs are scattered throughout the southeast part of the planning area. Each hot spring is a surface indication of geothermal energy. All but 2 of the hot springs have temperatures exceeding 40° C (104° F).

The geothermal exploratory wells are somewhat evenly distributed across the planning area. Temperatures encountered in the wells range from 20° C (68° F) to 45° C (113° F). Only four of these wells have temperatures exceeding 30° C (86° F); all of the other wells have temperatures of 23° C (73° F) or less.

Soils

Soils are defined by the processes that form them including climate, topography, parent material, and organisms living in the soil. Through time, these processes form unique soil types and influence what plants grow.

Climatic Factors

Climatic influences are reflected by soil temperature and moisture. In the planning area, we have two soil moisture regimes: dry and moist. Common soil temperature regimes in the planning area include warm and cool.

Soils play an integral part in vegetation community development. Plant communities are most noticeably influenced with extremes in soil texture and thickness of soil horizons, depth to restrictive layers including abrupt soil horizon boundaries, and by soil drainage or depth to water table.

Topographic Factors

Deep to very deep soils occur in alluvial drainages, floodplains and river terraces of the John Day River, and on North and Northeast facing slopes influenced by leeward soil deposition from the prevailing winds, and on colluvial (rockfall) foot slopes from water and gravity deposition. Shallow and very shallow soils occur on flat basalt table lands, and on upland ridge top and shoulder slopes.

Parent Materials Factor

The soils in the Columbia Plateau are derived from weathered basalt and some wind deposited silt. Silty soil textures occur in the Umatilla Plateau and Pleistocene Lake Basins. At higher elevations, the deep loess soils become thinner. The John Day Canyons have a higher rock fragment content than the surrounding areas. High rock fragment content helps protect the soil from erosion.

The soils in the Blue Mountains are derived from a myriad of surface geology, including: ash, basalt flows, and partially heated and metamorphosed oceanic rocks. The Canyons and Highlands have shifting colluvial soils on steep canyon slopes shallow, cobbly soils occur in the continental zone highlands. The soil of the mesic forest zone has a significant ash layer that is relatively rock free and that also helps to retain moisture during the dry season.

Living Organisms Factor

A functioning soil biological community includes insects, biologic crusts, and in forests large wood in various stages of decay. Small organisms reduce dead plants into tiny pieces so fungus and bacteria can rot them. They help spread bacteria and protozoa through the soil.

Sensitive Soils

Sensitive soils are those soils that are more vulnerable to soil productivity loss with disturbance. Sensitive soils in the planning area have been modeled based on soil properties that make them susceptible to site degradation. These properties include steep slopes, soil texture, water erosion, droughty sites, and depth to bedrock. Map 5 shows planning area soil vulnerability to site degradation. Table 3 correlates the common soil associations with Subecoregions and the percent of those Subecoregions with sensitive soils.

Disturbances

Common soil disturbances in the planning area include timber harvest, wildfire, prescribed fire, off road vehicle use, poorly drained roads, livestock and wildlife grazing and mechanical treatment of vegetation. These and other surface disturbing activities can decrease soil cover and contribute to increased erosion, decreased infiltration, and reduced soil productivity.

Within the planning area, regions of intense off highway vehicle use are exhibiting static to downward trends in soil productivity. Soil productivity trends are static to improving in rangelands with good perennial grass cover, shrub/tree canopy cover less than 10 percent, and grazing systems that allow for vegetation (grass) recovery and rest. With increases in the density of forest and juniper stands the potential for wildfire to damage soil productivity also increases.

Unique Soil Resources

Hydric (wet) soils, prime agriculture land, and unique biological soil crusts are key soil resources in the planning area.

Hydric Soils

Hydric soils constitute only a small portion of the planning area. Hydric soils are associated with riparian areas in poorly drained back waters along flood plains and in small spring seeps through out the planning area. Soil mapping frequently excludes hydric soils because of the limited distribution and aerial extent.

Biologic Soil Crusts

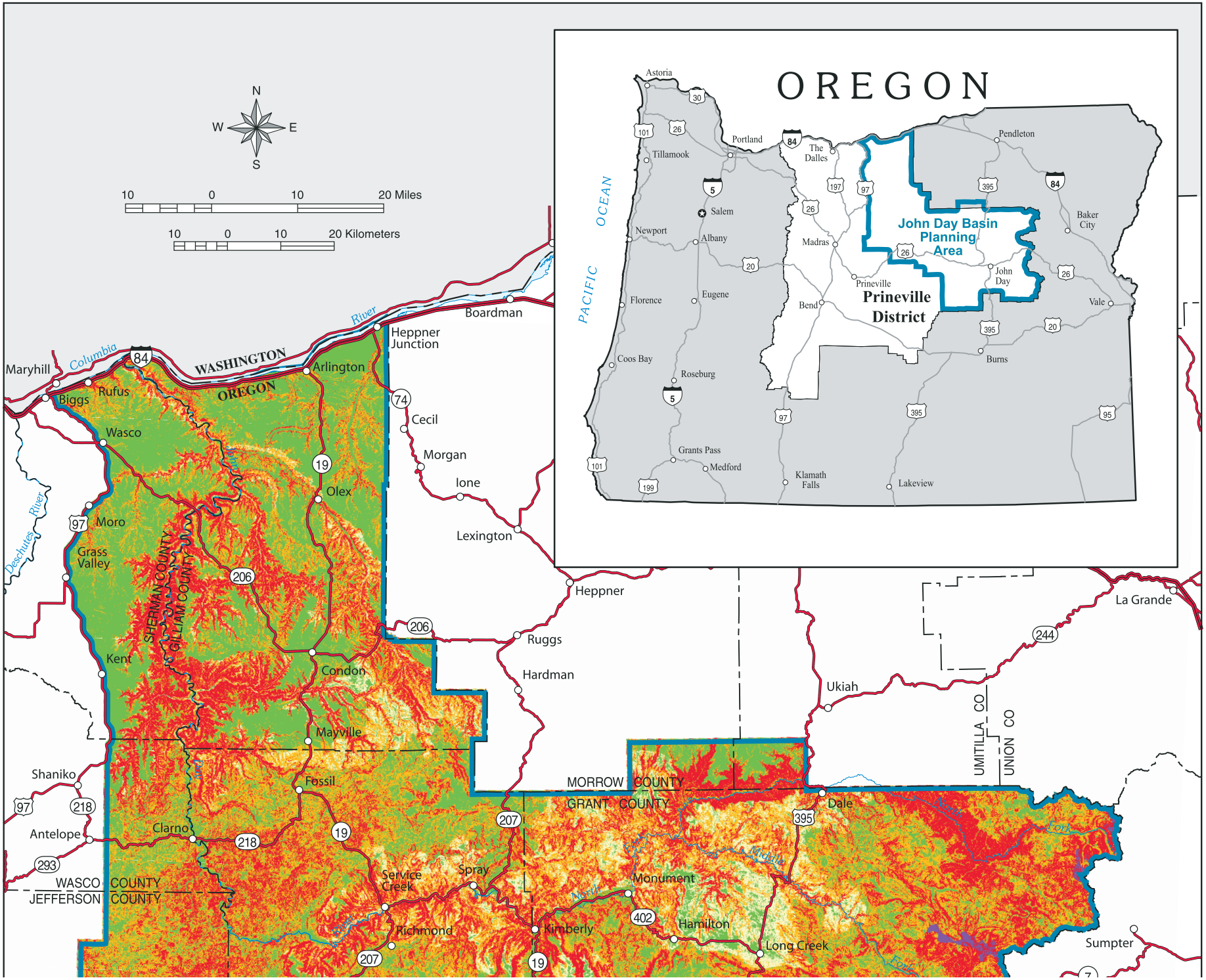
Biologic soil crusts (BSC) are made up of tiny living plants and bacteria that grow together on the soil surface. They help keep the soil from washing or blowing away, make nitrogen, help keep out weeds, and promote the health of plant communities. In areas where BSCs have been lost native vascular plants have been replaced by invasive species such as cheatgrass or medusa head.

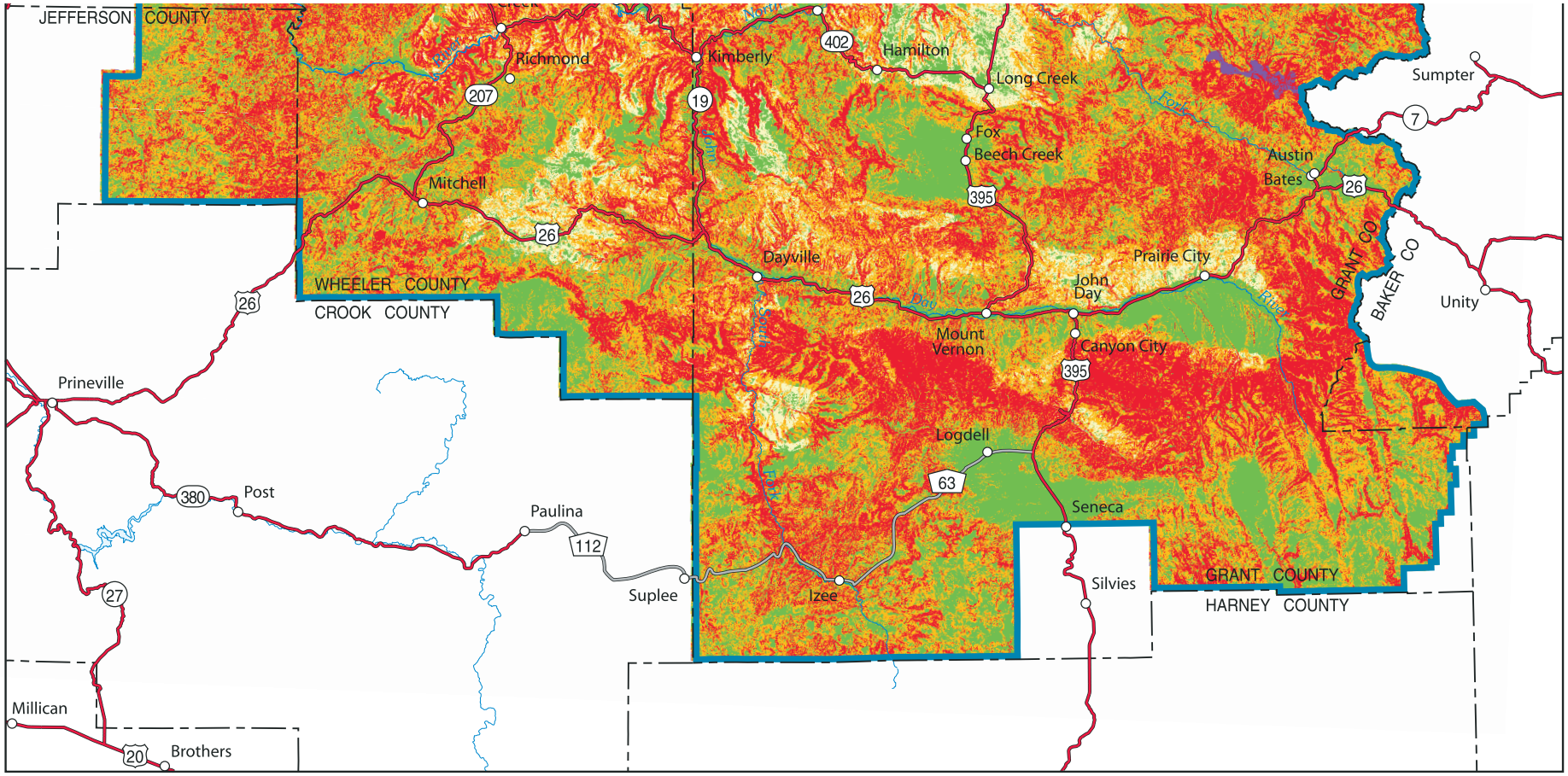
The John Day Basin biological soil crust communities are unique. They are often more stable and more diverse than BSC communities in other parts of the west. A combination of relatively stable soils, moderate annual precipitation and many sunny days allow these BSC communities to develop quickly and withstand disturbances. However, sandy or clayey soil conditions promote crusts that are less tolerant of disturbance than the crusts in loamy volcanic soils that dominate the basin.

A globally threatened species in biological soils crusts, *Texosporium sancti-jacobi*, is widespread in the basin. This species has become rare or has been extirpated from most of its Oregon, Washington, Idaho and California range. This species is found in windy locations, such as ridgelines and hill tops. It occurs in both the loamy and sandy portions of the basin.

Table 3: Sensitive Soils by Soil Associations and Subecoregion

Ecoregion	Subecoregion	Common Soil Associations (% of Subecocoregion)	Percent of Subecoregion with Sensitive Soils
Columbia Plateau	Umatilla Plateau	Ritzville-Walla Walla-Condon-Bake-oven (63%)	13%
	Pleistocene Lake Basins	Ritzville-Olex-Walla Walla-Roloff (51%)	13%
	John Day Canyons	Lickskillet-Wrentham-Rock Outcrop-Bakeoven (81%)	61%
	Umatilla Dissected Up-lands	Gwin-Waha-Simas-Gurdane (55%)	17%
Blue Moun-tains	John Day/Clarno Uplands	Simas-Tub-Waterbury-Gwin (51%)	27%
	John Day/ Clarno High-lands	Klicker-Hankins-Tolo-Bocker (63%)	30%
	Maritime-Influenced Zone	Klicker-Tolo-Hall Ranch-Anatone (77%)	14%
	Melange	Tolo-Klicker-Helter-Anatone (50%)	54%
	Continental Zone High-lands	Klicker-Tolo-Hankins-Anatone (65%)	25%
	Continental Zone Foot-hills	Ateron-Menbo-Observation-Westbutte (54%)	24%
	Mesic Forest Zone	Helter-Klicker-Tolo-Ateron (54%)	44%
	Subalpine-Alpine Zone	Helter-Rock Outcrop-Klicker-Ateron (55%)	54%


OREGON
PACIFIC OCEAN
Astoria
Portland
Tillamook
Salem
Newport
Albany
Florence
Eugene
Coos Bay
Roseburg
Grants Pass
Medford
The Dalles
Madras
Bend
Prineville
Klamath Falls
Lakeview
Pendleton
Baker City
John Day
Vale
Burns
John Day Basin Planning Area
Prineville District
N
W
E
S
10 0 10 20 Miles
10 0 10 20 Kilometers
Columbia River
WASHINGTON
OREGON
Maryhill
Biggs
Rufus
Wasco
Arlington
Boardman
Heppner Junction
Cecil
Morgan
Ione
Lexington
Olex
Moro
Grass Valley
Deschutes River
SHERMAN COUNTY
GILLIAM COUNTY
Kent
Condon
Heppner
Ruggs
Hardman
Ukiah
La Grande
Mayville
Fossil
Shaniko
Antelope
Clarno
WASCO COUNTY
JEFFERSON COUNTY
MORROW COUNTY
GRANT COUNTY
UMITILLA CO
UNION CO
Dale
Service Creek
Spray
Monument
Richmond
Kimberly
Hamilton
Long Creek
Sumpter
North Fork John Day River
Middle Fork John Day River
South Fork John Day River



LEGEND

- Planning Area Boundary
- 84 Interstate Highway
- 26 U.S. Highway
- 19 218 State Highway
- 63 County Road

Soils Vulnerability to Degradation

- LOW
- HIGH - Water Erosion
- MODERATE - Water Erosion
- HIGH - Soil Depth
- MODERATE - Soil Depth

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

PRINEVILLE DISTRICT

John Day Basin Resource Management Plan

2006

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Map 5: Soil Vulnerability to Site Degradation

Prime Farmland

For more than two decades, the State of Oregon has maintained a strong policy to protect farmland through "preservation of a maximum amount of the limited supply of agricultural land" (ORS 215.243). Counties inventory agricultural land, designate it in their comprehensive plan, and adopt policies to preserve it. The acres of BLM land zoned as agricultural are shown in Table 4. Lands zoned as Exclusive Farm Use (EFU), have restrictions designed to limit development that would conflict with agriculture. It keeps farmland from being divided into parcels too small for commercial agriculture.

Vegetation

Vegetation within the planning area is a product of the physical and climate properties associated with the Subecoregions and modifications introduced by natural processes, including, fire, insect infestations, disease, and floods as well as human uses such as grazing management, introduction of exotic species, farming, mining, fire suppression, and timber harvest.

The primary disturbance element has been wildfire. Occasional episodes of insect/disease epidemics and wind and moisture driven erosion have also formed the vegetation patterns across the John Day Basin. Climatic variations and associated disturbance elements created a landscape of vegetative conditions that varied within a range referred to as a Historic Range of Variability (HRV) Sagebrush and juniper dot the slopes, grass lines the valleys, and pine forests ring mountain peaks. Lush green vegetation trims the many streams, rivers and springs in the planning area. Along the plateaus swaths of wheat fields alternate with remnant grasslands. Spring wildflowers of lupine, balsamroot and paintbrush created brilliant displays of purple, yellow and red.

Table 4: Acres of BLM Land Zoned as "Agriculture"

County	Zone	Acres
Gilliam		56,029
	Gilliam County AE Zone	56,029
Grant		124,648
	Multiple Use Range MUR40	120,758
	Primary Farm EFU20	3,769
	Primary Farm EFU40	121
	Primary Farm EFU80	0
Jefferson		22,940
	Rangeland Zone RL	22,940
Morrow		438
	EFU Zone	438
Sherman		37,960
	EFU F1 Zone	37,960
Wasco		26,006
	Wasco County A1-80 Zone	26,006
Wheeler		137,437
	EFU Zone	137,437

Riparian Vegetation

Riparian Vegetation occurs along the margins of streams, ditches, springs, seeps, and seasonally ponded soils in the planning area. The structure and type of vegetation is critical to wildlife and fish, even when it does not control stream condition and function as discussed in the “Stream Channels and Floodplains” section. Hardwoods such as aspen, some taller willows, and cottonwood supply vertical structure for neo-tropical birds. As the trees age and decay, cavity nesters make use of them. Vegetation also supplies shade to the stream and helps to cool the water. Leaves from hardwoods supply nutrients to the riparian and aquatic system. In some areas, these leaves can be the driving force as a food source for aquatic macro invertebrates and therefore for the native fish.

Riparian areas and associated vegetation continuously evolve. Lakes and ponds gradually fill with sediments, and rivers and stream channels move about within the valley floor. Vegetation types gradually develop to fit the newly created environments associated with movement of the stream, its soil and water features. Stable plant communities are short lived, except in armored bedrock or low gradient meadows. Vegetation units within riparian areas are constantly moving or swapping their community types.

Riparian areas in the planning area occur as deciduous stands of trees and shrubs including a mosaic of herbaceous species that occur along the riparian margin. These woodlands and shrublands require periodic flooding and bare, moist substrates for reestablishment. Low-elevation canyons and draws contain shade intolerant shrubs on higher gradient cobble streams. On reaches with developed floodplains and finer soils sedges and rushes line the streambanks. In higher elevation steep-sided canyons or in narrow V-shaped valleys a mix of birch, alder, willow, and dogwood form thickets. Sites are subject to temporary flooding during spring runoff. In interrupted reaches, underlying gravels may keep the water table just below the ground surface, and are favored substrates for establishment of cottonwoods.

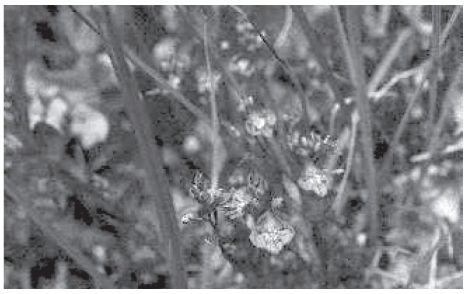
Some of the most common riparian/wetland plant associations include sandbar or coyote willow, common cattail, American Speedwell, creeping spike, 3-square bulrush, reed canarygrass, Torrant sedge, Great Basin wild rye, Netleaf hackberry-Lewis’ mockorange, alder/dogwood, peachleaf willow, and Baltic rush. Brief descriptions of these associations, with photos, are displayed below.

Figure 5: Coyote willow on Bridge Creek

Salix exigua (Sandbar or coyote willow) association is a tall shrub community found across much of the western United States and is common in the planning area. In the Blue Mountains, this association occurs on gravelly or cobbly alluvial bars and banks along streams with a sequence of pools and riffles. Sites frequently contain deep fine textured soils overlaying cobble gravels. Between the willows grows a patchy herbaceous layer with reed canarygrass, quackgrass, bentgrasses and stinging nettle or thistles. This type frequently appears between a streamside grass or rush community and various more stable or drier shrub riparian type.

FIGURE 6: *TYPHA LATIFOLIA* (COMMON CATTAIL)

Typha latifolia (Common Cattail) is a wide spread association. It occurs on cobbly and/or gravelly alluvial bars or developing floodplains. It is typically found adjacent to pool/riffle sequence streams and recovering incised stream channels. This association is found at permanently or semipermanently flooded sites at the edges of lakes and ponds and in ditches, oxbows and backwater areas.



Gary A. Monroe @ USDA-NRCS PLANTS Database

The *Veronica americana* (American Speedwell) association is found mostly in streams on channel shelves (alluvial bars parallel to the banks of a stream) in extremely shallow, gentle gradient sections of faster-moving streams.

FIGURE 7: THE VERONICA AMERICANA (AMERICAN SPEEDWELL)

FIGURE 8: LAYERING OF CREEKING SPIKE RUSH, 3-SQUARE FULL RUSH UP TO COCKLEBUR ON THE MAIN-STEM JOHN DAY RIVER

Along the mainstem John Day river and other major tributaries, a community of *Eleocharis palustris* (creeping spikerush) and *Schoenoplectus americanus* (3-square bulrush) line the banks and shift in relative dominance. This association occurs along the low water line with *Salex exidua* (coyote willow), and *Phalaris arundinacea* (reed canary grass) along elevations corresponding to higher river flow levels. *Xanthium strumarium* (cocklebur) grows among the willows and in sandy deposits near bankfull.

FIGURE 9: *PHALARIS ARUNDINACEA* (REED CANARY GRASS)

Phalaris arundinacea (reed canary grass) grows in open areas and on more developed soils of floodplains. It is extremely aggressive and often forms persistent, monocultures in wetlands and riparian areas. Infestations threaten the diversity of these areas, since the plant chokes out native plants and grows too densely to provide adequate cover for small mammals and waterfowl. Once established, reed canarygrass is difficult to control because it spreads rapidly by rhizomes. (Washington State Department of Ecology)

Figure 10: Carex nudata (Torrent sedge) near Burnt Ranch on the John Day River

Carex nudata (Torrent sedge) association is abundant along all the forks of the John Day River. Torrent sedge plants are scattered along the lower John Day River but rarely form large groups. Sites are bouldery stream banks and narrow alluvial bars adjacent to the banks of streams with well developed point bars. Asters, field mint, spring bank clover, horsetails, and hairy willow-herb are scattered at low abundance among the boulders. The sedge plants grow on top of boulders with their root masses sitting in the stream most of the growing season.

Leymus cinereus Association (Great Basin wildrye) Association is commonly found in swales and at the base of alluvial fans and toeslopes in lower precipitation zones. Soils are generally deep and fine-textured and have moderate water holding capacity. Sites are moist to wet in the spring and moist to dry by mid summer. Great Basin wildrye dominates the site. Other herbaceous species and occasionally shrubs are minimal.

Celtis laevigata var. reticulata-Philadelphus lewisii (Netleaf hackberry-Lewis' mockorange) Association is found at low elevations along streambanks and high floodplains in high gradient, narrow with moderate sideslopes. This association grows in soils with high coarse fragment contents. Netleaf hackberry forms a scattered to dense tall shrub layer. Lewis' mockorange is a co-dominant feature. Blue elderberry and oceanspray occasionally occur alongside the hackberry and mock orange. In the planning area, this association occurs along streams and rivers and where talus slopes meet the river.

Figure 11: *Alnus rhombifolia* (white alder) in Pine Hollow

Alnus rhombifolia/Cornus sericea ssp. sericea (White alder/Red-osier dogwood) Association. This association occurs mainly on the lower elevation streams of the Blue Mountains Ecoregion and sporadically in the Columbia Basin Ecoregion. Sites are streambanks and floodplains along cobbly pool/riffle streams. Valleys are north-facing, moderate gradient, narrow with moderately steep sideslopes. This association is probably the result of a disturbance event such as intense flooding. White alder may form an open to dense canopy over red-osier dogwood, netleaf hackberry and Lewis' mockorange. Other shrubs may occur, including common chokecherry, elderberry, cascara, Wood's rose and currants. Herbaceous species are sparse. Upland vegetation types adjacent to sites are sideslopes of sagebrush steppe, Idaho fescue and bluebunch wheatgrass.

Figure 12: *Alnus incana / Cornus sericea* (Mountain alder / redosier dogwood) association on Deer Creek

Alnus incana / Cornus sericea (Mountain alder / redosier dogwood) association is found at moderate elevations in the Blue Mountains Ecoregion. It occurs in V-, box or trough-shaped valleys with moderate gradients. It grows on streambanks, alluvial bars, and

floodplains. Soils are shallow, skeletal, mineral alluvium over waterworked gravel and cobbles that remains wet throughout the growing season. In the planning area, this association occurs at higher elevations than the White alder association. This community is a closed canopy with an 8 to 10-foot tall shrub thicket of mountain alder and redosier dogwood. Either shrub can be dominant but both always contribute significantly to total cover. Mountain alder can appear as a tree above the redosier dogwood in some areas. This association usually contains a shorter, sparse shrub layer of Wood's rose and golden current with white clematis draped among the branches.

Figure 13: Mixed riparian shrubs on Cougar Gulch

Salix amygdaloides (peachleaf willow) association occurs on open, sites with little shade. The understory consists of white clematis and patches of smooth brome and common horsetail. Peachleaf willow is a rapidly growing, short-lived medium-sized deciduous tree that is typically from 20 to 40 feet tall. Peachleaf willow is an early successional species which pioneers floodplain alluvium. Peach leaf willow is found along the lower reaches of the South Fork John Day and in rangeland streams.

Juncus balticus (Baltic rush) association The JUBA community type is widespread. It is found at moderate elevations in moderately wide, low gradient, trough- and flat-shaped valleys with gentle to moderate side slopes. Sites are dry to wet basins, floodplains, and springs. Most of the soils are fine textured and have high water holding capacity. This associate occurs in lower gradient, depositional reaches of the planning area streams. Most sites are flooded during the spring and early summer. The water table drops late in the growing season. Baltic rush cover ranges from 20-99%. Other herbaceous species found in this association include Woolly sedge (*Carex pellita*), Nebraska sedge (*Carex nebrascensis*), and Slender-beaked sedge (*Carex athrostachya*). This is a common association in the lower gradient reaches of tributaries in the North Fork John Day planning area.

Riparian Key Features

Aspen and cottonwood forest woodlands historically occur across large portions of the planning area. Historic photos show large riparian forests near Dayville and at Clarno which have vanished. Major causes of decline of black cottonwood stands in eastern Oregon include: conversion of stands for pasture, farmland, or urbanization, conversion of streams from multiple to single channel systems, and restriction of lateral movement of streams across floodplains. Overbrowsing by livestock, elk, and deer, reduced fire frequency, and logging for firewood have also had impacts.

Cottonwood deserves special consideration in the discussion of riparian vegetation. Many cottonwood stands have declined in the area. Streamside black cottonwoods contribute to favorable aquatic habitat by providing streambank stability and reduced siltation, maintaining low water temperatures through shading, increasing debris recruitment for variable stream habitats, and providing nutrient-rich litter for aquatic food webs. Black cottonwood is an important source of cover for wildlife and livestock.

Along BLM streams in the Middle and North Fork subbasin, 11 small segments were found to contain an occasional relic cottonwood tree: Matlock, Stony, Rush, West Fork Boneyard, Cabin, Ditch, Squaw, Graves, Mallory, unnamed tributary to Mallory, and an

unnamed tributary to Little Wall Creek from the east. The South Fork John Day River drainage has relic areas of aspen and cottonwood communities along the mainstem. Relic areas on the tributaries are being encroached by surrounding conifers. In the Lower subbasin, relic areas are scattered and include portions on Long Hollow and Hay Creek. Native cottonwood stock is grown at Clarno. Outplantings have been successful along tributaries such as Bridge Creek and along the mainstem John Day River near Clarno.

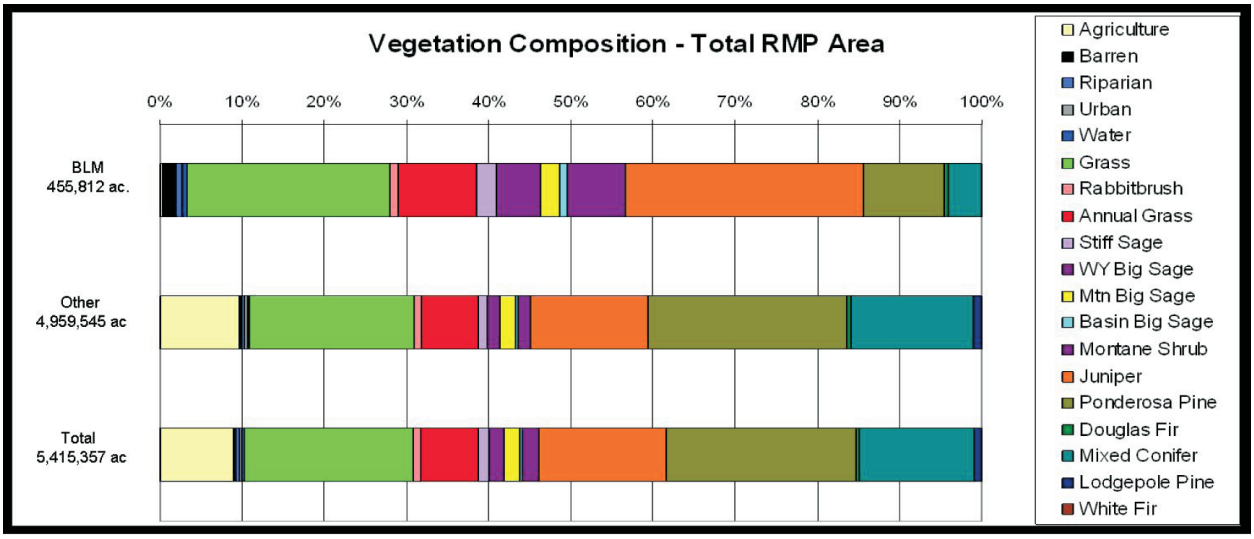
Generally aspen occupy moderate, mid-elevation slopes as small, scattered stands in the mixed conifers of Douglas-fir and ponderosa pine (3000 to 5000 feet.). A few Aspen woodlands appear in riparian zones at lower elevations, In the Middle and North Fork Subbasin BLM land, aspen was found on only three small tributaries (West Fork of Boneyard Canyon, No Name Creek and South Tributary to Little Wall Creek). The aspen were decadent or suppressed and occurred on small alluvial valleys or on the edges of down cutting meadows. None of the stream reaches containing aspen are in functioning condition, and some have a downward trend.

Terrestrial Vegetation

Terrestrial Vegetation within the planning area reflects a range of conditions represented by the many Subecoregions within the planning area. The following text describes the primary non-riparian vegetation communities found within the planning area. The BLM's understanding of the distribution of terrestrial vegetation types is based on remote sensing data collected in 2004 and 2005.

Figure 4: Vegetation Composition, displays existing proportions of major vegetation groups within the 5.5 million acres of the planning area. Percent compositions are for lands managed by the BLM, lands owned/managed by private owners or other government agencies. Of note is the larger percentage of BLM land with riparian, shrub species, and juniper habitats. Other land ownerships have higher percentages of agriculture (Private) and forest species (Primarily Forest Service). Because the BLM manages less than 10 percent of the planning area the proportions of the groups managed by the BLM barely influences the proportions for the entire planning area. Vegetation conditions and trends by major plant communities will be addressed in more detail below.

Figure 14: Vegetation Composition



Palouse Prairie

The Columbia Plateau Ecoregion of northeastern Oregon and southeastern Washington is an elevated plateau containing considerable area of open palouse grassland that remains unfarmed because of thin soils and a short growing season. North central Oregon has the largest area of remaining true palouse prairie (Holechek, 1989 pg. 87)

Disturbance

The fire return interval for sagebrush and bunch grass is estimated at 25 years. The native bunchgrass habitat apparently lacked extensive herds of large grazing and browsing animals until the later 1800s. Burrowing animals and their predators likely played important roles in creating small-scale patch patterns (Johnson and O'Neil, 2001 pg. 49). Typical patch sizes were large with maximum fire sizes of 10,000 acres and an average of 1,000 acres (Landfire BPS 081142 – Draft, 2006).

Conditions/Influences

The Palouse prairie, also referred to as the northwest bunchgrass prairie, has had the highest percentage conversion into farmland of all western range types. The Palouse is one of the most endangered ecosystems in the U.S. with only 1% of the original habitat remaining; it is highly fragmented with most sites <10 acres (Johnson and O'Neil, 2001 pg. 49). Today it is used primarily for wheat production (Holechek, 1989 pg. 87). Blue Bunch wheatgrass and Idaho Fescue, the two primary bunch grasses in this type are decreasers under heavy grazing pressure. Additionally historic over grazing and the increase of nonnative annual grasses such as cheat grass and Medusa head have altered fire return intervals and effects. Figure 14 shows the amount of agricultural conversion.

Trend

Since 1900, 94% of the Palouse grasslands have been converted to crop, hay, or pasture lands (Map 6) (Johnson and O'Neil, 2001 pg. 491). Over-grazing and expansion of nonnative annual grasses and noxious weeds will continue to be a management concern.

Early seral communities dominated by nonnative annual grass stands are in a relatively stable state. These sites are not expected to return to native communities within the next 50+ years without active management intervention.

Shrub Steppe

The shrub-steppe plant community occurs in lower elevations of the Blue Mountain Ecoregion and valley terraces and steeper slopes of the Columbia Plateau Ecoregion. Although western juniper can occur on these sites, fires at 10 – 20 year intervals relegated juniper to a subordinate position in the community or eliminated it altogether.

Disturbance

Drier low sagebrush sites averaged 87 year fire return intervals with replacement fires occurring every 227 years (BPS – 081127 and 091079 Draft 2006). Tall sagebrush sites averaged 20 year fire return intervals with replacement fires occurring every 90 years. Typical patch sizes ranged from 10 to 2,000+ acres (BPS – 091125, 081125, and 081080 Draft 2006). Burrowing animals and their predators likely played important roles in creating small-scale patch patterns (Johnson and O'Neil, 2001 pg.51).

Conditions/Influences

Shrub steppe communities were historically a small component of the Columbia Plateau Ecoregion. Patch sizes were smaller and typically tied to micro sites with Wyoming and Mountain sagebrush found on slopes and benches with deeper soils and low and ridged sagebrush on shallower rocky soils. Shrub steppe communities in the Blue Mountain Ecoregion were more extensive. The combination of fire control and historic grazing management has allowed juniper expansion and reduced the quantity and vigor of understory species. Many of these sites have been invaded by nonnative annual grasses or noxious weeds.

Trend

Quigley and Arbelbide concluded that Big Sagebrush and Mountain Sagebrush cover types are significantly smaller in area than before 1900, and that Bitterbrush/Bluebunch Wheatgrass cover types are similar to the pre-1900 extent. More than half of the Pacific Northwest shrub-steppe habitat community types listed in the National Vegetation Classification are considered imperiled or critically imperiled (Johnson and O'Neil 2001 pg. 51). Without active management or a change in fire control standards juniper expansion is expected to continue to invade these communities and decrease the shrub and grass components.

Numerous areas have been converted to annual grass dominated sites (Map 6) with expected trends being the same as those described in the Palouse Prairie described above.

Western Juniper Steppe

Western juniper steppe is predominantly found in the Blue Mountain Ecoregion and drainages (particularly north aspects) of the Columbia River Ecoregion.

Disturbance:

The presence of old growth stands of western juniper on rocky ridges and along small stream channels is probably a function of the protection afforded by those sites (Burkhardt and Tisdale, 1976). Typical patch sizes ranged from 100 to 10,000 acres (BPS – 091017 Draft 2006). Map 6 displays "old growth" potential and current juniper population extent.

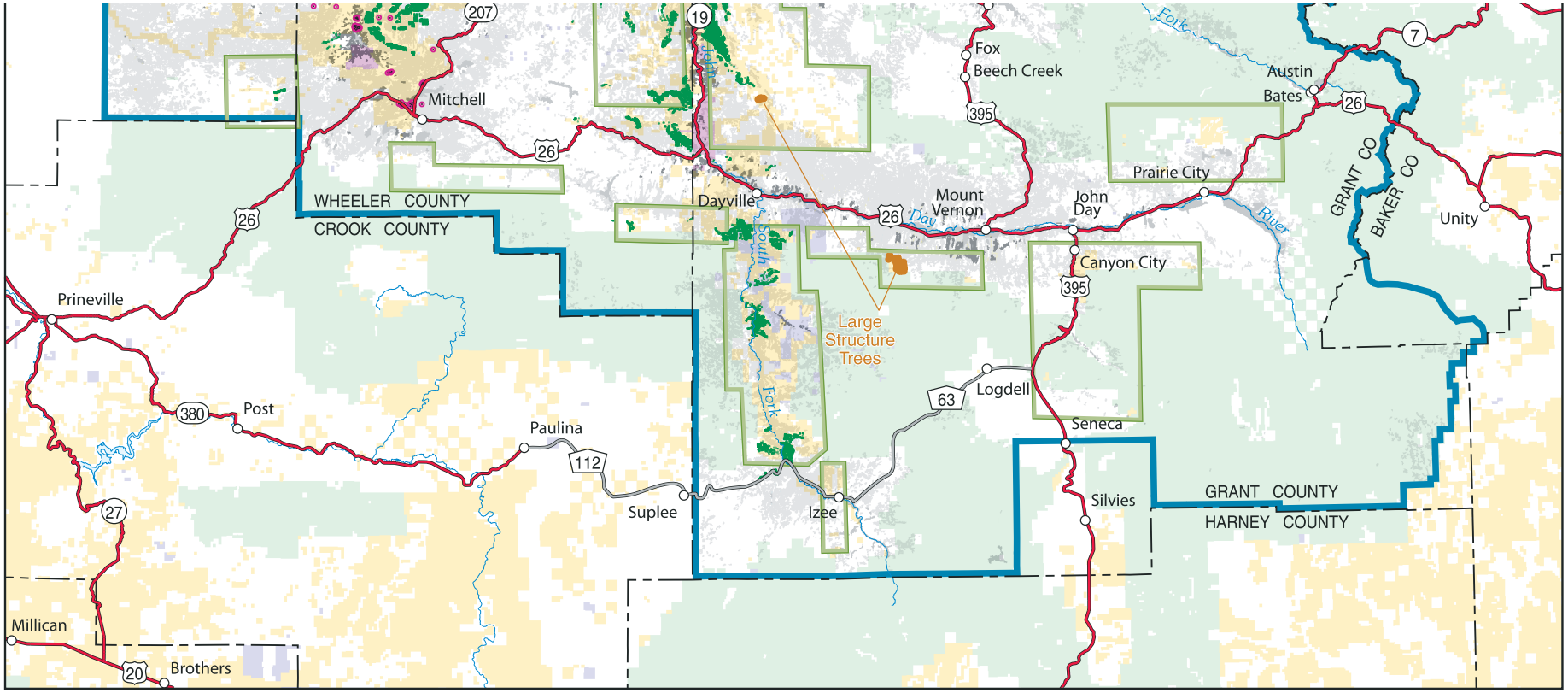
Conditions/Influences

Over the past 150 years, with fire suppression, overgrazing, and climatic factors, western juniper has increased its range. Inland Woodlands are significantly greater in extent than before 1900 (Miller, 1999). As these sites become dominated by juniper understory species cannot thrive and in their absence natural fire can burn through these stands only under the most severe conditions.

Trend

Given the current fire control policies it is expected that without active intervention juniper will continue to expand. The majority of juniper within the analysis area became established within the last 100 years. The majority of these stands are reaching a state where juniper dominance is beginning to alter understory conditions. In the last 10 years private land owners and the BLM have begun to control juniper densities.

N
W
E
S
10 0 10 20 Miles
10 0 10 20 Kilometers
OREGON
Astoria
Portland
Tillamook
Salem
Newport
Albany
Eugene
Florence
Coos Bay
Roseburg
Grants Pass
Medford
Klamath Falls
Lakeview
Bend
Madras
The Dalles
Prineville
John Day
Baker City
Pendleton
Vale
Burns
PACIFIC OCEAN
John Day Basin Planning Area
Prineville District
Boardman
Heppner Junction
Arlington
Maryhill
Biggs
Rufus
Columbia River
WASHINGTON
OREGON
Wasco
Cecil
Morgan
Ione
Lexington
Olex
Moro
Grass Valley
Deschutes River
SHERMAN COUNTY
GILLIAM COUNTY
MORROW COUNTY
Heppner
Ruggs
Hardman
Kent
Condon
John Day River
Mayville
Fossil
Shaniko
Antelope
Clarno
Service Creek
Spray
Richmond
Kimberly
Monument
Hamilton
Long Creek
Weed Group Location
Dale
GRANT CO
UMITILLA CO
UNION CO
Ukiah
La Grande
Sumpter
North Fork
Middle Fork
WASCO COUNTY
JEFFERSON COUNTY



LEGEND

- Large Structure Trees
- Known Weed Location (incomplete coverage)
- Timber Management Unit
- Potential for Old Growth Juniper
- Juniper Expansion
- Agriculture
- Greater then 25% Annual Grass
- Planning Area Boundary

Administered Land

- Bureau of Land Management
- Forest Service
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U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

PRINEVILLE DISTRICT

John Day Basin Resource Management Plan

2006

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Map 6: Key Vegetation Elements

Dry Forest (Ponderosa Pine, Mixed Conifer, Douglas Fir)

The majority of forest vegetation occurs within the Dry Forest vegetation group (receives 12-17" of precipitation annually). Dry forests are defined as forests that were historically open and supported widely spaced large ponderosa pine, western larch, and Douglas-fir in the overstory with little underbrush and only occasional clumps of smaller trees. These plant communities occur primarily in higher elevations and drainages of the Blue Mountain Ecoregion.

Disturbance:

The mean fire interval ranges from 48 years in drier pine sites, 6 years in moister pine sites, and 20 years in mixed conifer sites with replacement fires in all groups occurring in the 130 year range (BPS – 081053x, 081053m, and 081045 Draft 2006). Insects and disease created small openings and altered stand structure with some agents targeting overstory trees and others thinning understory trees. Typical patch sizes: Small openings (<2 acres) emulate spots created by low intensity fire, root rot, pockets, or insect disturbances.

Conditions/Influences:

Forest stands in dry forest climates are generally limited by low moisture and are often subject to drought. Dry forests can also be affected by limited nutrients and/or competition stress. Fire suppression has allowed understory densities to increase with a corresponding species shift to more shade tolerant species. These vegetative communities were also historically logged in a manner that removed the large tree component. Many of the remaining large trees are being stressed by understory competition and subject to higher risk of insect and disease, stand replacement fire, and drought. Stands of large diameter ponderosa pine with an open understory are one of the most limited conditions in the Columbia Basin. Many of the pure ponderosa pine stands have been converted to mixed conifer stands with understories of Douglas fir and white fir. In addition, the vegetation inventory shows that slash loads range from 5-80 tons per acre. The average slash load range is 20-30 tons per acre. This is much higher than the John Day RMP recommended limits of 12-15 tons per acre. "With heavy ground fuels and high tree densities, these dry forests are now much more likely to have severe fires". (USDA FS Science Update, p.5, Sept., 2002)

The majority of forest stands within this planning area contain a large tree component; however stands are not dominated by large trees (Vidourek, 2005). This can be attributed to the fact that past green tree management projects did not remove 30-50% of the healthy large trees on site. However, there are few stands that are primarily composed of large trees. Basal areas ranging from 80-400 square feet per acre were identified during the forest vegetation inventory (Vidourek, 2005). The average basal area across the planning area is 160-200 square feet per acre.

Trend

As a result of this trend of high basal areas, trees have become stressed and are succumbing to insects and diseases. (Vidourek, 2005) Insect populations have reached epidemic populations in scattered stands across the planning area. As the trees die and fall to the ground the stands are accumulating excessive slash loads and becoming more susceptible to wild fires.

"A large number of mixed conifer stands in the Blue Mountains have been severely damaged by a variety of insects and diseases, compounded by protracted drought, overstocking, and inappropriate past management." "Additionally, large areas in the ponderosa pine type are drastically overstocked and in imminent danger of a bark beetle population buildup and resultant epidemic." (Schmitt and Scott, 1993) Insect populations throughout the planning area are spreading each year. Due to passive forest management over the past nine years, insect disturbances are being left unchecked. As a result, many forest stands are losing trees including the larger size trees that were left for seed sources during past management treatments. "Once an outbreak begins, beetles select the largest trees in a stand. The natural resistance of trees and stand to attack by mountain pine beetles decreases as age and competition increase". (Blue Mountain Forest Health Project, 1991 p.46) "When bark beetle mortality reduces stand density in unthinned stands, some of the best trees are lost, and the mortality often occurs in clumps, resulting in uneven distribution of growing space among remaining trees". (USDA-FS, PNW-RP-508, 1999)

Currently large diameter components of these communities are at high risk of increased mortality.

Moist Forest (Mixed Conifer, Douglas Fir, White/Grand Fir and Lodgepole pine)

Some of the forest stands are pure or single species stands, but the majority are mixed stands to varying degrees. In general these communities occurred in large stands; however ponderosa pine and Douglas Fir occur as isolates and stringers associated with drainages. The Viable Ecosystem Guide developed by the Ochoco NF recommends – forest stands that are contiguous and at least 1,000 acres in size. Small openings (<2 acres) emulate spots created by low intensity fire, root rot, pockets, or insect disturbances. Large patches (500+ acres) simulate large stand replacement fires. These openings occurred at 70-200 year intervals (USDA Viable Guide, 1994 pg. 47 and 31).

Lodgepole Pine – The ecological status of lodgepole pine is typically that of a pioneer or invader species and is normally seral to other tree species such as ponderosa pine grand fir, or Engelmann spruce. It thrives on disturbance and can establish quickly in an area ravaged by fire, windthrow, insects or disease. This short lived species is dependent on disturbance for its regeneration, health and vigor with a fire return interval of 80 -100 years (BPS – 091050, Draft 2006).

Disturbance

In moister areas including riparian associations stand densities may reach levels where insect and disease episodes had localized effects to stand dynamics including the removal of the largest trees. Dwarf mistletoe could be significant in those stands where their host species are abundant. Dwarf mistletoe alters stands by killing heavily infected overstory and restricting development of host understory trees. Fires were probably of moderate frequency (30-100 years) in presettlement times. Typical stand-replacement fire-return intervals are 150-500 years with moderate severity-fire intervals of 50-100 years. Generally, wetter sites burn less frequently and stands are older than drier sites (Johnson and O'Neil, 2001 pg. 33). Hall (1976, 1980) estimates that natural under burns occurred every 10 years in drier sites of the Blue Mountains. Stands which occur on mid and upper slope positions had more frequent fires than stands in a toe slope or lower slope position (USDA Viable Guide, 1994).

Conditions/Influences:

The majority of these communities are overstocked with high levels of ground fuels. In addition, the vegetation inventory shows that slash loads range from 5-80 tons per acre. The average slash load range is 20-30 tons per acre. This is much higher than the John Day RMP recommended limits of 12-15 tons per acre. "With heavy ground fuels and high tree densities, these dry forests are now much more likely to have severe fires". (USDA FS Science Update, p.5, 2002). Historic over logging of the large diameter trees has left an overabundance of pole and small log size classes.

Trend

Many of these stands have a high risk of stand replacement fires, insect loss, and loss of large tree components due to competition stress.

Unique Features

Riparian associations in the drier areas of the Columbia Ecoregion provide unique diversity.

- Palouse Prairie communities in the Lower John Day provide key habitats for Sensitive species and are some of the last remaining in the Columbia Basin.
- Two unique areas exist for the forest vegetation. Both contain the oldest and largest trees within the planning area. One is located in Timber Basin (less than 500 acres) at the south base of Rudio Mountain and the other is isolated near the north face of Aldrich Mountain (Big Canyon Creek- approximately 1100+ acres). The Timber Basin size was reduced significantly by the Timber Basin wildfire in August, 2000 (See Map 6). Both areas are similar and are the closest resemblance of a stand exhibiting some old multi-story forest characteristics. They have some trees (ponderosa pine and Douglas fir) in excess of 40 inch DBH in the overstory and both have an understory of mixed conifers (both shade-tolerant and shade-intolerant).
- Old growth juniper stands associated with rocky rims along the main stem of the John Day River north of Picture gorge.
- Aspen and black cottonwood stands associated with the main stem, North, South, and Main stem of the John Day River, drainages, and springs.
- Western Larch communities require a unique set of disturbance conditions to become established. Currently population levels are declining.

Regional Context

Vegetation patterns and trends within the planning area are generally consistent with findings in ICBEMP (Jones, and Hann, 1996) and other regional reviews which included:

- Overall, an increasing trend of forest cover types dominated by shade-tolerant species that are generally more susceptible to fires, insects and pathogens, and a declining trend of forest cover types dominated by shade-intolerant species that are more resistant to fire, insects, and pathogens.
  - Significant increases of grand fir/white fir, and Interior Douglas-fir were observed.
- The large tree (>20"dbh) component is believed below historic levels.
- Pole-sized seral/structural stages are found in greater abundance than at any time during the last several hundred years.
- Increases of the croplands and grand fir/white fir cover types, and declines of the fescue bunchgrass and Interior ponderosa pine types.
  - Agricultural conversion of 46 percent of the big sagebrush, 79 percent of the Agropyron bunchgrass, and 91 percent of the fescue bunchgrass cover types.
- Conifer and juniper expansion into shrubland habitats was the predominant factor

responsible within 46 percent of the subbasins in which the upland woodland community type occurred above its historical range. (Jones, Hessburg, Smith, 1996).

Western juniper woodlands in eastern Oregon with more than 10 percent canopy cover increased from 456,000 acres in 1936 (Cowlin et al., 1942) to 2.2 million acres in 1988 (Gedney et al., 1999). In much of its range, western juniper has increased the area it occupies by an estimated 10-fold in the past 130 years (Miller et al., 1999a).

- The introduction of European annual grasses has drastically altered disturbance regimes, moisture and nutrient capture capabilities, and habitat suitability.
- Significant declining trends of cottonwood/willow, Interior ponderosa pine, and western larch were observed.
- Fragmentation of landscape patterns of subwatersheds within the Blue Mountains and Columbia Plateau increased between historical and current periods.
- The greatest fire regime changes are associated with the dry forest vegetation types, such as ponderosa pine and Douglas-fir, and in shrub lands, such as mountain big sagebrush and big sagebrush. Fire severity has increased in all of these vegetation types. Fires have become less frequent (due to fire suppression) and more severe. Non-lethal fire regimes have become mixed-severity (a combination of stand-replacing and non-lethal fire effects) fire regimes and mixed severity fire regimes have become increasingly stand-replacement fire regimes. Mixed-severity and stand-replacement fire regimes are extensive.

Special Status Plants

Special status plants include those species listed by BLM as “Bureau Sensitive” and “Bureau Assessment” (BLM OSO, 2006) as well as plants listed by either the federal or state governments as “endangered” or “threatened.” (ONHIC, 2004) Plants so designated include species that are rare or uncommon, and face possible extinction or endangerment throughout all or a significant portion of their range (or within the State of Oregon), and for which special consideration and/or management is needed. Appendix A lists special status plants documented or suspected within the planning area. There are no federally-listed Endangered or Threatened plants known or suspected within the planning area.

These plants occupy small, usually isolated and scattered sites across the planning area, although four main locales have a greater site density: the Lower John Day River south of Cottonwood Bridge; the South Fork of the John Day River, BLM lands between Service Creek and Kimberly; and the Sutton Mountain area.

Of the five species known to occur on BLM lands within the planning area, two (South Fork John Day milkvetch and arrow-leaf thelypody) are endemic to the John Day Basin and the BLM plays an important part in their conservation. The hepatic monkeyflower is found only in Oregon (historically from Washington as well) with the majority of its known sites in the John Day Basin. Oregon sites of the dwarf evening-primrose, known also from eastern Washington and Idaho, are found predominantly in the John Day Basin as well.

Special status plant sites on BLM lands in the John Day Planning Area are generally in stable condition. Of the 108 sites referred to in Appendix A, 73% are stable, 7% are in downward trend and 1% in upward trend. The remaining 19% have not been assessed and therefore trend has not been determined. Assessment is accomplished through periodic monitoring visits which include counts of plants on site and a qualitative evaluation of their vigor, reproductive status and apparent threats.

Isolated downward trends appear to be the result of natural causes, such as long-term drought, soil slippage and flooding. Unless determined to be caused by natural phenomena, downward trends may be corrected through changes in management. Some examples of this could be implementing a change in livestock use, closures of roads and/or trails, removal of competing vegetation, weed control, fire treatment, and similar management prescriptions.

Only one site, for which there is an apparent downward trend, requires a change in the management of the site, and this is related to the need for a small, site-specific livestock exclusion fence.

Due to the inaccessible and/or inhospitable habitat occupied by the dwarf evening-primrose, hepatic monkeyflower and South Fork John Day milkvetch, it is unlikely these species have ever been more numerous or in better condition than they are today. However, the arrowleaf thelypody and porcupine sedge occupy riparian and related habitat, much of which has been altered since European settlement. Remaining sites are mostly in areas relatively inaccessible to livestock.

Of those species listed in Appendix A, only Laurence's milkvetch is likely to have occurred on BLM land within the John Day Basin and has since been extirpated from Public Lands. Sightings have not been recorded since the 1950s.

Special status plants contributed to the finding that botanical values are an outstandingly remarkable value of the John Day River, resulting in its designation as a Wild and Scenic River. The South Fork John Day milkvetch is found in Segment 10 and is suspected to occur in Segment 11. Arrowleaf thelypody, is found within Segments 3, 4 and 6 and is suspected to occur in Segments 10 and 11. Hepatic monkeyflower is found on moist rock walls in Segment 2 and is suspected to occur anywhere there are moist cliffs, particularly on the lower river.

Noxious Weeds

Noxious weeds and expansion of some native species (e.g., juniper) are increasing problems within the John Day Basin (BPA 2005). The rapidly expanding occupation of the John Day Basin by noxious weeds represents the single greatest threat to native rangeland biodiversity and recovery of less-than-healthy watersheds (Ditomaso, 2000). The initiation and spread of noxious plants have been furthered by human disturbances such as recreational use, grazing management, and fire suppression. Native bunchgrasses have been depleted in many areas as the range of the western juniper (Juniperus occidentalis) expanded. Exotic annual grasses such as cheatgrass and medusahead have filled the niche formerly occupied by the perennial grasses.

"Noxious" is a legal classification rather than an ecological term. Plants that can exert substantial negative environmental or economic impact can be designated as noxious by various government agencies. Noxious weeds affect livestock grazing, recreation, timber production, and wildlife and scenery viewing by displacing native plant species and lessening natural biological diversity; degrading soil integrity, nutrient cycling, and energy flow; and interfering with site-recovery mechanisms, such as seed banks, that allow a site to recover following disturbance (Quigley and Arbelbide 1997).

The weeds causing the most concern in the John Day Basin are diffuse, spotted and Russian knapweeds (Centaurea stoebe), Dalmatian toadflax (Linaria dalmatica), yellow star-thistle (Centaurea solstitialis), perennial pepperweed (Lepidium perfoliatum), leafy

spurge (Euphorbia esula), tamarisk (Tamarix), Scotch thistle (Onopordum acanthium), purple loosestrife (Lythrum salicaria), rush skeletonweed (Chondrilla juncea), leafy spurge (Euphorbia esula), white top (Cardaria draba), wavyleaf thistle (Cirsium undulatum), puncturevine (Tribulus terrestris), poison hemlock (Conium maculatum), and medusahead rye (Taeniatherum caput-medusae). Weeds of special concern are those beginning to occupy very small niches with just a few plants along the high water lines, and small patches on islands (mainly diffuse knapweed and Dalmatian toadflax) that could spread very rapidly. Also, small infestations of Russian knapweed and dalmatian toadflax are becoming more prevalent on the upper, sheltered alluvial flats. This is especially noted on almost all riparian zones below the confluence of Thirtymile Canyon at RM 84, but a few plants of purple loosestrife and rush skeletonweed have also been found and hand pulled. In the Clarno area, medusahead rye is common on the west side of the river to the north and south of Highway 219, in previously burned areas. It is also prevalent in the Murderer's Creek drainage and in clay soils across the basin. Diffuse knapweed is found along the road right-of-way, south of Clarno. Russian knapweed is also very prevalent in the Clarno and Bridge Creek areas, and has also been found in many very small patches along the river almost always on the upper alluvial flats. Dalmatian toadflax is also found on these flats and is beginning to move up slopes in a few spots, especially below Thirtymile Canyon. Chemical control of Dalmatian Toadflax in the John Day River system is quite difficult where access is limited. The thistles (Scotch, bull and Canada) and poison hemlock are found most commonly at the small tributaries near and in riparian areas. Yellow starthistle has been found in several locations in the Clarno area and is especially prevalent in the upper Bridge Creek area near Mitchell. It is also prevalent near the Columbia River at Biggs and Horn Butte.

The BLM Prineville District coordinates weed prevention, detection, and control efforts with the local County Weed Boards, ODA, ODOT, National Forests, local Soil and Water Conservation Districts, as well as private land owners and neighborhood community groups. The BLM's Partners Against Weeds Strategic Plan highlights cooperative partnerships to control and manage invasive and noxious weeds. BLM is a partner in the Bridge Creek Cooperative Weed Management Areas. The BLM has six agreements with the counties in the planning area. The BLM uses these partnerships to combat invasive weeds and conduct inventories.

Hydrology

Stream Channels and Floodplains

BLM manages land and water in 146 different watersheds in the planning area. The planning area includes 28,000 miles of streams including:

- Ephemeral streams which do not flow during an average water year but do flow in response to large precipitation events.
- Intermittent streams which flow during spring runoff of an average water year, but generally dry up later in the summer.
- Perennial streams which flow some water all year of an average water year.

One third of planning area streams are ephemeral, half are intermittent, and the remainder are perennial.

Figure 15 illustrates that BLM manages approximately 1600 miles of intermittent and perennial stream channels within the plan area.

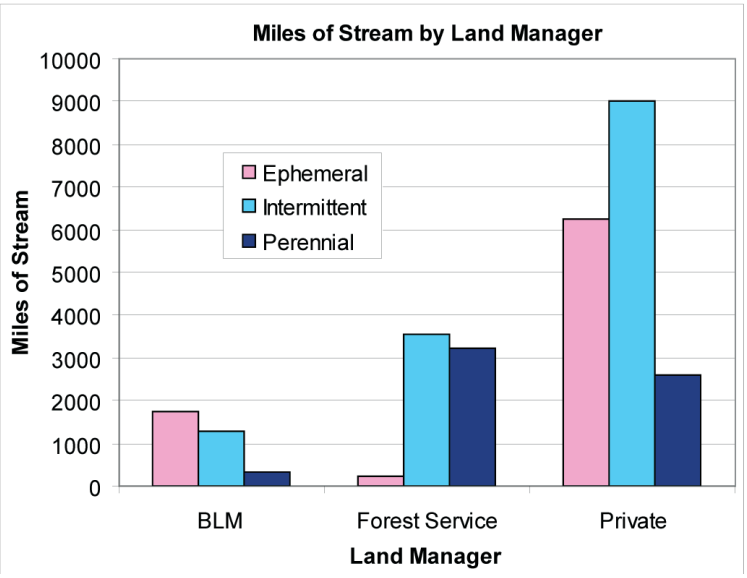


FIGURE 15: MILES OF STREAM BY LAND MANAGER

The majority of the perennial stream channels in the plan area occur on National Forest Lands while private land owners own the majority of the intermittent and ephemeral stream channels. This distribution of stream ownership is largely due to the elevation of subject lands across the planning area. The Forest Service manages the headwater reaches and high elevation areas. These areas receive the highest precipitation levels from snow and produce the majority of the water for the planning area. Private land ownership generally lies downhill from Forest Service, but also centers around good perennial water sources that were important when the area was settled. The BLM manages many bottomlands and dry upland hill slopes. Overall, BLM managed land receives the least amount of precipitation of the three major ownerships, about 7 percent. Most of the snowmelt has been funneled into scattered perennial streams and major rivers by the time the water flows down to BLM land. Although BLM ownership is the smallest of the three major landowners, BLM manages many miles of large streams, rivers and floodplains with diverse public values.

Stream channels and flood plains are important because their shape and condition affect how rapidly water flows through a river system how much water is stored within the basins, how clean the water is, and how much erosion occurs. These functions in turn affect fish and wildlife habitat, agriculture, recreation and the susceptibility of local communities and landowners to floods.

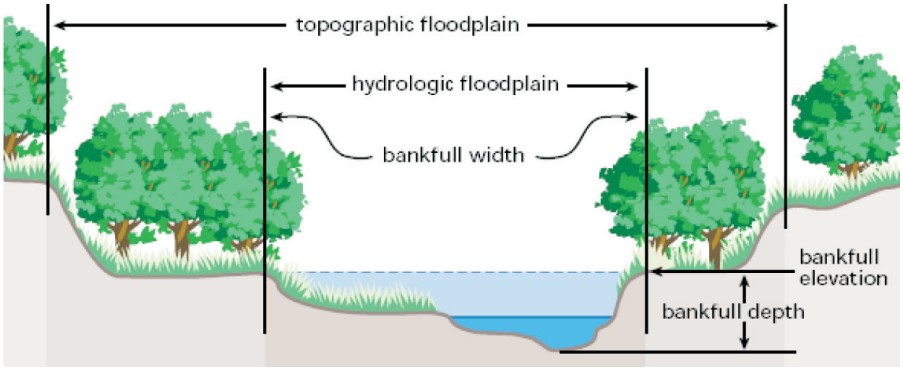


FIGURE 16: STREAM CHANNEL AND FLOOD PLAIN CONFIGURATION

Prior to disturbances such as grazing, mining, and farming initiated during European settlement, the planning area stream channels were generally well vegetated and had frequent interaction with their floodplains (Figure 16).

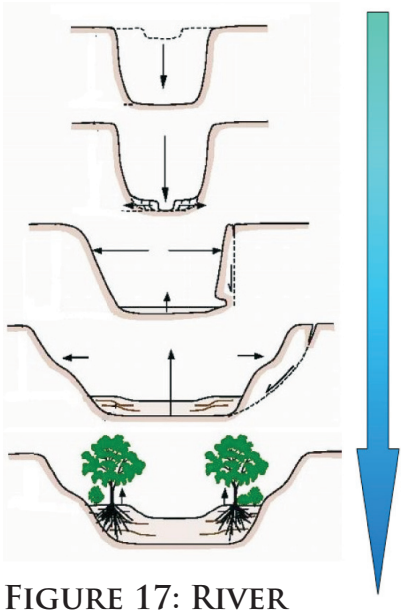


Figure 17: River Channel Evolution

As early land management reduced the watershed cover overland flow of water increased and stream channels deepened to match the increased supply of water and sediment. Major flood events in the 1894 were the likely immediate cause of the deepening of the channels. Channel incisions eventually lead to bank failures and subsequent channel widening (see Figure 17). As channel widening and bank failures continued, a new low-flow channel begins to form in debris from bank failure. Many of the stream channels in the plan area were in this process of this initial buildup in the 1980s.

The result of this process is that the new channels are usually lower than the predisturbance channel, and the old floodplain now functions primarily as a terrace. Some terraces may be the result of climatic variations and the associated changes in flow and sediment supply. The final stage of channel evolution results in a new bankfull channel and active floodplain at a new, lower elevation. Many stream channels in the plan area have new, lower elevation channels and floodplains.

The BLM has adopted Proper Functioning Condition (PFC) assessment (USDI-BLM, 1991) as a standard for evaluating riparian areas and uses this to supplement existing stream channel and riparian evaluations and assessments. Streams and wetlands located on BLM managed land have been assessed for condition using the PFC methodology. The PFC assessment employs a consistent approach for considering hydrology, vegetation, and erosion/deposition attributes and processes (Prichard, et al., 1998). The assessment of the on-the-ground condition refers to how well the physical processes are functioning.

The majority of BLM stream channels and floodplains within the planning area are not meeting the BLM standard of Properly Functioning Condition (PFC). On the other hand relatively few steam channels are non-functioning. More intermittent stream channels are in non-functioning condition than perennial streams, but they also have more miles of stream at potential and Properly Functioning Condition. The condition of inventoried stream channels in areas managed by the BLM is displayed in Figure 18.

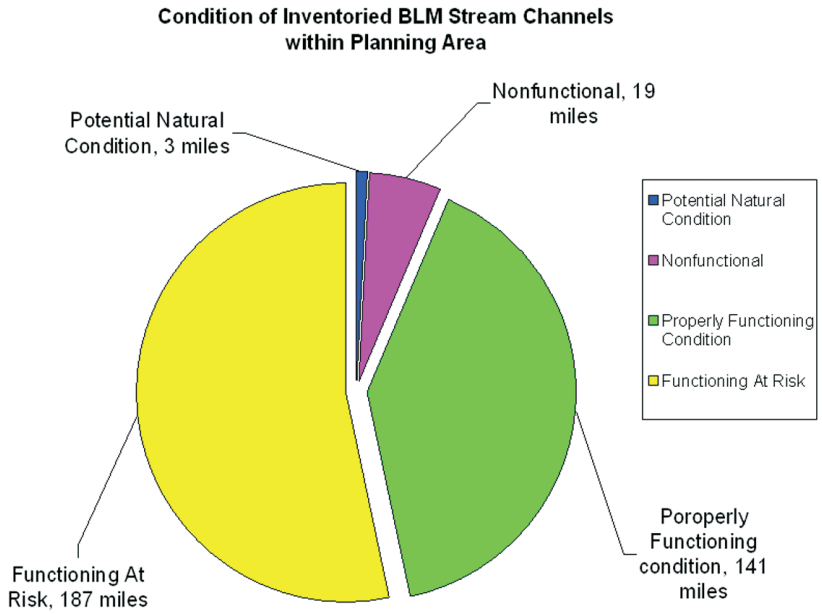
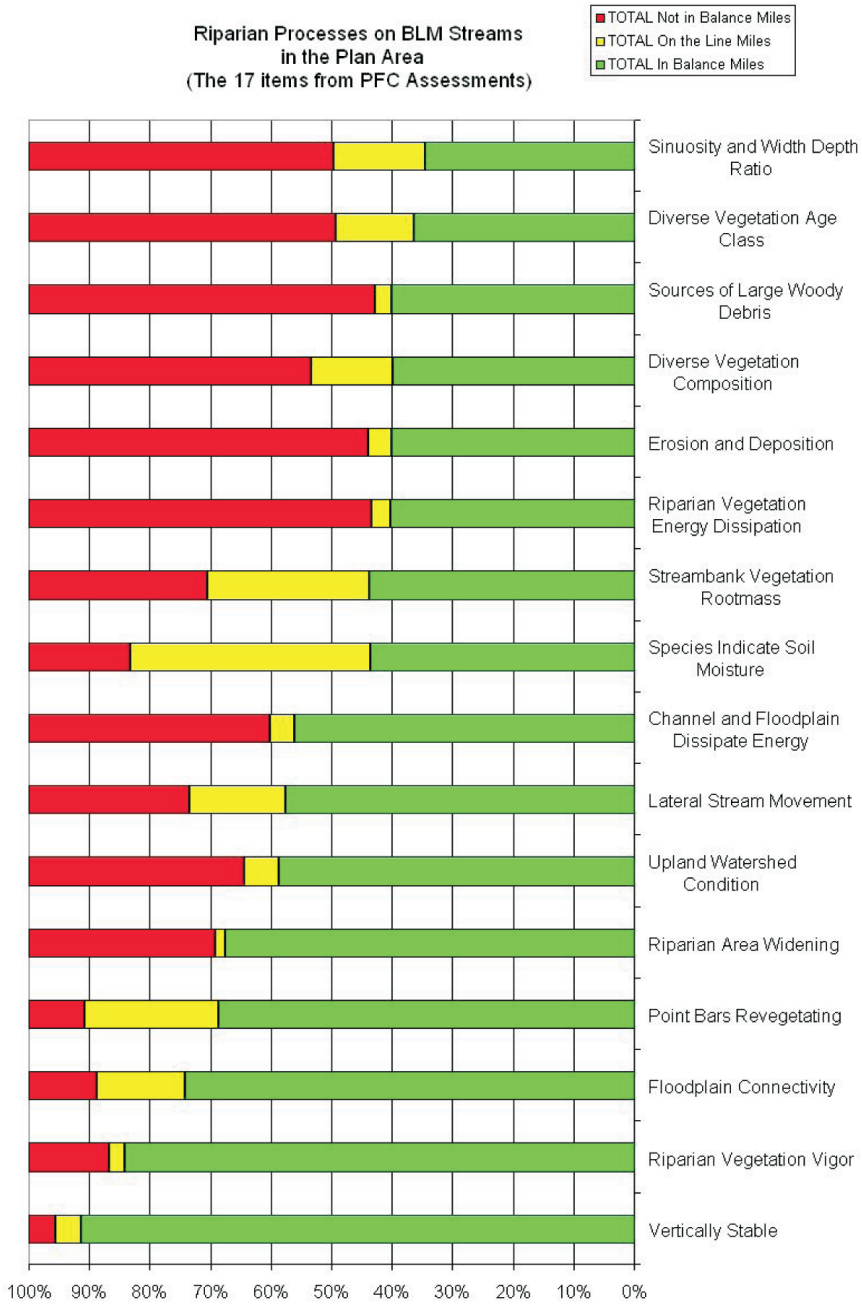


Figure 18: Condition of Inventoried Stream Channels

Figure 19: Evaluation of Riparian Processes on BLM Streams



The physical function of stream channels is based on their hydrology, vegetation and erosion/deposition. These physical functions are captured in the 17 question checklist from the PFC inventory (see Figure 19). Figure 18 also summarizes the current condition of the physical stream processes in the planning area by miles of stream. The physical stream functions are in order from the least to greatest percentage of planning area streams in balance with the landscape.

The upper portion of Figure 19 illustrates two generalities about BLM stream channels. First, is the relative youth of restoration process in the planning area. Diversity in age class and composition of riparian areas and development of dense streambank root masses are rare. These functions require consistent management over an extended period, sometimes more than 100 years. A second general observation is the need to reduce stream energy, which can be achieved by restoring sinuosity and width to depth ratios. A majority of stream channels need time to recruit large wood and dense riparian vegetation.

The three processes in the mid portion of Figure 19 indicate that many streams are still actively aggrading and widening. Although streams are connected to new floodplains, many of these new floodplains are insufficient for dissipating stream energy. Insufficient time has passed for large wood and overflow channels to develop under the current system condition. Many upland watershed conditions are still contributing to elevated stream energy, inhibiting the achievement of channel equilibrium.

Physical processes including vertical stability, vegetative vigor, and flood plain connectivity are generally functioning across the landscape. There are currently more than 40 active head cuts, but most stream channels are vertically stable. Many channels, down cut during floods more than 100 years ago, and have reached a new equilibrium

or intercepted an erosion-resistant layer. Changes in riparian area management over the last 20 years have allowed growth of vigorous riparian vegetation and point bars are revegetating. Almost three-quarters of the stream channels have a floodplain above bankfull that is inundated relatively infrequently. Nevertheless, the floodplains are typically narrow and are just beginning to establish in the bottoms of incised and aggrading channels. As these floodplains establish, riparian vegetation should continue to widen.

Management across the planning area has emphasized riparian area restoration since the Two Rivers and John Day RMPs were signed. Since 1992, efforts to improve riparian habitat have benefited from prioritized aquatic and riparian habitat improvement. Management of timber, grazing, and road building have emphasized actions compatible with achieving an upward trend in stream channel and floodplain function. These measures have been effective to improving trend on BLM channels and floodplains. For example, 63 percent of at-risk riparian areas exhibited an upward trend at the time they were inventoried while only 9% of exhibited a downward trend.

In 2005 the condition of streams for which Properly Functioning Condition assessments have been completed was compared with condition of the same streams in the 1980 Inventory stream channel condition. The results of the comparison are displayed in Table 5.

It is apparent, from Table 5, that there has been a slight improvement in condition, but overall the stream channels are in Fair or At-Risk condition.

Key Features

Three stream channels have been identified as being at potential. They are an unnamed tributary to Rudio Creek off Miller Flat, an unnamed tributary to Franks Creek on Scott Creek allotment, and Marks Creek. Streams at potential are extremely rare. For the planning area, less than one percent of all inventoried BLM stream channels have been determined to be at potential. These areas provide important reference areas and provide bench marks for achieving desired conditions. These areas also serve an important function for wildlife that depend on conditions typical of a later seral stage.

Water Quality

Water quality accounts for the biological, chemical, and physical condition of a water body. Water quality is evaluated based on a water body's ability to support beneficial uses of the water. Generally key water qualities are those that support native fish and wildlife and support human uses such as agriculture, recreation, and domestic water supply.

Table 5: Stream Channel Conditions 1980s-2000s

1980 Inventory - 2000s Inventory Class	1980s	2000s
Poor - Non-Functioning	12%	5%
Fair - At-Risk	76%	74%
Good - PFC	12%	21%
Excellent - Potential	<1%	<1%

The Oregon Department of Environmental Quality (DEQ) monitors selected waterbodies for water quality. DEQ has analyzed water quality in the John Day basin between 1995 and 2004. Each site with sufficient data has been analyzed for general water quality. Table 6 illustrates that the majority of the John Day Basin major rivers have achieved a status of good or are in an upward trend.

Many streams within the planning area are designated as water quality limited under section 303d of the Clean Water Act. Section 303(d) requires that each state develop water quality criteria and delineate streams that fail to meet water quality standards. The 303d listed streams flowing through BLM managed land in the planning area are displayed in Map 7 and the specific parameters for listing and stream names are included in Table 7.

In general, the water quality concerns expressed for the planning area are similar to the surrounding region. For the John Day River Basin, as with the Columbia River Basin, the major water quality concern has been water temperature. These water temperature concerns correlate to the beneficial use of fish spawning and rearing habitat.

Conditions that affect stream temperature can be grouped as near-stream vegetation and land cover, channel shape, and hydrology; including humidity and air temperature (see Figure 20). Many of these conditions are interrelated and many vary considerably across the landscape. For example, channel width measurements can change greatly over even small distances along a stream. Some conditions vary daily and/or seasonally.

Removal of riparian vegetation and the shade it provides contributes to elevated stream temperatures (Rishel et al., 1982; Brown, 1983; Beschta et al., 1987). Channel widening can similarly increase the solar radiation load. The principal source of heat energy delivered to the water column is solar energy striking the stream surface directly (Brown 1970). Exposure to direct solar radiation will often cause a dramatic increase in stream temperatures. The ability of riparian vegetation to shade the stream throughout the day depends on vegetation height, width, density and position relative to the stream, as well as aspect the stream flows (streamside vegetation provides less shade on a north or south flowing stream than on an east or west flowing stream).

Table 6: Oregon Water Quality Index Status and Trends Summary (1994-2004)

Major River Sites	At River Mile	Score out of 100	Category	Trend	Trend Magnitude
John Day River at HWY 206	39.5	80	fair	No Trend	
John Day River at Service Creek	157.4	85	good	No Trend	
North Fork John Day River at Kimberly	0.2	89	good	No Trend	
South Fork John Day River at Dayville	0.2	88	good	Improving	2.5
John Day River upstream of Dayville	215.4	83	fair	Improving	4.6

Table 7: Name of 303d Streams with BLM 2002 Listing

Parameter and Criteria for Listing

John Day River river mile 9.7 to 181.
Temperature for Rearing: 17.8 C
North Fork John Day River river mile 31.7 to 86.
Temperature for Rearing: 17.8 C
Temperature for Spawning: 12.8 C
Big Wall Creek river mile 0 to 21.3
Sedimentation
Temperature for Rearing: 17.8 C
Temperature for Spawning: 12.8 C
South Fork John Day River river mile 0 to 57.3
Temperature for Rearing: 17.8 C
North Fork John Day River river mile 0 to 31.7
Temperature for Rearing: 17.8 C
Temperature for Spawning: 12.8 C
Bridge Creek river mile 0 to 28.7
Temperature for Rearing: 17.8 C
John Day River river mile 182 to 265
Dissolved Oxygen for Cold water: 8 mg/l
Fecal Coliform for Geometric Mean of 2
Temperature for Rearing: 17.8 C
Ditch Creek river mile 0 to 19.5
Temperature for Rearing: 17.8 C
Battle Creek river mile 0 to 7.3
Temperature for Rearing: 17.8 C
Potamus Creek river mile 0 to 18.4
Temperature for Rearing: 17.8 C
Mallory Creek river mile 0 to 14.3
Temperature for Rearing: 17.8 C
Sorefoot Creek river mile 0 to 7.5
Temperature for Rearing: 17.8 C
Deer Creek river mile 0 to 11.9
Temperature for Rearing: 17.8 C
Grass Valley Canyon river mile 0 to 39.8
Temperature for Rearing: 17.8 C
Bear Creek river mile 0 to 4.6
Temperature for Rearing: 17.8 C
Gable Creek river mile 0 to 7.7
Temperature for Rearing: 17.8 C

Middle Fork John Day River river mile 0 to 69.8
Temperature for Rearing: 17.8 C
Temperature for Spawning: 12.8 C
Flat Creek river mile 0 to 11.7
Temperature for Rearing: 17.8 C
Temperature for Spawning: 12.8 C
Little Pine Creek river mile 0 to 5.1
Temperature for Rearing: 17.8 C
John Day River river mile 0 to 9.7
Temperature for Rearing: 17.8 C
Nelson Creek river mile 0 to 5.7
Temperature for Rearing: 17.8 C
Canyon Creek river mile 0 to 27.5
Temperature for Rearing: 17.8 C
Cottonwood Creek river mile 0 to 16.4
Temperature for Rearing: 17.8 C
Trout Creek river mile 0 to 50.7
Sedimentation
Temperature for Rearing: 17.8 C
Sunflower Creek river mile 0 to 8.7
Temperature for Rearing: 17.8 C
Thirtymile Creek river mile 0 to 39.3
Temperature for Rearing: 17.8 C
Temperature for Spawning: 12.8 C
John Day River river mile 36 to 40
pH for pH: 6.5 to 8.5
Indian Creek river mile 0 to 5.4
Temperature for Rearing: 17.8 C
Temperature for Spawning: 12.8 C
Willow Creek river mile 0 to 51.7
pH for pH: 6.5 to 8.5
Temperature for Rearing: 17.8 C
Murderers Creek river mile 0 to 24.7
Temperature for Rearing: 17.8 C
Dads Creek river mile 0 to 8.6
Temperature for Rearing: 17.8 C
Rock Creek river mile 0 to 24.7
Temperature for Rearing: 17.8 C
Mountain Creek river mile 0 to 21.7
Temperature for Rearing: 17.8 C

OREGON
PACIFIC OCEAN
Astoria
Portland
Tillamook
Salem
Newport
Albany
Eugene
Florence
Coos Bay
Roseburg
Grants Pass
Medford
The Dalles
Madras
Bend
Prineville
Klamath Falls
Lakeview
Pendleton
Baker City
John Day
Vale
Burns
John Day Basin Planning Area
Prineville District
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10 0 10 20 Kilometers
Maryhill
Columbia
River
WASHINGTON
OREGON
Biggs
Rufus
Wasco
Moro
Grass Valley
Kent
Deschutes River
John Day River
SHERMAN COUNTY
GILLIAM COUNTY
Arlington
Heppner Junction
Boardman
Cecil
Morgan
Ione
Olex
Lexington
Heppner
Ruggs
Hardman
Condon
Mayville
Fossil
Shaniko
Antelope
Clarno
WASCO COUNTY
JEFFERSON COUNTY
Service Creek
Spray
Richmond
Kimberly
MORROW COUNTY
GRANT COUNTY
Monument
Hamilton
Long Creek
Dale
Ukiah
UMITILLA CO
UNION CO
La Grande
Sumpter
North Fork
Middle Fork
North Fork
Fork
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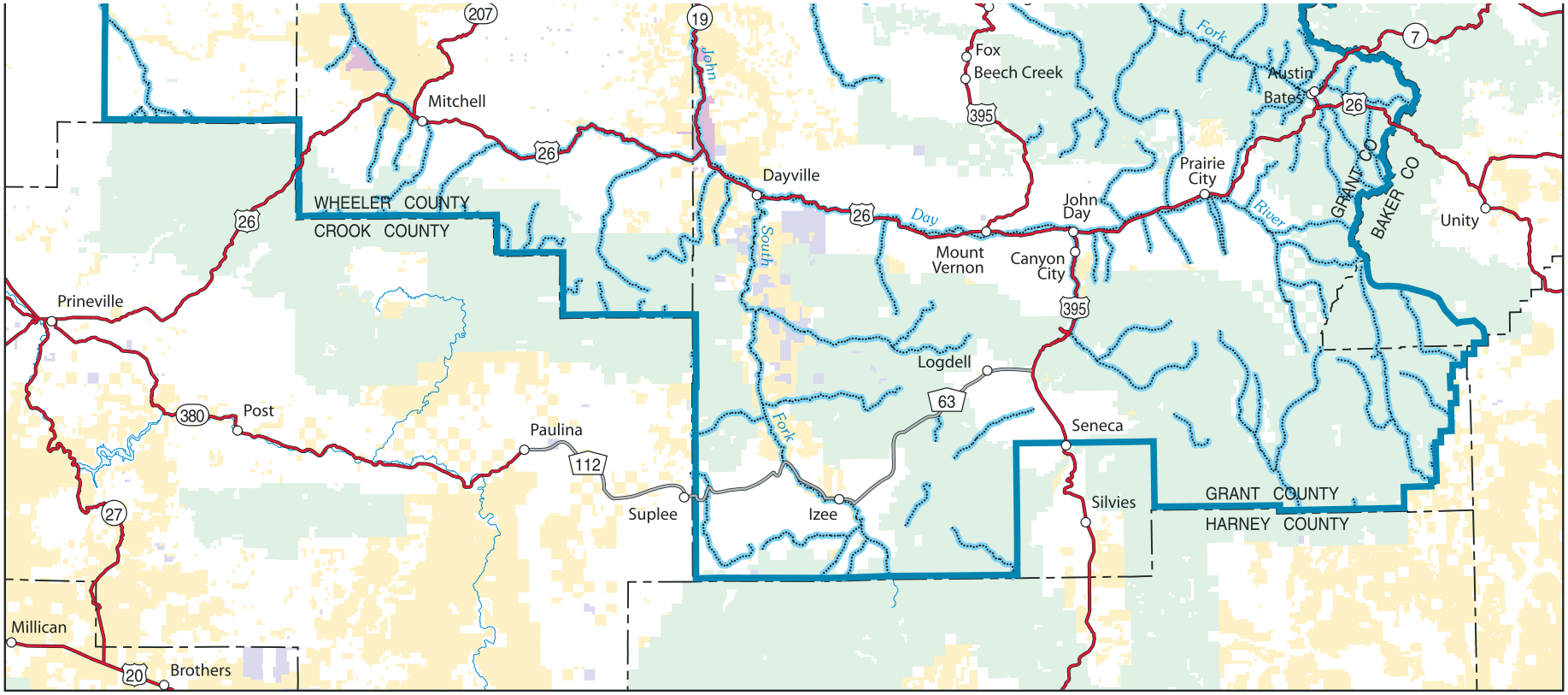

LEGEND

Planning Area Boundary

Oregon Department Environmental Quality 2002 303d Listed Stream

Administered Land

- Bureau of Land Management
- Forest Service
- John Day Fossil Beds National Monument
- Other Federal
- State
- Private or Other

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John Day Basin Resource Management Plan

2006

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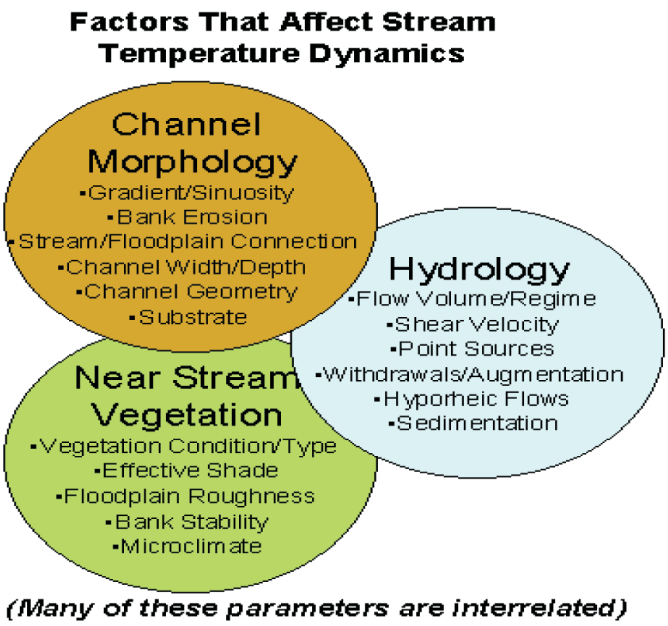
Map 7: 303d Listed Streams

Figure: 20
Factors that Affect Stream Temperature Dynamic



Stream shade is a function of landscape and stream geometry. Some of the factors that influence shade are listed in the Table 8.

Figure 21 indicates water temperatures of the John Day River relative to the distance from the mouth of the river. The temperatures of many important tributaries are also indicated.

Preliminary analysis by the BLM of changes in river width between 1944 and 2006 indicates that the river is about 50 percent wider now than in 1944. There was also an increase in the number of islands; 44 in 1944 and 66 in 2005. The total acreage of islands also increased 42 percent.

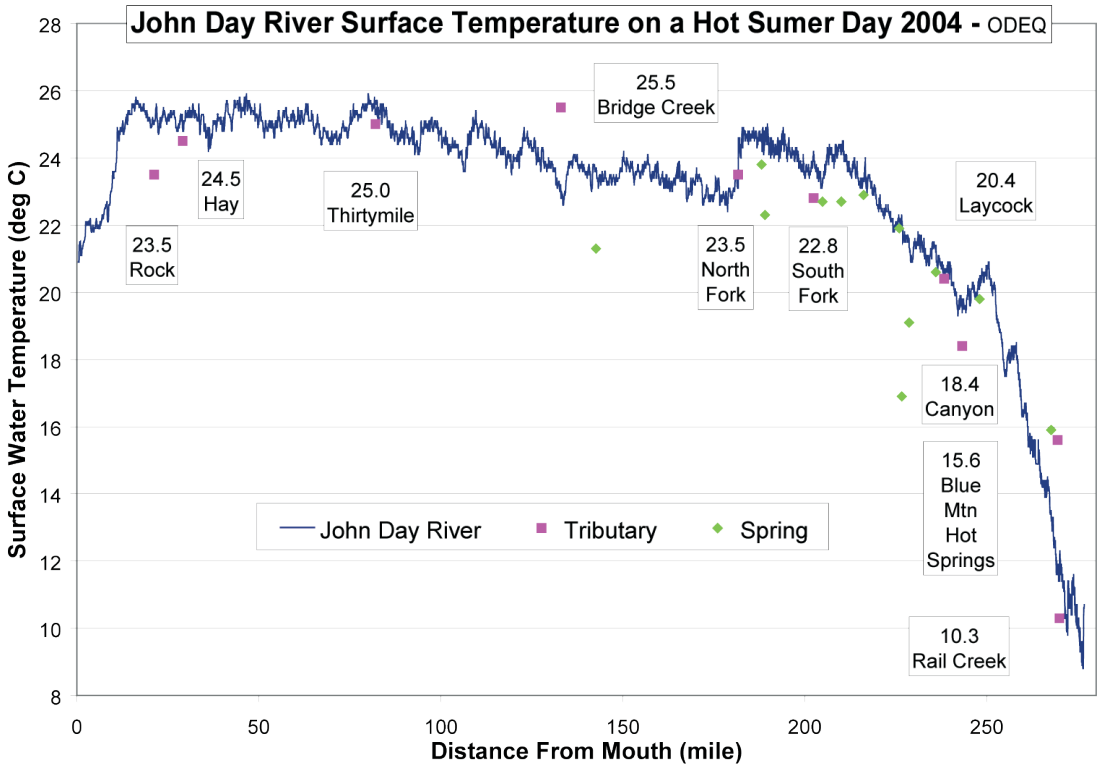
Water Quantity

The average annual precipitation within the John Day Basin is 7.5 million acre-feet (acre-ft). An acre-foot is the volume of water that covers one acre to a depth of one foot. Of this total an average of about 1.5 million acre feet flows past the McDonald Ferry Gaging Station 20 miles above the mouth of the John Day River. The amount of water entering

Table 8: Factors that Influence Stream Surface Shade

Description	Measure
Season/Time	Date/Time
Stream Characteristics	Aspect, Near-Stream Disturbance Zone Width
Geographic Position	Latitude, Longitude
Vegetative Characteristics	Buffer Height, Buffer Width, Buffer Density
Solar Position	Solar Altitude, Solar Azimuth

FIGURE 21: JOHN DAY RIVER SURFACE TEMPERATURE



the river below this point is extremely small due to a small drainage area and low rainfall level. The remaining 6 million acre feet or 80% remains in the ground or evaporates or transpires from living things into the atmosphere. For comparison, the water balance across the entire United States is approximately 30% runoff plus 70% evapo-transpiration (Leopold, 1994). Precipitation in the Basin varies by location, elevation, and season.

The North Fork John Day River at Monument accounts for two thirds of the average annual stream flow near the outlet of the John Day River at McDonald Ferry. Flow is measured in cubic feet per second (cfs) or amount of flow required to pass one cubic foot of water in one second. The average annual flow at Service Creek is almost identical to the flow near the River outlet below McDonald Ferry. The contribution of the North Fork John Day River flow increases to approximately 80% during low summer flows. Similarly during low precipitation years the North Fork John Day contribution to mainstem flow is magnified compared to years with abundant precipitation. Seasons and years of low water yield are particularly crucial periods for most of the plan area's beneficial uses of water.

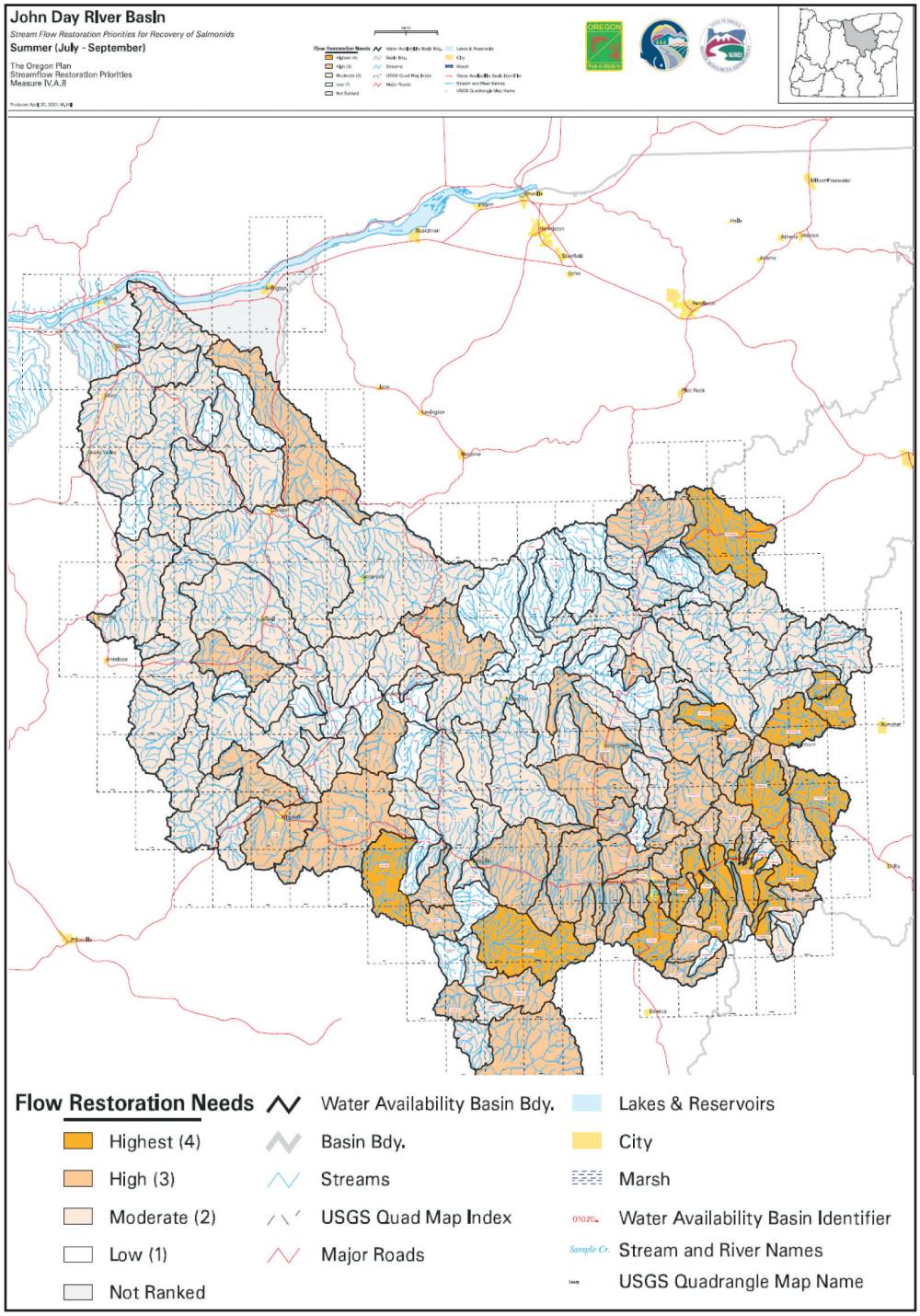
Regardless of the condition of BLM managed lands the impact on water conditions in the basin is limited. This is because the 9 percent of the John Day Basin managed by the BLM (measured from McDonald Gage) intercepts only 7 percent of the total volume of basin precipitation. By contrast, the Forest Service manages only 33 percent of the drainage area, but those lands intercept 43 percent of the precipitation volume of the basin.

The annual flow patterns have changed since the 19th century. Historical descriptions of the John Day Subbasin indicate that the John Day River was once a relatively stable river with good summer streamflows and water quality, and heavy riparian cover. Streambanks were covered with dense growths of aspen, poplar, and willow; cottonwood galleries were thick and wide; and beaver were very abundant (Wissmar *et al*. 1994). Now peak flows

are greater and late season flows are more diminished. It is suspected that these effects are due to greatly reduced rates of soil infiltration, reduced capacity for ground water / riparian storage, and loss of in channel storage in beaver ponds (NWPPC 2001).

Oregon Department of Fish and Wildlife and Oregon Water Resources Department have jointly recognized this trend and have identified watersheds with high flow restoration needs for salmonid recovery. These agencies identified streams and rivers with flow restoration needs in a map displayed as Figure 22.

Figure 22: John Day River Basin Stream Flow Restoration Priorities



Fisheries

The John Day River basin provides habitat for 29 documented species of native and non-native fish populations. Five of the native species are "special status species" including: Middle Columbia distinct population segment (DPS) summer steelhead DPS (*Oncorhynchus mykiss)* listed under the Endangered Species Act (1973) as Threatened (12/23/05), bull trout (*Salvelinus confluentus)* as Threatened (6/10/98), interior redband trout DPS (12/23/05) (*Oncorhynchus mykiss)* as sensitive, westslope cutthroat trout (*Oncorhynchus clarki lewisi)* as sensitive and Pacific lamprey (*Lampetra tridentata)* as sensitive. Chinook salmon (*Oncorhynchus tshawytscha)* is an important native game species that spawns in the John Day basin.

Information on trends and distribution has focused primarily on anadromous (sea run) salmonids, and to a lesser extent on resident salmonids and warm water game species. Native and introduced non-game species populations and distribution have generally not been assessed. Introduced game species typically have been analyzed to determine if the introduction was successful and if so what fishery could be sustained.

Fall Run Pacific Lamprey and Chinook Salmon

Pacific lamprey and a small run of fall Chinook salmon in the lower John Day River are species of interest in the John Day system. Although these runs have been less extensively monitored than other runs, restoration efforts designed to protect and restore habitat for spring Chinook salmon and summer steelhead will benefit these anadromous species and native resident species in the John Day River System.

Spring Chinook and Summer Steelhead

The John Day River system supports one of the few remaining wild runs of Spring Chinook salmon (Lindsey et al. 1986, OWRD 1986, Quigley and Arbelbide 1997) and summer steelhead (Quigley and Arbelbide 1997, OWRD 1986) in the Columbia Basin, providing approximately 117 miles of spawning habitat for spring Chinook and 1,800 miles for summer steelhead (ODFW 1997).

Salmonid habitat is similar for the various species. Summer steelhead spawn in cool, clear streams with suitable gravel (pea size to marble size), depth and current velocity. Steelhead enter streams and arrive at spawning grounds weeks or even months before they spawn and are vulnerable to disturbance and predation during this time. Eggs hatch in 30 to 60 days depending on water temperature. Fry emerge from the gravel and within a few days absorb the yolk sack and become free swimming. Rearing habitat is cool, clean water with an optimum temperature of 55 degrees Fahrenheit. Channel structure includes pools and riffle/glides with adequate depth and overhead cover (vegetation, banks and/or woody debris). Vegetation near the channel is desirable to reduce solar radiation and also provided a food base for aquatic and terrestrial insects that, in turn, serve as a food for fish. Summer steelhead begin to spawn as the temperature of the water warms and approaches optimal levels in spring to early summer depending on elevations.

Chinook salmon spawning habitat is similar to that used by steelhead although ideal gravels are golf-ball to baseball sized. Spring Chinook spawn in the fall and eggs overwinter in the gravel with emergence occurring in the spring. Rearing occurs in the

natal streams or adjacent cool water tributaries. Rearing habitats are the same as for steelhead and juvenile out migration occurs the following winter/spring on high flows.

The productivity of these populations is determined by the number of returning adults. Index reaches have been established by ODFW throughout the basin. These index reaches are monitored each year to determine the number of redds (spawning nests) and then extrapolated to an estimate of the number of returning adults. Table 9 displays the annual production goals for spring chinook salmon and summer steelhead.

Populations of desired fish species are the product of habitat features needed for the life stages from egg to maturity. Within the John Day basin, stream/river habitats offer suitable gravel for spawning, adequate high quality water for rearing and good flows for migrations. Out of basin influences such as hydroelectric dams, ocean conditions, harvest and predation play a vital role in the number of Chinook salmon and steelhead returning to the John Day basin.

Key Habitat quantity is a limiting factor for approximately 95 percent of the geographic areas for both Chinook salmon and summer steelhead. Key habitat quality refers to the key habitat type required of each life stage for each species. The John Day Basin Plan from the Northwest Power and Conservation Council identified channelization of streams and rivers, habitat diversity, water temperature, sediment load, and flow as limiting factors for steelhead and Chinook in their key habitats. (John Day Basin Revised Draft Plan 2005)

The lower 200 of miles of the John Day River functions primarily as a migration corridor for anadromous salmonids. Tributary streams in this portion of the basin accounts for an estimated 6 percent of the steelhead production in the John Day basin. A small run of fall Chinook salmon utilize the lower segment up towards Cottonwood Bridge for spawning (OWRD 1986). The upper mainstem John Day river and/or tributaries) produce an estimated 18 percent of the spring Chinook salmon and 16 percent of the summer steelhead in the John Day basin (OWRD 1986). Increasing population trends since 1959 for spring Chinook salmon are indicated in the upper mainstem John Day sub-basin. These trends are attributed to management and restoration efforts implemented over the last few decades (ODFW 1997). The South Fork sub-basin produces approximately 7 percent of the summer steelhead population in the John Day basin (OWRD 1986). The North Fork and Middle Fork John Day sub-basins produce approximately 82 percent of the spring Chinook salmon and 73 percent of the summer steelhead population in the John Day basin (OWRD 1986). There has been no sport fishing of spring Chinook salmon since 1977, and the steelhead fishery has been limited to the catch and release of “wild” (non-adipose fin clipped) fish from 1996 to the present. Steelhead production takes place in the tributaries and headwaters of the river, mostly outside the river corridor (John Day River Proposed Management Plan 2002).

Table 9: Average Annual Goals for Spring Chinook Salmon and Summer Steelhead

Species	**Sport and tribal Harvest Estimates**	**Natural Reproduction Escapement Estimates**	**Total Escapement Goal**	Average Escapement 1989-1998
Spring Chinook Salmon	1,050	5,950	7,000	2,310
Summer Steelhead	11,250	33,750	45,000	8,370

Source: ODFW (1990)

Resident Salmonids

Several species of resident salmonids inhabit the John Day River system. Interior Redband trout (Behnke 1992) occur throughout the basin primarily occupying river habitats in the upper subbasins and tributary habitats. Hatchery supplementation with rainbow trout occurred prior to 1986 but with the "wild fish policy" ODFW no longer releases hatchery fish in streams associated with the John Day River. One native subspecies of cutthroat trout, Westslope (*Oncorhynchus clarki lewisi*), is found in tributary streams of the upper mainstem John Day River. Westslope cutthroat were introduced in 1960 from Deardorff Creek to Clear Creek and South Fork Desolation Creek in the North Fork John Day subbasin. Yellowstone cutthroat (*Oncorhynchus clarki bouvieri*) and Lahonton cutthroat (*Oncorhynchus clarki hendersoni*) were stocked in certain North Fork John Day reservoirs in the past.

Resident trout and Westslope cutthroat, like steelhead, spawn in the spring. Gravel size is smaller and depends on the size of the spawners. Resident trout can mature and spawn at 7-8 inches in length and continue spawning with increased growth. Incubation period is temperature dependent. Rearing habitats are similar to steelhead but typically upstream of these areas.

Rainbow trout were planted in various streams and ponds in the John Day Subbasin beginning in 1925 and periodically continued through 1997. Some streams only received one planting while other streams received 147. The streams where rainbow trout were consistently stocked include Canyon Creek and the John Day River in the upper mainstem watershed; and Camas Creek, Desolation Creek and North Fork John Day River in the North Fork watershed (Northwest Power and Conservation Council, 2005). ODFW's "wild fish" policy suspended stocking in all streams, however, some ponds/reservoirs with a stream outlet were stocked until 2001. These plantings were designed for a "put and take" sport fishery and ODFW determined the risk was low that survivors from these plantings would interbreed with native populations (Unterwegner, 2006).

Westslope cutthroat trout (WCT) probably never were widely distributed in the Blue Mountains or Columbia Plateau. Productivity has been adequate to sustain localized migratory and isolated populations, resulting in current populations thought to be fairly secure. However, this conclusion must be tempered by uncertainty regarding the genetic integrity of remaining populations. Most current wild populations are depressed. Hybridization, fragmentation and loss of migratory populations have limited healthy populations to a much smaller proportion of their historical range. Further, competition with introduced rainbow and brook trout has impacted the ability of the species to fully occupy its natural niche in the ecosystem (John Day Basin Revised Draft Plan 2005).

Bull trout were listed as threatened on June 10, 1998 (63 FR 31647). The John Day basin is included in the Columbia River Distinct Population Segment (DPS). Within the basin, eleven existing local populations (or stocks) were identified. Three subbasins, North Fork John Day, Middle Fork John Day and mainstem John Day each contain a Core Area, meaning the fish from the area spawn in a particular stream, at a particular season, and which to a substantial degree do not interbreed with any group spawning at a different place, or in the same place at a different season. All spawning occurs in cooler headwater segments of the three subbasins. The various down river segments including BLM land are utilized as winter rearing/foraging habitat. Presently, bull trout occur in 45 percent of their historical range (Quigley and Arbelbide 1997) The North Fork and mainstem John Day populations are considered to be at moderate risk of extinction and the Middle Fork John Day are at high risk of extinction (Ratliff and Howell 1992).

Bull trout reach maturity at sizes similar to resident trout but are fall spawners. Substrate is normally smaller, clean gravels in headwater reaches. Bull trout prefer sites with upwelling rather than the typical pool tail area of other salmonids. Preferred temperatures in these headwater streams are cooler with the optimum about 45 degrees F. Rearing habitats are similar but productivity is greater in habitats with an abundance of woody debris.

Although Bull Trout historically occurred throughout the John Day Subbasin, they were probably never as abundant as other salmonids in the subbasin. It is certain that they were more abundant and more widely distributed then they are today. The current distribution of bull trout is clearly fragmented (Howell and Buchanan 1992). In the winter of 2004, ODFW documented subadult bull trout movement in the mainstem John Day River down to the National Park Service Interpretive Center (RM 203) and in the Middle Fork to the hot springs at Ritter (RM 15). Recent survey work by Oregon Department of Fish and Wildlife ((Hemmingsen *et al 2001)* detected bull trout in the mainstem John Day River at river mile 170 near the town of Spray, downstream of the confluence with the North Fork John Day. Two bull trout were radio tagged and tracked upstream during the summer. (John Day Basin Revised Draft Plan 2005). Both fish entered the North Fork, one traveling 112 mile over a period of 77 days, the other 137 miles into the tributary of Granite Creek to mile 3.8. Presence of bull trout at Spray confirm there is a component of movement along the rivers to the local population in both the North Fork and mainstem John Day Rivers. These fish utilize the lower river segments as winter foraging habitat which include segments flowing through public lands.

Introduced Smallmouth Bass and Channel Catfish

The John Day River also supports an increasingly popular warm water sport fishery. A review of habitat requirements revealed the river exhibits good conditions for both smallmouth bass (*Micropterus dolomieui*) and channel catfish (*Ictalurus punctatus*). Upon assurance that warm water species predation on salmonids would be minimal, these species were introduced into the John Day River below Kimberly (RM 185) in the early 1970s (ODFW 1999). Smallmouth bass are distributed throughout the mainstem from the mouth to Picture Gorge (RM 205), the North Fork from the mouth to Desolation Creek (RM60, and the Middle Fork from the mouth to Big Creek (RM 39). This species appears to be increasing upstream distribution by adapting to marginal habitat conditions higher in the basin. Diet studies support the theory that smallmouth bass in the John Day are a minimal risk to migrating salmonids. Smallmouth bass have successfully filled a niche in the John Day River, which has developed into a nationally recognized sport fishery.

Terrestrial Wildlife

The John Day Basin contains a rich wildlife population. Wildlife within the basin utilize habitats that range from dense moist forest to dry shrub and grasslands. There are 378 terrestrial species that utilize the Blue Mountains. Fifty-one of these species migrate through or are occasional visitors in the Blue Mountains (Thomas, 1979). There is one Federally listed species with reproductive habitat, one Federally listed species with incidental and dispersal habitat, one formerly listed species, two candidates for Federal listing, 21 Bureau Sensitive Species, 6 Bureau Assessment Species, and 37 Bureau Tracking Species (Appendix B). Mule deer (*Odecoileus hemionus*) and elk (*Cervus elephus*) are considered locally important species. Additionally there are numerous neotropical migratory bird and upland game birds.

The John Day main-stem, North, and South Forks provide Bald Eagle (*Haliaeetus leucocephalus*) winter roosting habitat, potential peregrine falcon eerie habitat, California big horn sheep (*Ovis Canadensis californiana*) habitat, and neotropical migratory bird habitats. 285 of the 378 terrestrial species (over 75%) known to occur in the Blue Mountains are either directly dependent on riparian zones, or use them more than other habitats. Consequently, these riparian areas are the most critical wildlife habitats in the Blue Mountains (Thomas, 1979).

Neotropical migratory birds breed and raise young in the planning area in the spring and summer then migrate south to areas in Mexico and South America during the fall and winter. These birds range from small sparrows and warblers to large woodpeckers and raptors. All habitat types are utilized with riparian areas having the highest proportion of use.

Large ungulates, such as mule deer, elk and antelope (*Antilocapra americana*), are common year-round residents in the John Day Basin. Critical big game winter ranges occur in the North and South Fork of the John Day Rivers (Map 8 displays past RMP winter range designations). Many of the foothills along the John Day River are used as winter range by these species. The ODFW sets population and species management goals within the state. The BLM cooperates with ODFW in helping to meet these goals by providing an appropriate amount and quality of habitat on public land consistent with multiple-use management.

In 2005 ODF&W published “The Oregon Conservation Strategy”. The BLM and other management agencies have agreed to manage consistent with direction contained in this document. The Oregon Conservation Strategy identifies habitat values, Conservation Opportunity Areas (COAs), and suggests management considerations. See Map 3 for the location of COAs

North Fork John Day Acquisition Lands

The wildlife habitat acquired in the John Day Basin contains representative coniferous forest, riparian, montane shrub, grassland, and western juniper habitat. The acquisition lands contain approximately 75 miles of riparian habitat.

The North Fork acquisition lands contain some of the most diverse riparian and coniferous forest communities on BLM land in the basin. The north slopes providing refugia for many wildlife species due to wetter communities that stay green longer during the hot summer months. The drainages, north slopes, and higher elevations on the north side of the river contain coniferous forest communities. Some of these forest communities are in relatively large blocks and stringers, providing contiguous habitat that benefit wildlife species utilizing interiors of these habitats.

The southern aspects and ridge tops on the north side of the river are dryer habitat types that get more solar radiation in the winter and thus provide important mule deer and elk winter range providing habitat for 1,200 - 1,500 elk and 3,000 to 4,000 mule deer..

The North Fork provides important wintering habitat for the bald eagle a threatened species, a large nesting population of Lewis’ woodpeckers (*Melanerpes lewis*), and lies within historic California Bighorn Sheep habitat.

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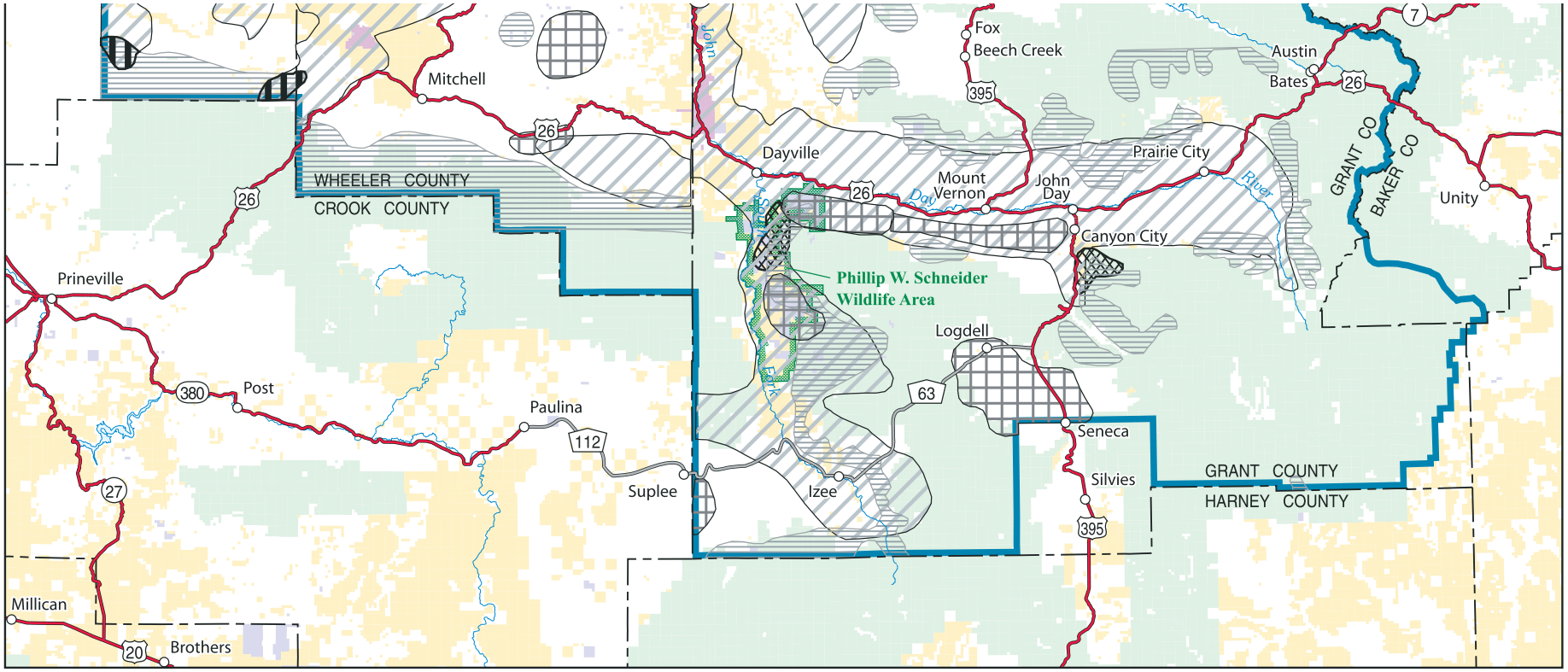
10 0 10 20 Kilometers
OREGON
Astoria
Portland
Tillamook
Salem
Newport
Albany
Florence
Eugene
Coos Bay
Roseburg
Grants Pass
Medford
The Dalles
Madras
Bend
Prineville
Klamath Falls
Lakeview
Pendleton
Baker City
John Day
Vale
Burns
PACIFIC OCEAN
John Day Basin Planning Area
Prineville District
Maryhill
Columbia
River
WASHINGTON
OREGON
Biggs
Rufus
Wasco
Moro
Grass Valley
Deschutes River
John Day River
SHERMAN COUNTY
GILLIAM COUNTY
Kent
Condon
Olex
Arlington
Heppner Junction
Boardman
Cecil
Morgan
Ione
Lexington
Heppner
Ruggs
Hardman
Mayville
Fossil
Shaniko
Antelope
Clarno
WASCO COUNTY
JEFFERSON COUNTY
Service Creek
Spray
Richmond
MORROW COUNTY
GRANT COUNTY
Kimberly
Monument
Hamilton
Long Creek
Dale
Ukiah
UMITILLA CO
UNION CO
La Grande
Sumpter
North Fork
Middle Fork
Fork



LEGEND

- Antelope Winter Range
- Deer Winter Range
- Deer and Elk Winter Range
- Elk Winter Range
- Long Billed Curlew
- Potential California Bighorn Sheep
- Phillip W. Schneider Wildlife Area
- Planning Area Boundary

Administered Land

- Bureau of Land Management
- Forest Service
- John Day Fossil Beds National Monument
- Other Federal
- State
- Private or Other

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Map 8: Existing Management Designations for Wildlife
(Incomplete Coverage)

Key Habitat Components

Fragmentation

Fragmentation occurs when human or natural activity creates breaks in what was formerly more or less a contiguous habitat type. Palouse prairie habitats are some of the most fragmented habitats within the planning area due to agricultural conversion. This occurs primarily on private lands. Shrub steppe habitats are becoming more fragmented due to the expansion of juniper into these habitats. Forested habitats on BLM lands have lower levels of fragmentation than surrounding private lands. Roads and fire may also create breaks in habitat. For the most part, however, many roads on BLM lands are two track that minimally contribute to fragmentation.

Connectivity

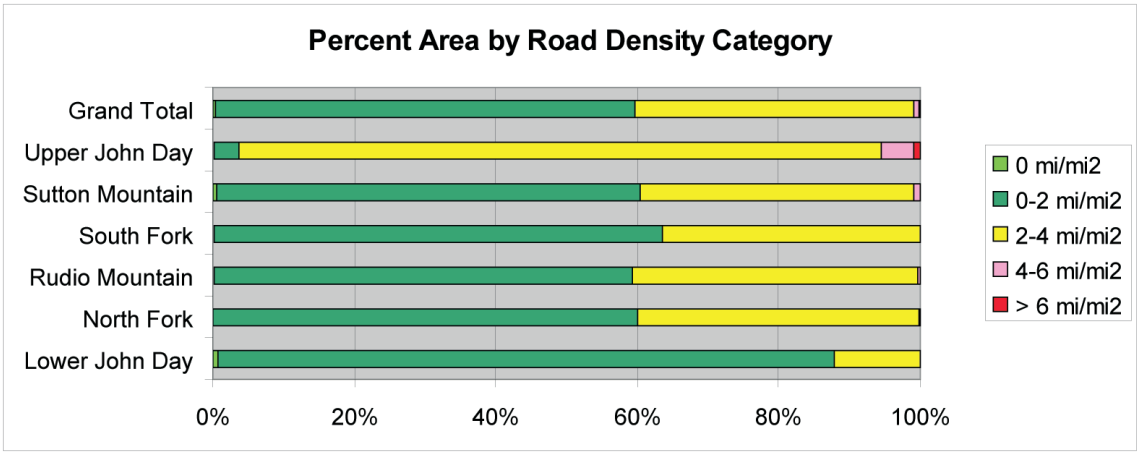
Connectivity at the landscape scale has not been analyzed. There are known local migration areas for big game moving to wintering grounds. It is also believed that portions of the planning area provide connectivity for species dispersal between the Blue Mountains, Ochoco Mountains, and the Cascade Range. Outside of fragmentation issues there are no known barriers within the planning area that would preclude habitats from being used as connectivity habitat

Road Density

Road density is a key element in determining the amount of habitat fragmentation within a given area. Road density analysis was completed previously utilizing a roving windows approach. This method assigns road density groupings to areas of land.

The following Figure 23 displays percent area of BLM land by given road density. In general most BLM lands are within the 0 – 2 or 2 – 4 miles per square mile range (m/m^2) range. This analysis was base on a partial inventory of roads.

Figure 23: Percent area by Road Density Category



Threatened, Endangered, and Special Status Wildlife Species

Since 2000 the Prineville BLM has participated in a Joint Programmatic Biological Assessment (JPBA) with the Deschutes and Ochoco National Forests for Federally Listed species. The JPBA established Project Design Criteria (PDC) that if followed have been determined to result in a Not Likely to Adversely Effect determination.

The John Day basin has a variety of special status species that are either known or thought to occur within its boundaries. For a list of special status species that are known to occur or may occur within the John Day basin, see Appendix B.

The bald eagle is listed as Threatened as described in the Endangered Species Act (ESA). On July 6, 1999, however, the U.S. Fish and Wildlife Service (USFWS) published a proposed rule to remove the bald eagle from the list of Endangered and Threatened Wildlife in the lower 48 states (50 CFR Part 17, Federal Register/Vol. 64, No. 128/ July 6, 1999/36454-36464). The action was proposed because the available data indicates that the bald eagle has met and exceeded recovery goals throughout Oregon.

This species is a winter inhabitant of the John Day basin, utilizing the John Day River corridor as a primary use area from November to March. Numerous roost areas, as well as a few known nest sites occur in the basin. There are no documented nests on BLM lands. Small tracts of BLM lands in the Rock Creek area are within a designated Bald Eagle Management Area (BEMA). The primary roosts are large cottonwood and conifer trees located throughout the river corridor. Most foraging occurs from Service Creek to the Blue Mountain Hot Springs on the mainstem John Day River, with the North Fork John Day also receiving significant use. Carrion, fish, ground squirrels and waterfowl are primary food sources of the bald eagle.

The Canada Lynx is currently listed as Threatened across the contiguous United States by the USFWS, pursuant to the Endangered Species Act of 1973, as amended (50 CFR Part 17, Federal Register/Vol. 63, No. 130/July 8, 1998/36993-37013). The analysis area is outside of designated lynx denning, foraging, or travel habitat. The planning area may be important in providing connectivity between Idaho and the Cascade Mountains Geographic Area, although the Snake River and Hells Canyon likely would impede lynx movements.

Peregrine falcon was formally de-listed in 1999; however, the peregrine will continue to be protected by the Migratory Bird Treaty Act. Peregrine falcons inhabit cliffs approximately 0.25 – 1 miles from some form of riparian habitat. In 2001 the Prineville District contracted a habitat analysis survey. The survey found no active sites but did identify 37 potential sites within the planning area. These sites had the following ratings for potential: 9 High, 3 High Historic, 17 Medium, and 8 Low (Pagel, 2001).

In addition, three wildlife species found in the John Day basin are federal candidate species, meaning that there is sufficient information on the biological vulnerability of and threats to these species to support proposals to list them as endangered or threatened. These species include the Columbia Spotted Frog, Yellow-billed cuckoo and the Washington ground squirrel.

Columbia Spotted Frog is currently considered a Bureau Tracking species and Federal Candidate by the USFWS. This species is found in the South Fork of the John Day and is suspected to occur in the North Fork and its tributaries. The typical habitat is large

wet meadows that remain damp during the summer months. No formal surveys have been conducted for this species; therefore the extent of the population range and size is unknown.

Yellow-billed cuckoo is currently considered a Sensitive species by the BLM, Critical species by the State, and Federal Candidate by the USFWS. This species occupies dense closed-canopy riparian areas with various species of willows (Csuti et al., 1997). Patches must be > 37 acres in size with >7 ac. of closed canopy. This species feeds primarily among cottonwoods. Although there are numerous cottonwood stands within the planning area, few approach the necessary patch size. Only one historic sighting in 1989 near Mt. Vernon exists in any district data base. No surveys have been conducted for this species; therefore the extent of the population range and size is unknown.

Washington ground squirrel is currently considered an Assessment species by the BLM and Federal Candidate by the USFWS. Palouse Prairie habitats around Horn Butte provide some of the only habitat for Washington ground squirrel in Oregon.

Washington ground squirrels inhabit grasslands and shrubsteppe habitat dominated by big sagebrush, bluebunch wheatgrass , needle-and-thread grass, Idaho fescue, and Indian ricegrass. These grassland and shrubsteppe habitats are considered some of the rarest ecosystems in the Oregon portion of the Columbia Plateau. Washington ground squirrels play a number of important roles in these ecosystems, as a prey species for raptors and other predators, by influencing plant community composition and structure through selective feeding, and in the creation and use of burrow habitats used by other species. Washington ground squirrels are a prey item for two state sensitive species, the ferruginous hawk and Swainson's hawk.

In 2002 the ODF&W completed a study of habitats and populations in the Horn Butte area. A total of seven Washington ground squirrel sites were confirmed – and all seven were located on the Fourmile Tract. Vegetation at detection sites was variable and most sites had a composite of grass and shrub communities present. 89% of the larger Horn Butte tract is comprised of Sagehill and to a lesser degree Warden soil, and since historical sightings were on this tract, it is significant that squirrels were not located here during this study (Morgan, 2002). In 2000 a wildfire burned a large portion of this area and thus much of the vegetation mapped was dominated by annual vegetation (Morgan, 2002). Observations indicated that squirrel abundance and activity was relatively low. However, this was a one year study with populations not being monitored during seasons of higher squirrel activity. Due to the duration of the study, the impacts of yearly precipitation on population numbers and distribution are not ascertainable.

The John Day Sub-basin draft plan (BPA, 2005) states that a number of terrestrial wildlife species have been extirpated from the John Day Subbasin, including the Columbia sharp-tailed grouse, the gray wolf, the grizzly bear and the California bighorn sheep. Columbia sharp-tailed grouse were extirpated from Oregon in the 1960s due to a combination of factors, including over-hunting in the mid- to late- 19th century, the conversion of native habitats to crop production and habitat degradation from livestock grazing (Hays et al. 1998, Crawford and Coggins, 2000). Sage grouse, a species dependent on shrub-steppe habitat, were extirpated from the John Day Subbasin by 1955 because of habitat conversion, overgrazing and over-hunting (Stinson et al., 2003). The gray wolf and grizzly bear were both extirpated from the subbasin by the 1940s, primarily due to predator control efforts. California bighorn sheep were extirpated from Oregon by 1915 due to over-hunting, unregulated domestic livestock grazing, and parasites and diseases carried by domestic livestock. However, these sheep have been successfully reintroduced in many areas of the John Day Subbasin (ODFW, 2003b).

"Historically, California bighorns were the most abundant wild, native sheep in Oregon (Toweill and Geist, 1999). They were found throughout the steeper terrain of southeast Oregon, and the non-timbered portions of the Deschutes and John Day River drainages, with the timbered regions of the Blue and Umatilla Mountains separating them from Rocky Mountain bighorn sheep. Similar to Rocky Mountain bighorn sheep, California bighorns were an important source of food and clothing for Native Americans, and were utilized heavily for food and trophies during the homesteading and early settlement periods of Oregon. Thousands of domestic sheep also were trailed across eastern Oregon, including most California bighorn habitats. This likely resulted in contact with bighorns which may have led to mortality as a result of livestock related diseases and parasites.

Attempts to protect California bighorn began as early as 1899 with regulated hunting, and in 1911 with full protection of bighorn sheep (Anonymous, 1911). The Steens Mountain Game Refuge was established in southeast Oregon around 1915 because the last California bighorns remaining by this time were reported there (Anonymous, 1915). Unfortunately this attempt failed and California bighorns were extirpated from Oregon by 1915. Indiscriminate hunting, unregulated grazing by domestic livestock, and parasites and diseases carried by domestic livestock all contributed to the eventual demise of Oregon's native bighorns."

Efforts to restore California bighorn sheep to Oregon began in 1954 and eventually moved to the John Day basin. A list of release sites and current population estimates is described in Table 10.

Table 10: Bighorn Sheep Releases and Current Population Estimates in the John Day Basin

Year	Location of Release	# of animals	Current Pop. Estimate
Lower John Day River			600-650
1989	Thirtymile Canyon	14	
1990	Horseshoe Bend	15	
1995	Jackknife Canyon	21	
1999	Little Ferry Canyon	15	
2004	Red Wall	19	
Mainstem and South Fork John Day River			
1971	Canyon Mtn	21	Non-viable
1978	Aldrich	14	100
1981	Aldrich	4	
1988	McClellan	15	120
1992	McClellan	7	
North Fork John Day River			
2003	Potamus	21	49-52

In Oregon, most California bighorn herds are non-migratory. Herd ranges generally provide contiguous summer and winter range and sheep are therefore year long residents not moving through areas of non-habitat. Thus dispersal and establishment of new populations in new habitats is limited. In general, California bighorn sheep prefer rugged, open habitats with high visibility of their surroundings. Survival is positively correlated with amount of cliffrock, rimrock, and rocky outcroppings. Rocky outcrops are particularly important for lambing and escape from predators.

ODFW works with federal land managers prior to any release to ensure habitat needs are met and any conflicts with domestic sheep are analyzed and adequately addressed. Transplant sites on private land must receive landowner approval prior to release of bighorn sheep. Cooperative agreements to ensure habitat integrity of release sites and reasonable public hunting access must be in place prior to release.

Substantial amounts of historic habitat are not currently suitable for California bighorns because of long-term habitat change. For example, urbanization occupies some historic ranges and others have been converted to other uses making these sites unsuitable for bighorn sheep. Fire suppression activities throughout the last 100 years have allowed woody plants and conifers to encroach upon once “open” habitat, decreasing their suitability for bighorns. Because bighorns rely on their vision as a way to avoid predators, dense stands of junipers or other conifers can reduce visibility and increase predator effectiveness. Further, junipers may compete for water and nutrients needed by forage plants on desert ranges and therefore can decrease forage quantity and quality as well as live water availability from springs and seeps. Some junipers can be beneficial by providing shade and escape cover in certain instances. However impacts of large dense stands are generally negative.

Some historic California bighorn sheep habitat along the John Day River is not currently inhabited. Concerns about domestic sheep, mainly mouflon, spreading disease to native herds of bighorns continues to be a factor. Where these concerns can be mitigated, and where habitat is suitable, the opportunity to reintroduce California bighorn sheep into native habitats remains an option. The ODFW Bighorn Sheep Management Plan (2003) has identified several areas in the basin where California bighorn sheep populations could be reintroduced or supplemented. The Prineville BLM in conjunction with ODF&W will be mapping existing and historic habitats; as well as identifying specific habitats for restoration.

Sage Grouse is currently considered a Sensitive species by the BLM, Vulnerable species by the State, and former Federal Candidate by the USFWS. The John Day Sub-basin draft plan (EAP, 2005) states that Sage grouse, a species dependent on shrub-steppe habitat, were extirpated from the John Day Subbasin by 1955 because of habitat conversion, overgrazing and over-hunting (Stinson et al., 2003). However, there have been reports of more recent sightings and the potential for occupied habitat in the sagebrush uplands along the South Fork John Day River and areas around Dayville. In 2005 the BLM contracted ODF&W to survey the South Fork John Day lands in an attempt to better determine sage-grouse use and abundance in this area. No, additional sightings were recorded. Additional surveys will be required to acquire better population and distribution data.

Sage-grouse historically inhabited much of the sagebrush-dominated ecosystems of North America. Today, sage-grouse population abundance and extent have declined throughout most of their historical range. Population dynamics of sage-grouse are marked by strong cyclic behavior; however, in the last 30 years, the peak in the cycle of bird numbers has declined. ODF&W allows a permit based harvest of 5% or less of sage grouse populations.

Habitat requirements for sage-grouse vary greatly depending on the season and life-history stage. Key habitat components include adequate canopy cover of tall grasses and medium height shrubs for nesting, abundant forbs and insects for brood rearing, and availability of herbaceous riparian species for late growing-season foraging.

Resource Trends

In general, both the quantity and quality of natural wildlife habitat in the John Day basin have declined since Euro-American settlement. Among the many causes for this decline was historic logging and grazing practices, wildfire suppression, drought, agricultural conversion, weed invasion, human expansion into rural areas, and recreational activities. Habitats are constantly changing with new disturbances, both natural and unnatural. Some species have increased with these disturbances; others have declined.

Regional Context

Habitat conditions and trends within the John Day Basin are consistent with the finding of The Interior Columbia Basin Ecosystem Management Plan (ICBEMP). That plan took a broad view of wildlife habitats across the entire Columbia Basin through the late 1990s and early 2000s. In 2005 the Bonneville Power Administration (BPA) did a tiered analysis at a finer scale focusing on the John Day Basin.

The BPA report made several observations: Reduction of cover and vigor of big sagebrush, antelope bitterbrush, and other shrubs, grasses, and forbs by juniper can have negative impacts on a multitude of wildlife species, including critical big game winter range. Western juniper can be an important element in the habitat for many wildlife species, but at densities that allow a healthy understory of shrubs and grasses (Miller, 2001). Once juniper becomes dominant on sites understory species cover and vigor declines. Increasing juniper dominance at both the community and landscape levels will result in a general decline in plant and community diversity, resulting in a decline of wildlife abundance and diversity (Miller et al., 2005). Reduction of cover and vigor of big sagebrush, antelope bitterbrush, and other shrubs, grasses, and forbs by juniper can have negative impacts on a multitude of wildlife species, including ground nesting migratory birds and critical big game winter range.

Unique or Key Features

- Winter Range - Critical big game winter ranges exist on the North and South Forks of the John Day River.
- Caves – There are several caves that provide potential maternity and hibernacula habitat for bats along the South Fork and Main-stem John Day. Only the Wildhorse Point Cave has confirmed use by western big-eared bat.
- Cliffs – Steep cliffs along the North and South Forks and the Main-stem of the John Day provide potential habitat for nesting golden eagles, prairie falcons, and peregrine falcons.
- The Horn Butte ACEC was designated for its long-billed curlew (Numenius americanus) nesting habitat; a management plan was prepared in 1989 proposing land acquisition, livestock management, noxious weed control and closure of the area to OHVs. Since 1989 approximately 80% of the ACEC has been burned by wildfire.

- Palouse Prairie habitats around Horn Butte provide some of the only habitat for Washington ground squirrel in Oregon.
- Lewis' Woodpecker habitat on the North Fork of the John Day
- Wintering bald eagle habitats on the North Fork of the John Day

Wild Horses

The only wild horses in the planning area are located in the Murderer's Creek Herd Management Area. The herd management area spans 108,568 acres and is managed under the Wild Free-Roaming Horses and Burros Act of 1971 that mandates that these horses be managed in a thriving ecological balance with the land and as part of the natural landscape. The Bear Valley Ranger District of the Malheur National forest has primary responsibility for managing this herd and annually inventories the Murders Creek wild horse population with a ground census. The Appropriate Management Level (AML) for this herd management area ranges between 50-140 wild horses. The wild horse herd averages about 100 head.

The lineage of the Murderer's Creek horses is diverse. Part of the lineage of horses found in the area by early explorers can be linked to animals that escaped from Indian herds assembled from horses escaped from or released by Spanish Conquistadors. It is also likely that many of the Murderer's Creek horses are descendants of animals lost or turned loose by settlers and ranchers.

Herd Management

Wild horse herds increase at a rate of 18% per year, so their populations, without controls, double about every 4 to 5 years. Wild horses have few natural predators, except for humans and mountain lions. Prior to the enactment of the Wild Free-Roaming Horse and Burro Act of 1971, wild horses were not federally protected species. Herd numbers were controlled by ranchers and by mustangers who hunted the horses or gathered them for sale. After the Act, the population control has been by mountain lions and the managing agencies, the Forest Service and Bureau of Land Management.

Mountain lions do an adequate job of controlling wild horse numbers in only a few locations. The size of most herds must be controlled by the managing agencies in order to protect the land from overgrazing and to protect the horses from eventual starvation due to overgrazing. It is for the health of the land and the health of the animals that "excess" wild horses are removed from their territories.

Visual Resources

The variety of landscapes across the John Day basin provides a visual smorgasbord for residents and visitors. The 13 subecoregions within the planning area provide scenery that ranges from broad vistas of rolling grassland to rugged canyons to mountain peaks flanked by forests. While much of the area appears to be relatively undisturbed, logging, grazing, fire suppression, road building, mineral extraction, and the creation of infrastructure such as roads and utilities have left an imprint on the land and on the overall scenic quality within

the planning area. For the most part the sparse population and relatively small population centers have left much of the region relatively natural appearing.

The John Day River Basin contains an abundance of high quality scenery. Scenery was also identified as an outstandingly remarkable value for federally designated WSR segments by both Congress and the BLM.

The John Day River Canyon is a key visual element, with few public access points, within the planning area. This canyon is generally primitive and undeveloped. The John Day River slices through a high basalt plateau; winding alternately through gentle farm valleys, 1,000-feet deep canyons cutting through a layer cake of basalt cliffs, and steep rugged hills. Lush green riparian vegetation at the river edge contrasts with green-golden hills of grass, sagebrush, and juniper in the summer and fall.

Exposed volcanic ash deposits and the erosion and oxidation of basalt columns have created unusual colors and interesting formations that have become scenic landmarks for river visitors floating the river. Tumultuous in the headwaters, the river is mostly calm in the lower reaches though punctuated by the occasional rapid. In the summer as runoff dwindles rapids become riffles and runs become long twisting ponds with little current.

The North, Middle and South Forks of the John Day River are also striking river canyons with varying basalt outcrops, vegetation and erosive features with high scenic beauty. Oregon Parks and Recreation Department (OPRD) identified scenery as a "Special Attribute" for State Scenic Waterways along the mainstem of the John Day and it tributaries; North Fork, Middle Fork, and South Fork John Day Rivers. Canyons along these river segments include vertical cliffs more than 500 feet high, composed of dramatic basalt rock outcrops. Sandy beaches and gravel bars appear at low water flows.

Vegetation ranges from fir and pine trees in the uplands to high desert communities of sagebrush and juniper in the lowlands. Small outposts of different vegetation communities dot the landscape along the South, North, and Middle Forks of the John Day River and provide variety and contrast for the eye. Ranches, intermingled with public lands, add an interesting contrast. No major hydroelectric dams or developments affect the visual resource values in the basin.

Sutton, Rudio and Stephenson Mountains are also prominent landscape features in the planning area. These landscapes are towering landforms, weathered over time. The remaining public lands contain important visual elements and contribute to providing open space views on plateaus and rolling hills.

The Status of the Interior Columbia Basin; Summary of Scientific Findings Report (USDA-Forest Service.1996) contained several points of interest regarding scenic quality within the Columbia Basin consistent with the John Day Basin:

1. By the year 2045, the most value to the increasing and older human population will be provided by (in decreasing order) motor viewing, day use, trail use, fishing, and hunting. (pg. 52). This statement emphasizes by 2045, the most popular recreation activity by the older human population will be motor viewing, or driving for pleasure.

2. Scenic integrity is reflected by the "visual intactness" or wholeness of the landscape. Scenic integrity is not the same concept as scenic beauty, but research shows people frequently perceive scenic integrity and scenic beauty to be the same thing. Scenic integrity of USFS and BLM public lands were rated as: a) 42%

of USFS and BLM lands rated very high, b) 33% high, c) 17 % moderate, d) 7% moderately low and e) 1% very low. (p. 54). The essence of these ranking show that the majority of USFS and BLM public lands have a natural-appearing landscape, with a lower percent of public lands having a disturbed appearance.

3. In the Effects on Ecological Integrity and Socioeconomic Resiliency section of this report stated "…Local publics will be expected to continue to express preferences for stability in scenery and lobby to have projects put in someone else's back yard…." (p.140).

Except for newly acquired public lands on the North Fork of the John Day River all public lands within the planning area have been inventoried according to BLM Visual Inventory guidelines. Previously inventoried public lands were assigned VRM management classes with established guidelines, through the Two Rivers, John Day and Baker RMP/EIS process and the plan amendments instituted via the John Day River Management Plan.

BLM public lands not accessible by the public have generally retained a higher level of natural appearance, although unauthorized motorized use on some BLM public lands has created routes used by off highway vehicles (OHV), degrading scenic quality. Some public lands accessible by motorized use have had new routes and trails created around Canyon City, Dixie Creek, South Fork of the John Day, and Rudio Mountain. The scenic quality of these public lands has been affected in these locations.

Wilderness Study Area Interim Management Guidelines that restrict all motorized use to existing or designated routes continue to be violated by some public land users and some adjacent private landowners. These activities also reduce the natural character of the landscape by creating new OHV routes.

Unique or Key Features: The John Day River, North and South Forks of the John Day River and their river canyons, Sutton Mountain, Pat's Cabin, Little Canyon Mountain and the Rudio Mountain/Johnson Heights area are all key visual features within the planning area. The rivers listed above are also unique features that significantly contribute to high scenic quality in these locations.

Special Management Designations

Areas of Critical Environmental Concern

BLM has two Areas of Environmental Concern (ACECs) in the John Day Basin planning area: Horn Butte Curlew and Spanish Gulch. Both were designated through the Two Rivers RMP/EIS in 1986. These ACECs are shown on Map 9, Special Management Areas and Recreation Sites.

Horn Butte Curlew ACEC is approximately 6,000 acres and is located five miles east of Arlington, in the extreme northeast corner of the planning area. Designated for its long-billed curlew) nesting habitat, a management plan was prepared in 1989 proposing land acquisition, livestock management, noxious weed control and seasonal closure of the area to OHVs. Implementation of all planned actions except OHV management is ongoing.

Since 1989 approximately 80% of the ACEC has been burned by wildfire. Long-billed curlew nesting habitat, consisting mostly of sites dominated by perennial grasses, has

generally been enhanced. However, the shrub steppe, as expected, has been converted to sites dominated by annual species, including noxious weeds (yellow starthistle and medusahead grass). Approximately 1,500 acres has been re-seeded to perennial grasses, although establishment has been poor. Weed control is ongoing. Restoration of this area to shrub steppe and enhancement of its curlew habitat remains an ongoing process.

Spanish Gulch was designated an ACEC for its historic values. This ACEC is approximately 335 acres and is located approximately 12 air miles west-southwest of Dayville, Oregon, just north of the Ochoco National Forest. In the mid-1800s this was the site of active gold mining, following discovery of gold in the Canyon City area to the east. When the Spanish Gulch area was designated an ACEC, numerous historical structures remained on site, including a mill, storage buildings and residences. Since designation, little has been done to manage or protect this area and the structures have fallen further into disrepair.

Wilderness

Portions of five federally designated Wilderness areas (North Fork John Day, Black Canyon, Monument Rock, Strawberry Mountain, and Bridge Creek) are within the planning area, each managed by the U.S. Forest Service. The North Fork John Day Wilderness is located along the upper North Fork, Black Canyon Wilderness is located on the west side of the South Fork John Day, Monument Rock Wilderness is located at the southern end of the Blue Mountains, Strawberry Mountain Wilderness is located southeast of John Day and Canyon City, and Bridge Creek Wilderness is located in the Ochoco Mountains south of Mitchell.

Eight Wilderness Study Areas (WSAs) have been identified by the BLM within the planning area. The Strawberry Mountain WSA (1,149 acres) consists of three individual units that abut the north and east boundary of the Strawberry Mountain Wilderness Area (USFS). The Aldrich Mountain WSA (9,395 acres) is located on the east side of the South Fork John Day River near Dayville. The Spring Basin WSA (6,000 acres) is located south of Clarno on the east side of the mainstem John Day River. The North Pole Ridge WSA (8,379 acres) is located north of Clarno on the mainstem. Further north along the mainstem is the Thirtymile WSA (7,538 acres) and the Lower John Day WSA (25,396 acres). Two additional WSAs, Sutton Mountain (29,400 acres) and Pat's Cabin (9,970 acres) are located just south of the mainstem John Day River near Bridge Creek.

In a 1991 report, the BLM recommended that most of the acres contained in four WSAs be designated as Wilderness by Congress including Thirtymile, Lower John Day, North Pole Ridge, and Spring Basin. The report did not recommend Wilderness status for the Strawberry Mountain WSA or the Aldrich Mountain WSA. Lands acquired after 1991 were inventoried for wilderness characteristics, and those found to meet the WSA criteria, including Sutton Mountain WSA, Pat's Cabin WSA, and a 1,240-acre addition to the North Pole Ridge WSA, were amended to WSA status through earlier planning documents. The study process for Sutton Mountain and Pat's Cabin WSAs is not complete, and study reports with recommendations have not been forwarded to Congress.

The largest current threat to the WSAs is the unauthorized use of motorized vehicles and the creation of new routes through this use. Off highway vehicle (OHV) trespass is presently occurring in nearly every WSA within the planning area. Other unauthorized activities are threatening individual WSAs. In Sutton Mountain WSA, the unauthorized cutting of old-growth juniper trees is escalating, associated with the recent popularity

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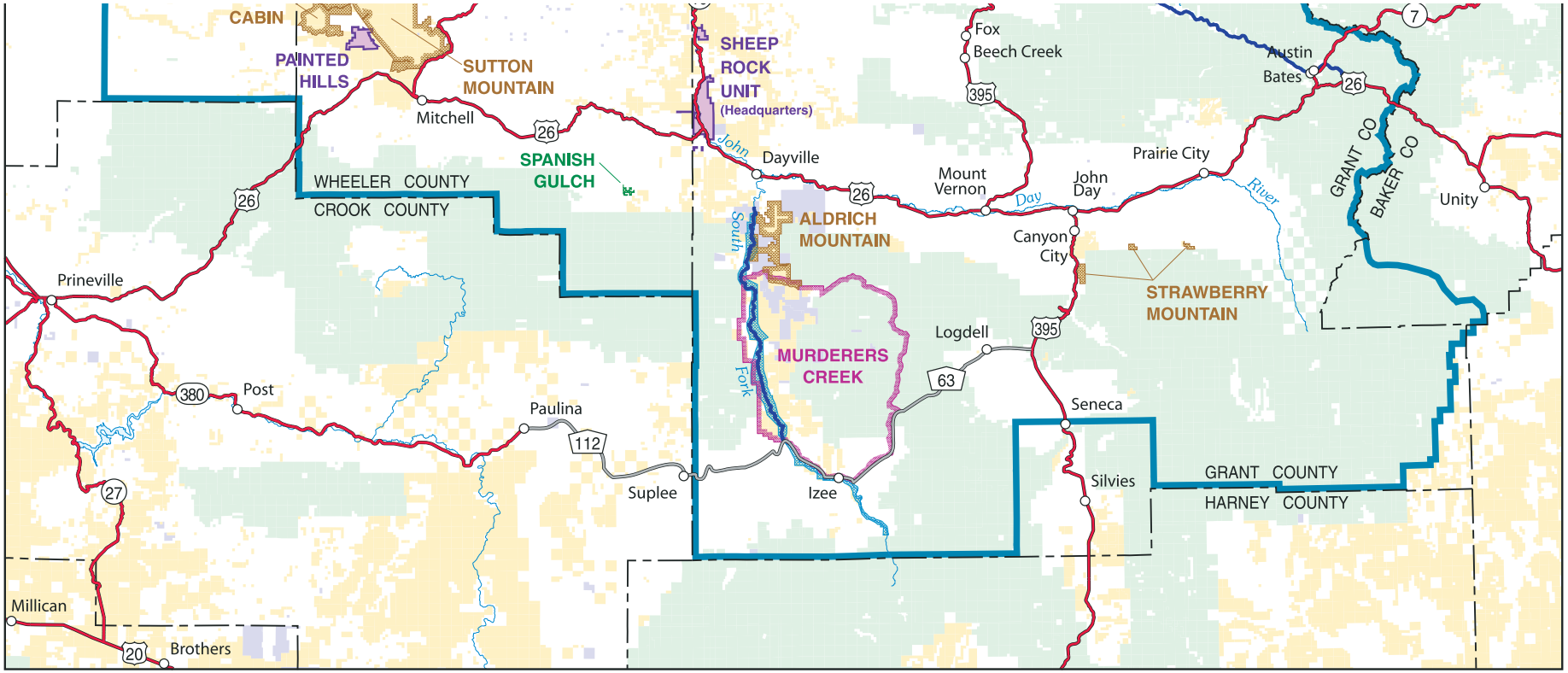
10 0 10 20 Kilometers
OREGON
Astoria
Portland
Tillamook
Salem
Newport
Albany
Eugene
Florence
Coos Bay
Roseburg
Grants Pass
Medford
Klamath Falls
Lakeview
The Dalles
Madras
Prineville
Bend
Pendleton
Baker City
John Day
Vale
Burns
John Day Basin Planning Area
Prineville District
PACIFIC OCEAN
WASHINGTON
OREGON
Columbia River
John Day River
Deschutes River
Maryhill
Biggs
Rufus
Wasco
Moro
Grass Valley
Kent
Shaniko
Antelope
Clarno
Arlington
Boardman
Heppner Junction
HORN BUTTE
Cecil
Morgan
Ione
Lexington
Olex
GILLIAM COUNTY
MORROW COUNTY
SHERMAN COUNTY
LOWER JOHN DAY
THIRTYMILE
NORTH POLE RIDGE
CLARNO UNIT
SPRING BASIN
PATS CABIN
WASCO COUNTY
JEFFERSON COUNTY
Condon
Mayville
Fossil
Heppner
Ruggs
Hardman
Ukiah
La Grande
UMITILLA CO
UNION CO
MORROW COUNTY
GRANT COUNTY
Dale
North Fork
Middle Fork
Monument
Spray
Service Creek
Richmond
Kimberly
Hamilton
Long Creek
Sumpter



LEGEND

BLM Recreation Sites

- Campground
- Boat Launch
- Picnic Area
- Point of Interest

Special Management Areas

- Wilderness Study Area
- Areas of Critical Environmental Concern
- Wild Horse and Burro Management Area
- Wild and Scenic River
- State Scenic Waterway

- Planning Area Boundary

Administered Land

- Bureau of Land Management
- Forest Service
- John Day Fossil Beds National Monument
- Other Federal
- State
- Private or Other

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

PRINEVILLE DISTRICT

John Day Basin Resource Management Plan

2006

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Map 9: Special Management Areas and Recreation Sites

of hand-crafted juniper furniture. In the North Pole Ridge, Thirtymile, and Lower John Day WSAs, unauthorized motor vehicle use is increasing as single engine aircraft land on sagebrush flats along the river. The BLM has investigated cases where chainsaws have been used to remove vegetation to facilitate landing, aircraft tie-downs have been installed in the ground, and chainsaw fuel containers have been stashed.

Wild and Scenic Rivers

Three John Day River segments are designated as Wild and Scenic through the Omnibus Oregon Wild and Scenic Rivers Act of 1988 (Public Law 100-558). The specific nature of these designations are discussed in chapter 4. The WSR segments along the John Day are:

- **Lower John Day River mainstem**; from Tumwater Falls upstream to Service Creek the lower the river is classified as “Recreational” and flows through a number of colorful canyons, broad valleys, and breathtaking terrain. This segment offers notable steelhead and smallmouth bass fishing; mostly flat water boating punctuated with a few rapids; and sites of archeological, historical and paleontological interest.

- **South Fork John Day River**; from Smokey Creek upstream to the Malheur National Forest boundary, this segment is classified as “Recreational” and offers outstanding scenery, wild steelhead fishing, hunting, hiking, swimming and camping.

The Wild and Scenic Rivers are displayed on Map 9; Special Management Areas and Recreation Sites.

Other Wild & Scenic Rivers within the Planning Area

The North Fork of the John Day River is the only WSR managed by the Umatilla National Forest within the planning area. In the Malheur National Forest the Malheur River and the North Fork of the Malheur River contain reaches designated Wild and Scenic River. The outstandingly remarkable values on these Malheur river segments include Fisheries, Wildlife, Recreation, Scenery and Geology.

Identification of Potential Eligible Rivers within the Planning Area

In May 2005, the BLM Prineville District reviewed 1,400 miles of waterways on BLM public land within the John Day Basin planning area. In addition data from the Northwest Rivers Study, the Northwest Power Planning Council Protected Rivers and the Nationwide Rivers Inventory (NPS 2004) were evaluated.

The eighteen waterways listed in Table 11 totaling 92.87 miles on BLM public lands, were identified for evaluation to determine if they met WSR eligibility criteria.

Prineville BLM enlisted a private contractor with eligibility assessment expertise, to conduct a detailed inventory of the 18 waterways identified above. The final eligibility report for the eighteen waterways is located in the folder entitled “Support Documents” on the attched CD.

State Scenic Waterways

The State Scenic Waterways (SSW) program is administered by the Oregon Parks and Recreation Department (OPRD). OPRD has developed both statewide and river specific rules. These rules specify management objectives for development and uses within the Scenic Waterway corridor to maintain the natural beauty of the river. A total of approximately 317 miles of the John Day River are included in this system.

a) The mainstem of the John Day from Tumwater Falls to Parrish Creek at river mile 170.
b) The North Fork John Day River from river mile 20, near Monument, upstream to the West end of the North Fork John Day Wilderness boundary

Table 11 Waterways Evaluated for Potential Wild & Scenic River Eligibility

Waterway	Miles
North Fork John Day River (BLM managed sections Between Wall and Camas Creek)	26.41
Potamus Creek	2.60
Rudio Creek	3.26
Stony Creek	6.90
Graves Creek	3.29
Jericco Creek	2.28
Little Wall Creek	3.73
Mallory Creek	3.17
Ditch Creek	5.19
Wall Creek	6.27
Bear Creek	2.17
Bridge Creek	12.18
Cottonwood Creek	1.28
Little Pine Creek	1.43
Ferry Canyon	2.75
Girds Creek	2.30
Indian Creek	0.51
Jackknife Canyon	7.15
Total: 18 Waterways	**92.87**

c) The Middle Fork John Day River, from its confluence with the North Fork John Day River upstream to the Crawford Creek Bridge
d) The South Fork John Day River, from the north boundary of Phillip W. Schneider Wildlife Management Area (formerly Murderer's Creek Wildlife Management Area) County Road 63.

River Management Trends

Implementation of Wilderness Study Area interim guidance (USDI BLM, 1995b), the John Day River Management Plan (USDI BLM, 2001) guidance, and a new joint BLM and NPS Law Enforcement Ranger have helped to protect Outstandingly Remarkable values such as scenic quality, recreation, fisheries, camping and dispersed recreation on the main-stem and South Fork John Day Rivers. Changes include improved communication with users, an emphasis on Leave No Trace ethics, improved riparian habitat through compatible grazing management, and increased on-site management of these rivers.

Research Natural Areas

There are no Research Natural Areas within the JDRMP planning area.

Caves

Many resources are associated with cave features, including critical wildlife habitat, cultural resources, recreation opportunities, and paleontological resources. "Cave" is defined as any naturally occurring void, cavity, recess or series of connected passages beneath the surface of the earth or within a cliff or ledge large enough to allow a person to enter. It includes any natural pit, sinkhole or other feature that is an extension of the entrance. Caves in the planning area have the potential to be significant as winter hibernacula or maternity roost sites for bats.

Caves in the planning area include features such as lava tubes, caves formed by pressure ridges associated with lava flows, and piping caves formed by moving water eroding insoluble rock. The locations of caves nominated for significance are considered confidential under the Federal Cave Resources Protection Act (FCRPA). Information concerning the specific location of any significant cave may not be made available to the public unless the disclosure of this information would further the purposes of the FCRPA and would not create a substantial risk of harm, theft or destruction of such cave.

Several caves within the planning area were identified during the significant cave nomination process and initial listing in 1995. Wildhorse Point Cave is the only known cave on BLM public land within the JDBRMP area determined to be significant by the BLM. This cave provides habitat for the western big-eared bat. The condition of Wildhorse Point Cave in the mid 1990's when it was inventoried was excellent.

Rock Creek Cave NW was identified in the 1995 initial listing, but it may be located on private land. Field surveys need to be done to verify the land status of this cave before a determination of significance can be made.

Other Areas Designated for Special Management

The Phillip W. Schneider Wildlife Management Area (formerly Murderers Creek Wildlife Management Area) was established along a portion of the South Fork John Day River in 1972 by the ODFW and the BLM to better manage mule deer winter range. The area is now used by mule deer, elk, and bighorn sheep year-round and pronghorn during all but the winter season. Several thousand mule deer use the area during severe winters. This area also provides habitat for turkey, chukar, mountain quail, California quail, and a host of neotropical migratory birds.

The State of Oregon established the John Day Wildlife Refuge in 1933 along the lower mainstem of the John Day River. The primary purpose of this refuge is to protect wintering and nesting waterfowl. It includes all land within 1/4 mile of the John Day river mean high water line from the Columbia River upstream to Thirtymile Creek. No waterfowl hunting is allowed in this area. The area is open to deer and upland game bird hunting during authorized seasons, but hunting of these species on private lands within the refuge requires land owner permission.

Cultural Resources

Prehistoric sites of archaeological interest are scattered throughout the planning area. They are most commonly found in certain environmental locations that are heavily influenced by the existing geology/terrain and for the most part tend to conform to the same locations where people live today. For example, there is a high potential to find prehistoric sites near any water course or body, like rivers, streams, springs and lakes. Similarly, ridges and breaks (abrupt changes in topography) are likely spots to find evidence of past use or occupation. Steep slopes and rocky ground are less likely to have cultural resources of relevance, though there are exceptions.

A cultural resource is “a definite location of human activity, occupation, or use identifiable through field inventory (survey), historical documentation, or oral evidence. Site types known for this area include but are not limited to Native American stone tool making scatters, rock shelters, isolated artifacts, remains of living structures, pictographs and petroglyphs, rock stacked features, burials, historic homesteads/living structures or their remains, roads/trails, irrigation ditches, stock raising and management features, cemeteries, ferry crossings, mining features and equipment, prohibition stills, wagon remains, and features related to logging activities.

On a regional basis, the John Day basin has been influenced through time by what is perceived as two distinct cultural areas – the Columbia Plateau to the north and the Great Basin to the south. The Columbia Plateau cultures are generally focused on river systems taking advantage of the elevation changes in that system to provide resource availability throughout the different seasons. Fish, berries and roots are important resources in this culture area. Resource storage and semi-permanent dwellings are key features for this area. Great Basin cultures focused on internally drained lake basins and other water features. Similarly, the Great Basin cultures take advantage of resource availability afforded in areas with relatively close elevation changes. Rabbits, waterfowl and roots are important resources. Storage and temporary shelters are key features.

Both groups developed relationships across and moved seasonally between these geographic areas as a hedge against food shortages and to increase the viability of their respective populations (Lebow et al 1990; Connolly et al 1993; Burtchard 1998; Hunn 1990; Zancanella 1997).

The location of historic sites is similarly influenced by the geology/terrain and water. Lands adjacent to rivers, streams and springs are good locations for homestead/ranches/farms and associated features. Mid-slope and upland settings may contain features or sites related to different parts of the ranching land use system. Mining site locations are random being dependant on the location and amount of minerals and their market value. Logging on any major scale was relatively late (after 1930) in the planning area due to limited access in the rough topography. Lumbering sites are typically found in forested area, though some processing sites may be located in an adjacent non-forested setting.

Resource Condition – Archaeological resources are fragile, non-renewable resources. Many natural processes and human activities have an adverse affect on the condition and integrity of archaeological resources. The degree to which these natural processes and human activities negatively affect a site will depend on the site type, the setting and the nature of the process/activity. Natural processes (such as intense thunder storms, catastrophic fires, or rodents) can be quite destructive to site condition and integrity. A fact to remember is that natural processes are dynamic not static, and, therefore, have a constant influence on sites. Human activity on a site can also be quite destructive. Artifact collecting, unauthorized digging, bulldozing, and concentrations of livestock or people are just a few of the actions that can have negative affects on cultural resources.

There are 439 archaeological sites records in the Oregon Heritage Information Management System (OHIMS) for the John Day basin. They extend from the mouth of the John Day River to its upper reaches and represent a wide variety of site types related to history and prehistory. The OHIMS db site record includes a condition attribute with several qualified selections. Of the 439 sites, 144 have Unknown condition which probably reflects legacy data where site condition was not noted. The remaining 295 sites have been assigned a condition attribute. Of the 295 sites 46 are Excellent, 119 are Good, 39 are Fair, 79 are Poor, 11 are destroyed, and 1 is in the Other category.

The Dalles-Canyon City road, homesteads in the Sutton Mountain area and lower John Day River segment, and the Dixie Mining District have been identified as possibly suitable for nomination to the National Register (Lebow et al. 1990). One other area was mentioned as possibly needing evaluation for nomination to the National Register. That area involved two separate clusters of prehistoric sites within the lower John Day River segment that were proposed as Historic Districts. One of these districts has an historic component.

The following interpretive sites have been developed by the BLM and its cooperators: ramadas with interpretive signs were constructed at Fourmile Canyon and John Day Crossing (west side, McDonald's Crossing). The BLM John Day Crossing (west side) interpretive site (panels with ramada) was placed on land owned by the Sherman County Historical Society through a Cooperative Management Agreement.

Trends

Cultural resources are non-renewable resources that are affected constantly by natural factors and sometimes by human actions. As such, most sites tend to deteriorate over time and some are subjected to vandalism and/or pilfering.

Paleontological Resources

Paleontological resources within the planning area are world renowned. Fossil localities in the Blue Mountain portion of the basin occur as steep, highly eroded 'badlands' dotting the canyon walls from river to rim. The rocks of the John Day basin have a high potential to produce important fossil localities. One hundred million years of ancient life are represented within the John Day basin. Specimens include 25 foot long marine reptiles from 90-95 million years ago to mammoths from the end of the Pleistocene Period (about 20,000 years ago). The most prominent time period represented in the basin is the Cenozoic Era or the Age of Mammals (65 million years ago [mya] to present). The John Day basin has one of the most complete rock sequences in the world for the period between 54 mya to 5 mya. Fossil preservation is excellent in the basin. Less known but equally important are geologic processes frozen in time within the basin. Examples include, stream and river channels, volcanic mud flows, lava infilling (of existing landscapes), and large volcanic ashfall events. This sequence is punctuated by volcanic tuffs sandwiched between old soils (paleosols) that can be reliably dated. The combination of long sequence, datable rocks, and good fossil preservation has made the John Day basin one area (known as a reference area) paleontologist/geologists use for understanding the ecologic changes seen in other areas of the US or the world with no or little control for time.

Understanding the importance of the fossil record in the John Day Basin, Congress authorized the John Day Fossil Beds National Monument in 1974. The monument consists of three separate units, Sheep Rock, Painted Hill and Clarno. These three units were established in the John Day basin specifically to highlight the critically important fossil and geologic resources of the time period between 45-5 million years ago.

Fossils on public lands are considered "a fragile and nonrenewable scientific record of the history of life on earth, and so represent an important and critical component of America's natural heritage". There are three main types of fossil resources, vertebrate (representing animals with backbones), invertebrate (animals without backbones) and botanical (leaves and wood). Trace fossils represent a rare fourth type consisting of skin impressions or trackways. Locations on the ground where fossils occur are known as localities, not sites. Geologic settings may also constitute a paleontological resource when associated with fossils or significant processes that created contexts for fossil preservation.

Fossils are associated with areas of land that have no or very little vegetation and expose the underlying rock layers. Sometime this is in small areas measured in square feet or larger areas encompassing many acres. Each exposure may or may not produce fossils. This is a characteristic of the preservation of large landscapes and what portion of that landscape is exposed to view. Not all parts of the ancient landscape had features that are necessary for animals or plants to become preserved. Exposures with fossils are known as localities. Some exposures are steep in nature like in the upper John Day river canyon, while others may be more in a horizontal position as exhibited in the plains adjacent to the Columbia River.

Fossil localities are scattered differentially throughout the John Day basin. What type and age of fossil one finds depends on your position in the canyon. Most fossil resources from the Tertiary Period (54 to 5 mya within the planning area are found between Thirtymile Creek in the lower John Day River canyon and Monument on the North Fork and around Dayville along the South Fork of the John Day River. Many of the better known localities are associated with and surround the John Day Fossil Beds National Monument and contribute significantly to filling in gaps in the rock sequence not exhibited on the park.

Between Clarno and Spray are rocks from the Cretaceous Period (144-65mya). These rocks produce a moderate amount of invertebrate fossils (primarily shell fish (mollusks), though a few rare joint-legged creatures (arthropods) and even more rare vertebrates have been located). This same area produces some Pleistocene fossils (less than 2 mya) as well. The Prineville District office has on display a mammoth tusk removed from a creek within this area. Other Pleistocene fossils (bison) have been reported in the upper stretches of the South Fork John Day River. Pliocene fossils (5-2mya) also have been reported from the northern portions of the John Day basin near the Columbia River (Fremd et al. 1994; Orr and Orr 1999).

There are 155 known fossil localities on BLM managed lands in the John Day planning area that are co-managed, through interagency agreement, by the NPS/BLM. The majority of these localities are known to occur in rocks that produce or are highly likely to produce noteworthy examples of vertebrates, invertebrates and plant fossils. There are additional localities, some older and some younger, that are known but have not been recorded. There are, however, no known paleontology localities within the Baker RA portion of the planning area.

Trends

The volcanic lava flows covered and preserved much of the older sediments in the John Day basin from erosion. The lava cap is the principal reason fossil resources and their geologic contexts are so well represented in the basin. Erosion is both friend and foe to fossil management. Erosion exposes fossils to the elements which begins a fairly rapid process of deterioration but also reveals them for study.

People Today in the John Day Basin

The remainder of this chapter describes how people use the many resources of the John Day Basin. The initial discussion focuses on the Social and Economic Context then the discussion addresses a series of uses and management categories that are important considerations for the decisions to be made in during the John Day Basin RMP planning process.

Socioeconomic Context

The planning area is primarily composed of three Oregon counties – Grant, Wheeler and Gilliam. Portions of several other counties also occur within the planning area to a much lesser extent: Baker, Jefferson, Umatilla, Sherman, Wasco and Morrow. Wheeler and Grant counties are contained almost entirely within the John Day Basin and draw their social and economic character from the planning area. Gilliam, Sherman, Wasco, Morrow and Umatilla counties include portions of the Interstate 84 corridor and benefit from the more diverse social and economic opportunities a thoroughfare of this nature offers. Jefferson County has closer social and economic affiliations with the Central Oregon area. The following description of the John Day Basin social and economic environment will focus more on the counties contained within the John Day Basin (Grant and Wheeler), that function within that geographic context. These counties reflect similar trends and values in the remaining counties that make up small portions of the planning area.

History

Historically, the John Day basin was minor to the early exploration of the area. From 1800 to 1843, explorers from Lewis and Clark to John C. Fremont skirted or passed through the John Day country. In fact, the John Day River was named for an early trapper with the Astor party of 1811-12. The fur trade promoted most of the early exploration and included Peter S. Ogden of the Hudson Bay Company (1828-1829), John Work of the same company in 1830-31, and Capt. Bonneville, US Army (1832-33). The explorations of John C. Fremont in 1843 brought to a close the period of exploration. Fremont passed along what would very shortly become the Oregon Trail, the major route to westward expansion.

For nearly 20 years emigrants from the east filed through the planning area along the Oregon Trail on their way to the lush Willamette Valley. Few stayed on the east side of the Cascade Range. In 1855, a fort was established at The Dalles. That same year, treaties were signed between the US government and the regional tribes, and the Warm Springs and Umatilla Indian Reservations were established. Both these tribes ceded lands to the US Government but retained certain rights to continue traditional practices, such as gathering, hunting and fishing. Periodic conflicts between Native populations and Euroamerican settlers would continue until the end of the Bannock Wars in 1878. These conflicts effectively kept many settlers out of the interior. The Dalles became the early regional military and supply center for central Oregon. The military was there to protect travelers along the Oregon Trail. They also promoted exploration of travel routes through the interior to establish links to other regional forts. When gold was discovered at Canyon City in 1862 the military took on the added responsibility of protecting miners on their way to the isolated mines from Indians as well as robbers and highwaymen. One of the routes the military explored became The Dalles-Canyon City road. This road became the major route to the Oregon interior and contributed importantly to its settlement. Shortly after the rush the gold played out. Many miners moved on to the next “El Dorado” but some turned to stock raising and farming in the lush valley floor and the grassy hills of the upper John Day country. In the 1860s the route of the Oregon Trail became The Dalles-Walla Walla Road, ferrying goods and supplies east and west along the Columbia River, crossing the John Day River at what is now McDonald Crossing.

Ranching was the main economic pursuit of the early emigrants in the John Day basin. Cattle, sheep, horses and hogs were all variably raised within the basin depending on market demand. In the southern Columbia Plateau portion of the planning unit ranching was supplanted by dry-land farming after 1878 and agriculture has been dominant ever since. In the Blue Mountains, ranching was an obvious economic land use that became the lifeblood of commerce for the next 50 years. Initially, only a few hardy souls were willing to settle in the Blue Mountains at great personal risk to attacks by Indians in the 1860s. Early homestead/ranches occurred in the Bridge Creek basin (1863), the Clarno-Pine Creek basin (1866) and Kahler basin (1869)). Ranching continued through the 1870s in the Blue Mountains with high stocking levels and open range grazing. By the end of the 1870s the threat of Indian attacks had disappeared and settlement of the area accelerated. Throughout the 1880s and 1890s the open range grazing of central Oregon began to experience stress. Increases in people attempting to ranch, fencing the range and poor markets contributed to the decline in large cattle ranches. Some of the ranches turned to raising sheep because the market was better. All of the ranches began to experience shortages due to the increased pressure on the forage. The competition for forage created by this situation led to the infamous cattle vs. sheep “range wars” of the late 19th and early 20th centuries. Sheep were slaughtered by the thousands -and a few herders- by cattlemen determined to rid the area of the dreaded sheep. In part to settle the conflict, the US Government began to establish the Forest Reserve system or Forest Service to regulate the access and amount of grazing that would occur in the forested regions.

The land use of lumbering had its initial beginnings in the 1860s at Canyon City. The impact was local because the demand was local. The terrain of the John Day created an effective barrier to the technology of the 19th century. The timber industry of the John Day country didn't really begin until the 1930's when the technology improved enough to open up vehicle access to the interior. There was a minor bit of railroad logging near Prairie City that crept into the district from Sumpter to the north and Hines from the south. Truck logging was the main mode of transporting logs to mills in the John Day basin. Broad-scale road construction and tractor logging continued on public and private lands up to the 1980's. These uses continue today, but at a much reduced extent (Lebow et al. 1990; Beckham and Lentz 2000).

Grant County was established in 1864 from portions of Wasco and Umatilla Counties, making it the largest county in the state at that time. Subsequent boundary revisions through land transfers to Lake County (1874) and the creation of Harney (1889) and Wheeler (1899) Counties have shrunk Grant County to its present day configuration. The discovery of gold in the area in 1862 served as the impetus for population growth, and also created the original economic foundation. Within days of the discovery approximately a thousand miners were camped along the banks of Canyon Creek near present day Canyon City. Gold and placer mining has since declined in economic importance, but a diminishing number of tenacious prospectors and miners can still be found carrying on the legacy that first drew settlers to this area. As mining declined farming and ranching grew in economic importance. In addition Grant County, which includes parts of four national forests, became largely dependent on forest product industries. As forest activities have waned in the last several decades, Grant County still provides a home and limited resources to several lumber mills. Most recently recreational tourism has provided some economic benefit to the county. Hunting provides a flood of visitors to the area in late summer and fall as thousands of enthusiasts migrate to the area for several days to weeks at a time. The local towns provide limited services to these visitors through the end of hunting season, till the higher level of activity is replaced with the familiar calm of day-to-day living (Oregon State Archives, 2006).

Wheeler County was and still is mostly a ranching community with families close enough together to form small towns. After the discovery of gold in Grant County, The Dalles-Canyon City Military Road was established to connect the prospering gold fields with the government in The Dalles. To reduce Indian attacks to travelers this road utilized the existing mail route through Mitchell. As a result by 1884 Mitchell was a flourishing area – even sporting a hotel. The northern portions of the county witnessed the creation and demise of several logging based communities between the 1930's and 1970's (Oregon State Archives, 2006). The county is internationally known for an extensive depository of fossils from the Cenozoic Era (National Park Service, John Day Fossil Beds 2006).

Cultural identity within the John Day Basin varies, as shown in a recent report from community field work commissioned by the BLM. The report suggests residents in Grant County relate in terms of cultural identity to Baker city and La Grande than to Bend for regional affiliation. In essence Grant County residents consider themselves part of "Eastern" Oregon. Residents in Wheeler County relate more to Prineville and Bend than to the Columbia River area or Baker County area. Wheeler County residents consider themselves part of "Central" Oregon, or "High Desert" (Preister et al., 2006).

Population Composition and Change

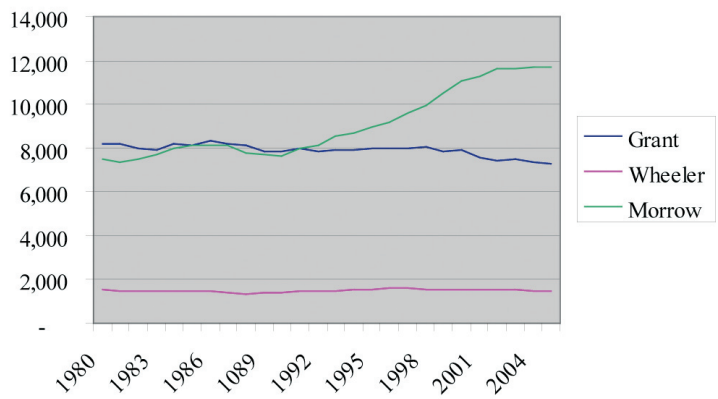
According to the US Census Bureau, Grant County's population decreased by 7 percent between 1990 and 2005 with a slight increase between 1990 and 2000. Between 1990 and 2005 Wheeler County experienced an overall 4 percent increase in population with

a slight decrease in population between 2000 and 2005 to 1,455. In terms of population Wheeler County is the smallest county in Oregon but is still less than half the size it was at its peak in the 1950's (Oregon State Archives, 2006).

The population in both Grant and Wheeler Counties has aged since 1990. Wheeler County is comparatively older with an average age of 48.1 years – up from 44.1 years in 1990. Between 1990 and 2000 the largest and fastest growing age group was between 55 and 59 years old. During the same 10 year period the age group between 20 and 44 years old has shown a marked decrease. This indicates the population is getting older and the younger generation is moving away. Grant County also displays an aging population. While the average age is lower than Wheeler County (41.7 years old in 2000), this is up from 36.3 years old in 1990. The largest and fastest growing age category is from 45 to 49 years of age – while the population has grown from 1990 to 2000 the age group from 20 to 39 years old has also decreased. Again Wheeler County reflects a similar trend as Grant County, an aging population occurring alongside an out-migration of the younger generation.

Grant and Wheeler Countries are respectively 95.7 percent and 93.3 percent white (Sonoran Institute, 2006). Grant County has had a colorful history associated with Chinese immigrants who came to work in the gold fields of Eastern Oregon. In 1879 these immigrants made up a substantial portion of Grant County's population numbering 2,468 (compared to 960 whites; however in 2000 people of Asian descent made up less than 1 percent of the population in both Grant and Wheeler Counties. People of Hispanic decent have increased in number and percent of total population in Grant and Wheeler Counties between 1990 and 2000 (Table 12). The Hispanic population in Morrow County increased by 3370 between 1990 and 2000 (see figure 24 above), meaning that 80 percent of its population increase was comprised of Hispanic people (Preister et al., 2006). In the year 2000 Native Americans comprised 1.6 percent and 0.8 percent of Grant and Wheeler Counties respectively (Sonoran Institute, 2003).

Figure 24: Population Change in Grant, Wheeler and Morrow Counties



Source: US Census Bureau

Table 12: Number and Percent of Persons of Hispanic Origin

	1990		2000	
County	**Number**	**Percent**	**Number**	**Percent**
Grant	41	0.5	163	2.1
Wheeler	6	0.4	79	5.1
Morrow	197	2.6	2686	24.4

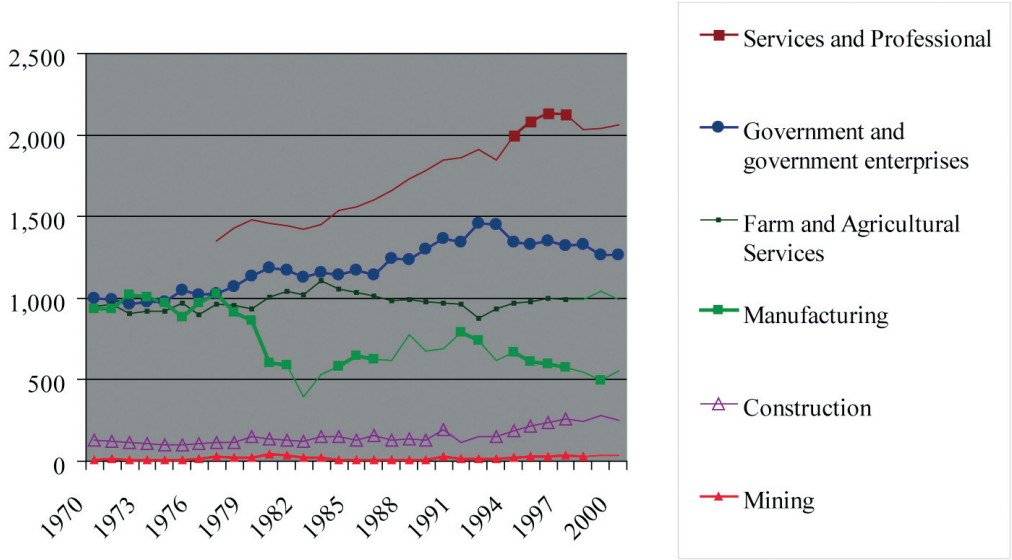
Economic Specialization and Employment

The Interior Columbia Basin Ecosystem Management Project (ICBEMP) also assessed the social and economic conditions of communities within the planning area. They grouped the counties east of the lower John Day River into the Pendleton economic subregion (Gilliam, Wheeler, Grant, Morrow and Umatilla), and the counties west of the lower John Day River (Sherman, Wasco, and Jefferson) into the Redmond/Bend economic subregion. Within these subregions ICBEMP identified communities that were relatively isolated (more than 35-50 miles from a major commercial and population center). This analysis determined that all the communities in the planning area were isolated, or constituted an isolated trade center (ICBEMP, 1998).

Economic specialization was also addressed by ICBEMP. A community was designated specialized in a specific sector if employment in that sector was at least as great as ten percent of total employment for that community. Analysis revealed that Mitchell, Spray (Wheeler Co.), and Monument (Grant Co.) were specialized with respect to the agricultural sector. Mitchell (Wheeler Co.), Long Creek, Mount Vernon, John Day and Prairie City (Grant Co.) were specialized with respect to the wood products manufacturing sector. There were no communities in the planning area specialized with regard to mining or service sectors. Dayville, John Day and Prairie City (Grant Co.) were all specialized with respect to Federal Government employment. The degree of economic specialization is reflected in figure 25 below, where total employment in Grant and Wheeler counties is disaggregated into six industry sectors.

From 1970 to 2003, total employment in Grant and Wheeler counties increased by 19 percent. This increase is dwarfed by the state increase in total employment of 128 percent. The employment growth seen in these counties is largely due to increases in service and government sector employment; 52 percent and 33 percent respectively. These increases largely offset decreases in manufacturing (including forest products) and farm related employment which decreased by 41 percent and 4.6 percent respectively (Sonoran Institute, 2003).

Figure 25. Employment History of Grant and Wheeler Counties



Source: EPS, 2003

Of the industry sectors examined, the highest paying sector is manufacturing which accounted for 13 percent of total employment and on average paid $33,267 per year in 2003. However data was not available for financial and professional business services sectors from the Bureau of Economic analysis. Data are often suppressed for small counties in order to protect information about individual businesses. Of the categories that have data, the largest employment sector is Trade, Transportation, and Utilities which accounted for 25.5 percent of total employment and paid on average $21,167 in 2003. From these statistics it is apparent that while the service sector has offset decreases in manufacturing these jobs do not pay as much. The welfare implications of these changes are not so clear. The large degree of out-migration noted above suggests people maybe moving out instead of taking lower paying jobs in the service sector.

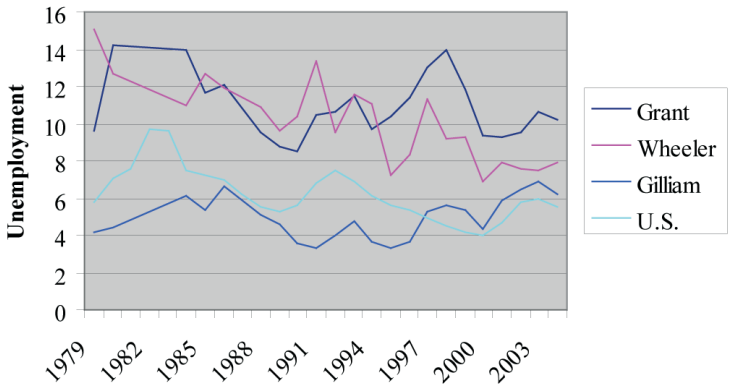
Unemployment

Over the last 20 years, unemployment in Grant and Wheeler counties has consistently remained above the national unemployment rate. From 1979 to 2004 Grant and Wheeler Counties have experienced average rates of unemployment of 10.5 percent and 9.8 percent respectively. While these two counties are well above the national average of 6.3 percent, Gilliam County has maintained an average rate of unemployment of 4.7 percent, well below the national average (see figure 26 below).

Personal Income and Poverty

Total personal income has increased by 37percent in Grant and Wheeler counties since 1970 however a large portion of this increase is due to increases in non-labor sources of income such as interest payments and dividends. As a share of total personal income, non-labor income increased from 26.1 percent in 1970 to 50.9 percent in 2000. The share of personal income from manufacturing decreased by 14.4 percent while the service sector only increased by 1.3 percentage points. While again we see a shift from manufacturing to service sector income we must consider the additional welfare effects of an increase in non-labor income sources; as noted above total increases in personal income were largely due to increases in non-labor income increases. The impacts of an increase in non-labor income might occur in many industries and these increases represent an external injection of income into the John Day basin economy.

Figure 26: Unemployment rate of John Day Basin counties



Source: US Census Bureau's City and County Data Book

Despite the increase in total personal income the percent of the Grant and Wheeler County residents living below the poverty level has fluctuated but remains close to recent levels (see figure 27). Between 1989 and 2003, Wheeler County's percent below poverty has been the same as the state average of 11.9 percent while Grant County's poverty level of 13.5 exceeds the state average level.

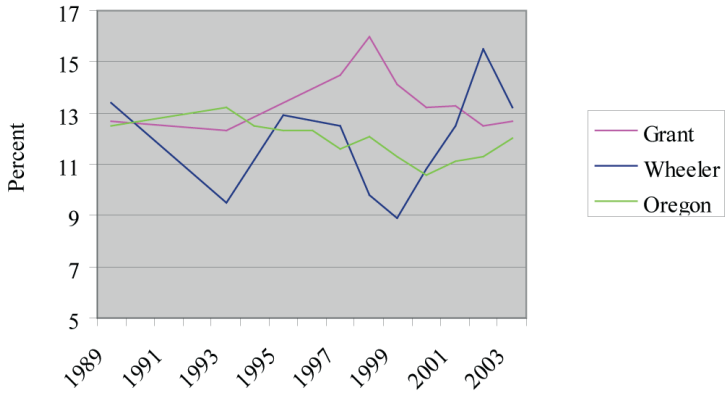
Revenue Sharing

In 1976, Congress passed legislation to provide funding to counties through Payments in Lieu of Taxes (PILT) in order to compensate for tax revenues not received from Federal lands. These taxes would typically fund various services that are provided (road maintenance, emergency services, and law enforcement). The PILT payments are determined using a formula which accounts for the county acreage of federal land, county population and the previous years' revenue sharing from resource uses on federal land (timber, range, mining etc.). Figure 28 displays previous year's payments.

Resource Contributions

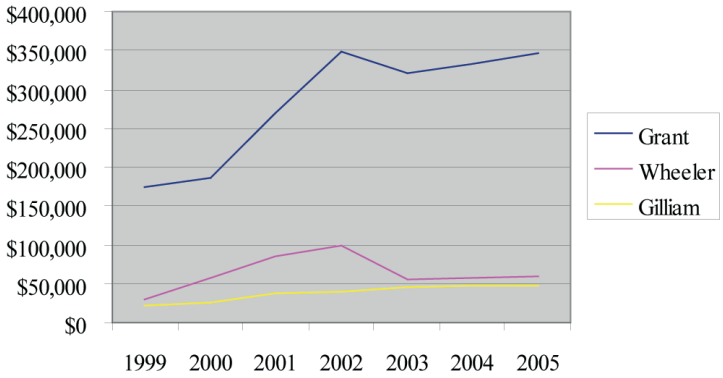
BLM land in the planning area contributes to the livelihoods of area residents through subsistence uses as well as through market-based economic production and income generation. Public lands provide products of value to households at no or low cost (permit fees). These products include fuelwood, Christmas trees, wood posts, livestock, and materials such as sand and gravel. Additional products with subsistence value may include fish, game, plants, berries, and seeds. In addition, use of these products is often part of traditions and sustains local culture.

Figure 27. Percent of Population below Poverty Level



Source: US Census Bureau, Small Area Income and Poverty Estimates

Figure 28: Payments in Lieu of Taxes



Source: National Association of Counties

Niche Market Opportunities

According to community fieldwork undertaken under contract by JKA, County and local leadership has been active in fostering efforts at economic diversification within the planning area. Citizens and officials are interested in fostering a diverse economy and niche markets are emerging in specialty beef, eco-tourism and small non-industrial businesses.

In Wheeler county ranching and recreational niche markets are developing fostering needed economic development. These include the Painted Hills Premium beef and the development of paleontological resources such as the citizen digs behind the high school and the Paleo Project. A steel fabrication company recently opened in Spray as well.

Local economic development efforts in Grant County have focused on supporting and strengthening existing businesses, and the promotion of outdoor recreation. The growth of bed and breakfast establishments and specialty crafts companies may indicate a trend of developing market niches (JKA, 2006). Prairie City has two small wood products companies that focus on post and pole and juniper operations and a juniper/pine decorative furniture shop which sells “all the furniture we can make”, much of it through catalog sales (JKA, 2006). Strawberry Mountain Natural Beef opened for business in John Day in 2005, and currently comprises 12 ranchers from the John Day area. In addition, a bowstring manufacturing facility exists in Grant County’s new airport industrial park.

Other emerging niche markets opportunities include wind energy development in Sherman County and the OHV Park in Morrow County.

Non-market economic value

The value of resource goods traded in a market can be directly elicited from information on the quantity sold and market price. Since markets do not exist for some resources and environmental services, the elicitation of value is important since without these value estimates, these resources may be implicitly undervalued and decisions regarding their use may not accurately reflect their true value to society.

Non-market values can be broken down into two categories; use and non-use values. The use-value of a non-market good is the value to society from the direct use of the asset. In the John Day Basin this occurs as recreational fishing, hunting, boating and bird watching. The use of non-market goods often requires consumption of complimentary market goods; such as lodging, gas, and fishing equipment.

Non-use values of a non-market good reflect the value of an asset beyond any use. These can be described as existence, option and bequest values. Existence values are the amount society is willing to pay to guarantee that an asset simply exists. Existence values in the John Day Basin might be the value of knowing that a native steelhead fishery exists. Other non-use values are thought to originate in society’s willingness to pay to preserve the option for future use; these are referred to as option values and bequest values. Option values exist for something that has not yet been discovered; such as the future value of a plant as medicine. In the John Day Basin bequest and option values might exist for timber or numerous plant species.

Non-market use and non-use values can be distinguished by the methods used to estimate them. Use values are often estimated using revealed preference methods or stated preference methods while non-use values can only be estimated using

hypothetical methods. While use and non-use values exist for the John Day Basin, evaluation may not be feasible during this RMP process. However this does not preclude their consideration in the planning process.

Native American Trust Responsibilities

Members of the Umatilla Tribe and the Confederated Tribes of Warm Springs exercise rights to hunt, fish, and gather on lands ceded to the Federal government within the planning area. Much of the planning area is within the ceded lands of the Confederated Tribes of the Warm Springs Reservation of Oregon (CTWSRO). The Confederated Tribes of the Umatilla Indian Reservation (CTUIR) have limited ceded lands but strong interest in the planning area. The Burns Paiute have traditionally occupied portions of the upper John Day country. The Yakama have also expressed interest in the planning area. The Yakama are known to have used the area for hunting, fishing, gathering, or to attend social events.

Since the BLM manages portions of the ceded lands that are within the traditional use areas of the tribe, the BLM has a trust responsibility to provide the conditions necessary for Indian tribal members to satisfy their treaty rights. The BLM also acknowledges a responsibility to consider the interests of tribes that are known to have used BLM managed lands.

Currently, Native American tribes are not dependent on commodity resources from lands managed by the Prineville Field Office for their economic livelihood. However, they do use BLM public lands resources for subsistence and cultural purposes.

Environmental Justice

Environmental justice refers to the fair treatment and meaningful involvement of people of all races, cultures and incomes with respect to the development, implementation and enforcement of environmental laws, regulations, programs, and policies. Executive Order 12898 requires Federal agencies to “identify and address the… disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.”

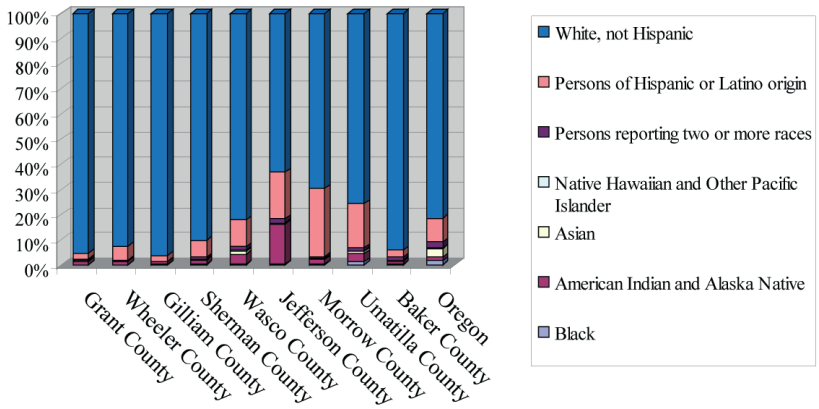
Under BLM Instruction Memorandum No. 2002-164, “environmental justice populations” can be identified when populations by meeting either of the following criteria:

- At least one-half of the population is of minority or low-income status.
- The percentage of population of minority or low-income status is at least ten percentage points higher than for the entire State of Oregon.

Census bureau statistics (Figures 29 and 30) suggest that neither Grant nor Wheeler Counties have populations that meet either environmental justice population criterion. However several other counties contained partially within the planning area have environmental justice populations (Jefferson and Morrow Counties) defined by the above criterion. The proportions of these counties that fall within the planning area are quite small and are often made up of entirely public land (Morrow County) or contain no towns, cities or concentrated areas of residence (Jefferson County). Thus while these counties contain “environmental justice populations” it is unlikely that highly localized minority or low-income populations exist within the JDBRMP planning area.

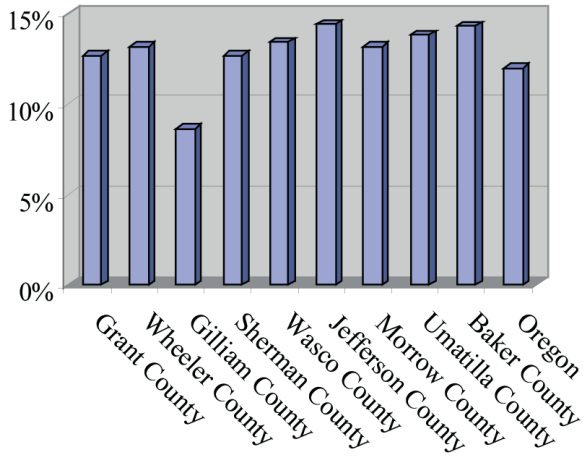
From Figure 30 above, no clear trends in poverty rates are apparent. While changes in employment from natural resource sectors to the recreation and services sectors are

Figure 29: Percent of County Population by Reported Race (2004)



Source: US Census Bureau County Quickfacts, 2003

Figure 30: Percent of County Population Below Poverty Level



Source: US Census Bureau County Quickfacts, 2003

evident, there is no evidence that increases in poverty will result. While poverty rates are higher in Grant and Wheeler counties than the rest of the state, they are not extremely so, nor any higher than other rural counties in the region.

Resource Uses

Native American Uses

Native American Indian uses involve a range of traditional economic, social, and religious practices performed by indigenous tribal groups on public lands. There are many facets to these uses. They can range from the protection of past burial sites to concerns about availability and access to root gathering areas to the quality of water that contributes to anadromous fish runs. The BLM has legal responsibility under treaty authority, federal law, and formal agreements with tribes to consider tribal concerns and interests when planning land use actions.

The distribution of these uses is not easily defined or well known. Many tribal members do not divulge this information either within a tribe or with agencies. The information the BLM does receive from tribes about use areas is withheld from the public as a condition of the special relationship between the tribes and the agency.

Recreation

A wide variety of recreation opportunities are provided in a variety of settings on BLM land throughout the John Day Basin. Some of these activities include whitewater rafting, kayaking, canoeing, fishing, hunting, horseback riding, riding OHVs, camping, bird watching, rock hounding, photography, and sightseeing. Opportunities also exist for driving for pleasure and sightseeing for geological, botanical, zoological, archaeological, historical features and points of interest. In addition to locations where BLM public land is concentrated, recreation also occurs on state or county roads that provide access to BLM and USFS public lands.

Examples of high quality sightseeing opportunities on public lands include the Journey Through Time Scenic Byway, which highlights the John Day Basin's geologic and human history as it travels from Biggs, Oregon near the John Day River's confluence with the Columbia River, parallels miles of the John Day River including the scenic Picture Gorge area, and continues east of the city of John Day. Other popular sightseeing routes include the South Fork Back Country Byway along the South Fork John Day River near Dayville, and the North Fork of the John Day River northeast of Monument. An important aspect of sightseeing is the opportunity to view and photograph wildlife ranging from tiny hummingbirds to deer, bighorn sheep, elk, bear, and perhaps the occasional glimpse of a mountain lion. Sightseeing also occurs throughout the planning area.

Visitor use of the John Day Basin has increased and the season over which use occurs has expanded. Estimated annual use of BLM lands within the John Day River corridor was approximately 96,000 use days in 2003. Approximately 40,000 use days occur on the uplands within the JDBRMP area. Most visitor use occurs on the John Day River during the spring, summer and fall. In the spring and summer, visitor congestion occurs at popular watercraft launch and take-out sites at Service Creek, Twickenham, Clarno, and the Cottonwood Bridge. Fall hunting seasons In the fall hunting season encourages a similar increase in visitors.

Recreation Facilities

There are 16 developed recreation sites managed by BLM within the planning area (see Map 9). Most of these sites are adjacent to the John Day River. None of the recreation sites within the planning area provide drinking water or trash receptacles. Most sites meet the accessibility requirements under the Americans with Disabilities Act.

BLM manages four developed campgrounds which are also available for day-use, Big Bend and Lone Pine on the North Fork John Day near Kimberly, and Muleshoe and Service Creek on the mainstem near the community of Service Creek. Each provides picnic tables, campfire grates, and vault toilets and each accommodates car camping, except Service Creek which provides walk-in campsites. Service Creek recreation site is owned by the Oregon Department of Transportation and managed and maintained by BLM under a lease agreement.

Four recreation sites are managed specifically for day use in the John Day Basin planning area. These include Monument River Access Park along the North Fork John Day in the town of Monument. In addition three sites exist along the mainstem of the John Day; Shady Grove near Spray, Clarno where State highway 218 crosses the river west of Fossil, and Cottonwood Bridge where State highway 206 crosses the river east of Moro. Clarno and Cottonwood are owned by the Oregon Parks and Recreation Department (OPRD) and are managed cooperatively by OPRD and BLM under a long term-lease agreement.

Five additional developed recreation sites are located in Wheeler County along the mainstem John Day River. Two sites are managed primarily for dispersed use, which are areas open to use with no specific locations for camping or picnicking identified. These are Priest Hole, which is accessible by vehicle, and Burnt Ranch Beach, which is accessible by foot or boat. Three additional sites are managed primarily for boat launching. These include Wooden Bridge, Lower Burnt Ranch, and Twickenham. Twickenham is available for boat launching and vehicle parking only and is a privately owned site managed under agreement by Oregon Department of Fish and Wildlife and maintained by BLM.

BLM manages two interpretive sites located along the historic Oregon Trail. These are the John Day Crossing on the west side of the mainstem John Day near McDonald Crossing, and the Four Mile historic site on the east side of the mainstem near the community of Ione. These sites contain wooden ramadas which house interpretive displays depicting emigrant life on the Oregon Trail. John Day Crossing is owned by Sherman County Historical Society, and currently managed by BLM. A small picnic site, Rock Creek, is located near McDonald Crossing on the east side of the mainstem.

Within the planning area, there are many developed recreation sites managed by other federal, state, and county agencies. Developed campgrounds include Clyde Holliday State Park along State highway 26 near Mount Vernon, Bear Hollow and Shelton Wayside operated by Wheeler County, and approximately twelve U.S. Forest Service campgrounds spread throughout the Ochoco, Strawberry, and Blue Mountain Ranges. Several private campgrounds are also available within the planning area.

The most popular day use sites within the planning area are located within John Day Fossil Beds National Monument. These day use sites are set aside to study, protect and display the rich fossil beds and unique geological features of the John Day River Valley. The monument includes three separate management units; Clarno, Painted Hills, and Sheep Rock. The Thomas Condon Paleontology Center in the Sheep Rock Unit opened in 2005, and serves as the monument's visitor center. Hiking trails, interpretive displays, and picnic facilities are available in all three units. A variety of city and county parks are also available for day use.

Trends show a gradual increase each year in visitor use at BLM developed recreation sites. Use at the John Day Fossil Beds National Monument is expected to increase considerably as visitors discover the new Paleontology Center. With no camping facilities available within the monument, there is expected to be an increased demand for public and private campgrounds located near the monument.

Rivers, Scenic/Back-Country Byways and local events are increasingly being promoted as travel and tourist destinations by local Chambers of Commerce and other groups. The acquisition of additional public lands along the North Fork John Day as a result of the Oregon Land Exchange Act of 2000 brings a potential for new recreation opportunities to the region.

Recreation Activities

Rockhounding

Rockhounding is a popular recreation activity in the planning area. Some public lands in the planning area contain agate, quartz, calcite, zeolites, petrified wood, dendrites, thunder eggs, opal, ammonites and leaf fossils. These prized items occur on scattered parcels of public land, some of which are surrounded by private land and contain no legal public access.

Boating

Floating the John Day River in a raft, kayak, canoe, driftboat, or pontoon boat is a popular recreational activity. When asked in a 2000/2001 social survey, 94% of respondents listed peace and solitude, viewing scenery and wildlife, being with friends and family, and riverside camping as the most important reasons they boat the John Day River. The most popular sections for boating include the mainstem from Spray downstream to Cottonwood Bridge, and the North Fork from Dale downstream to Monument. In some sections, multiple launch points and easy access present a variety of options for one-day float trips. Other sections, with little to no public road access, offer the rare opportunity for remote, multi-day float trips up to 8 days in length. The primary boating season extends from early May to mid-July, except during drought years when low water flows shorten the season. The difficulty of rapids ranges from Class I to Class IV and varies by river section and flow level. Powerboat use is regulated by river section and by season, with restrictions designed to provide a variety of boating opportunities throughout the river system as a whole, and to enhance the management goals for each river segment.

In 2004, BLM's boater self-issue permit system recorded 16,192 boater use days between Service Creek and Clarno, of which 85% consisted of overnight trips. Boating use is increasing at an average of 3% each year, with the greatest increase occurring in river sections offering opportunities for shorter trips of one to three days in length. On peak weekends and holidays, the number of overnight boating groups exceeds the number of public land campsites located within a reasonable boating distance of major launch points. As use levels increase, competition for public land campsites increases, and boating groups who are unsuccessful at finding a public land campsite stop on private property to camp. The BLM administers 26 Special Recreation Permits which authorize commercial guides and outfitters to operate a business on the John Day River. In 2004, commercial boating use days between Service Creek and Clarno accounted for 10% of the total boating use days.

BLM employees staff river launch points during boating season to encourage boaters to care for the river by practicing Leave No Trace outdoor skills and to respect private property rights. Regulations limit group size to 16 people, and the use of firepans and river toilets is required. No fires of any kind are allowed between June 1 and September 30. Self-issue permits, available at most river access points, are required year-round.

Fishing

Fishing is a popular recreation activity throughout Oregon and in the planning area. Fishing for bass, steelhead, and trout occurs on the main-stem of the John Day River and on the North, Middle and South Forks. To protect limited populations ODFW does not permit angling for bull trout and Chinook salmon on rivers and streams within the John Day Basin.

Steelhead fishing provides limited recreational opportunity in the John Day River and its tributaries as fish populations appear to be declining. Steelhead fishing generally occurs from November through January. Wild steelhead with unclipped adipose fins cannot be kept, however they can be caught if released unharmed. During most seasons some fin-clipped hatchery steelhead may be retained, however hatchery strays account for only 6-8% of the total steelhead population on the John Day River and its tributaries. The trout fishery has declined slightly from historic levels, but trout fishing continues to be a recreation opportunity enjoyed by visitors to the area.

Navigability – John Day River

On June 14, 2005, the Oregon State Land Board adopted the findings and conclusions of a Division of State Lands report which found that the 174-mile segment of the John Day River from Tumwater Falls (River Mile 10) to Kimberly (River Mile 184), met the federal criteria for navigability designation. To be considered navigable, the river was determined to be navigable by craft used at the time of Oregon statehood in 1859.

Under the navigability designation, ownership of the bed and banks of the John Day was transferred to the State of Oregon; superseding previous federal or private ownership. Under this designation state ownership applies to land that lies below the mean high water level. This ownership declaration allows public use of the river, generally to the line of ordinary high water, for activities such as fishing and boating. The primary beneficiaries of this ruling are boaters and anglers now able to use areas previously inaccessible on what, in the past, had been considered private land. State ownership also requires permission from the State of Oregon for certain uses of the waterway (for example, the construction or maintenance of a dock or moorage, or the removal of sand or gravel).

Smallmouth bass fishing is growing in popularity and generally occurs from May to the end of October. The increase in popularity of bass fishing in the basin is due to word of mouth and media coverage in fishing publications. Consider the statement on flyfishusa.com, “In 1971, Seventy-five Smallmouth Bass were introduced to the river. Since then, they have flourished! The John Day River is arguably the best Smallmouth Bass water in the country.”

Hunting

Big game hunting is a major recreational activity and opportunities exist for hunting deer, antelope, elk, bighorn sheep, bear and cougar. A limited number of antelope, and a very limited number of big horn sheep tags are issued in the planning area. Local, statewide and out of state hunters come to hunt big game, and game-birds. A variety of predators are also hunted, including coyotes, cougar and bobcat.

Visitor use for hunting occurs during the summer, fall and early winter months and generally occurs on large tracts of BLM public land and on adjacent USFS lands. The Planning area includes all of the Fossil, North side, Desolation, and Murderer’s Creek hunting units and part of the Biggs, Heppner, Columbia Basin, Beulah, Ochoco and Grizzly units. These units are established and regulated by the Oregon Department of Fish and Wildlife (ODFW). ODFW establishes management objectives for each species within each hunting unit. The BLM issues special regulation permits in order to regulate commercial hunting on public lands.

About 5,000 deer and 2,700 elk were harvested by sport hunters within the John Day Basin. Information about hunting success is provided by management unit by ODFW. Consequently these numbers are approximate and do not indicate the ownership of the land on which the animals were taken.

Upland bird hunting occurs primarily during fall and early winter in shrub lands and riparian areas, with some bird seasons extending into March of the following year.

Waterfowl hunting for duck and geese occurs in the fall and early winter on the John Day River and tributary rivers. The mainstem of the John Day River is closed to waterfowl hunting downstream of Thirtymile Creek within the John Day Wildlife Refuge managed by Oregon Department of Fish and Wildlife.

Statewide the number of Oregon resident deer hunters has declined over the past 30 years, while sales of elk tags have remained relatively constant. In contrast the number of non-resident elk hunters has increased over this time period. However the sale of both resident and nonresident deer and elk tags are anticipated to decline over the next five years. Nevertheless hunting for deer and elk are expected to remain popular recreational activities in the planning area.

Off Road Motorized Recreation

Off Highway Vehicle Use (OHV) use is allowed on the majority of BLM managed lands in the planning area. However on approximately 60% of these lands restrictions limit the season of use, and/or the routes open to OHV use. Less than 1 percent of BLM managed lands are closed to all OHV use. OHV use in the JDBRMP area is occurring in nearly every block of BLM land which is accessible to the public or to adjacent landowners, even where current restrictions prohibit such use. This widespread use appears to be limited only where steep, impassable terrain makes OHV use unfeasible. OHVs are used on BLM public lands throughout the year, primarily for gaining access to other recreational activities such as hunting, looking for horn sheds, and fishing. In addition OHV use for the pure fun of riding occurs in some parts of the planning area. There are no designated Class I, (ATV), II (4WD), or III (motorcycle) trail systems on BLM public lands within the planning area.

Hunters use All Terrain Vehicles (ATV refers to all OHVs less than 50 inches wide) on BLM lands in late summer to scout for big game, in fall to hunt and retrieve big game, and in fall and winter to access upland bird hunting areas. Commercial horn hunters use ATVs in late winter and early spring to hunt for recently dropped deer and elk antlers.

In the vicinity of the North Fork John Day River, an interim OHV designation for the 42,183 acres of acquired lands is in effect until this land use plan is completed. Some roads crossing sensitive fish streams are closed to motorized travel year-round. Use in other areas which provide critical deer and elk winter range, is seasonally limited to April 16 to November 30.

Designated Route Systems

In a designated route system, all open routes open to travel are signed as designated routes. All routes not marked as designated routes are closed. Designated route systems are in place in all WSAs, on the west side of the John Day River north of Clarno, and in the Murderer's Creek area along the South Fork John Day River. However, even with a designated route system, OHV users regularly drive past closed signs and off of designated routes.

Lower John Day River

Though much of the BLM land adjacent to the lower John Day River is closed to OHV use due to management guidelines for Wilderness Study Areas and Wild and Scenic River, unauthorized use of OHVs continues to occur. In addition adjacent land owners and fee hunters from adjacent private lands operate OHVs on BLM lands not open to the general public due to lack of public access.

Sutton Mountain Area

Two WSA's, Sutton Mountain and Pat's Cabin are located northwest of Mitchell and were designated in March, 1996, after BLM inventoried approximately 39,370 acres of public land for wilderness character.

Deer, elk and upland game hunters use OHVs on designated routes to access portions of both WSA's, but steep topography limits use. OHV users have driven past route closure signs and travel off designated routes. This generally occurs during deer and elk hunting seasons and during upland bird seasons.

Johnson Heights/Rudio Mountain

In the Johnson Heights area public access is available up the Squaw Creek Road, approximately 8 miles where public access ends. This BLM road is primitive and not maintained. Consequently it gets use by OHVs. As with other areas the most popular use is to support hunting.

Motorized use on Rudio Mountain occurs on old logging spur roads on all of these public lands. Primary use of OHVs is to support hunting with occasional sightseeing trips.

South Fork John Day

Primary use of OHVs in this area occurs in the Battle Creek Road area is to support big game hunting although horn hunting is also popular during the winter and spring months. Local ranchers may also use OHVs to manage livestock.

Upper John Day

The Little Canyon Mountain project area includes 2,498 acres of public land designated as open to motorized use. A 104-acre mining pit is currently used as a play area by trucks, ATV's and motorcycles. The pit area also provides access to many user created OHV routes in the area. An irrigation ditch runs through the pit and is often diverted by vehicle users to create a 'mud-bogging' area. OHV users test their skills against steep and varied terrain in the area.

The Little Canyon Mountain area has a history of mining, and many vehicle routes are currently used to access mining claims. In addition to mining, the pit area has historically been used for dumping garbage, furniture, appliances, and old car bodies, in addition to target shooting. Recently, the pit area has been cleaned up and barriers have been constructed to prevent full size vehicles from entering the area and dumping trash. The BLM regularly receives complaints about OHV use in this area, especially regarding vehicle noise.

Dixie Creek is another area receiving significant OHV use. Past mining and timber management activities have resulted in numerous routes on public lands in this area. A county road provides access to BLM lands, though scattered private lands are intermingled with BLM lands throughout this area. The BLM public land boundaries in this area **are** not been marked, resulting in public land use mainly by local residents. ATV, motorcycle and vehicle use in this area have resulted in new OHV trails being created. OHV use associated with mining also occurs in the Dixie Creek area.

Motorized use on Rudio Mountain occurs on old logging spur roads on all of these public lands. Primary use of OHVs is to support hunting with occasional sightseeing trips.

North Fork John Day River

Roads were developed in this area where needed to harvest trees and manage cattle. These roads are generally located in river and creek bottoms, but some old routes that skirt steep side hills were constructed to harvest timber.

Since the acquisition of additional BLM lands, there has been a continued increase in motorized use violations of seasonal and permanent road closures. Trespass on private land also continues. These violations primarily occur during deer and elk hunting seasons.

OHV use on adjacent U.S. Forest Service Managed Lands

OHV use on adjacent U.S. Forest Service Umatilla, Wallowa-Whitman and Malheur National Forests has also increased dramatically since the mid 1980's. OHV use on these forests has become a year-round recreation activity. According to the tri-forest Current Management Situation Report for the U.S. Forest Service Blue Mountain Plan revision (AMS), OHV use is associated with hunting prior to and during hunting seasons, with vacation & leisure-time use during summer months, and with local residents year-round.

OHV Use Trends

OHV use of BLM public lands within the planning area has dramatically increased since the Two Rivers, John Day and Baker RMPs were finalized in the 1980s. Increased OHV use on BLM public lands in the planning area has resulted from more recreation users coming to eastern Oregon to hunt, fish, camp, and ride OHVs for fun. These OHV users continue to create unauthorized trails on BLM managed land.

OHV annual sales more than tripled between 1995 and 2003, to more than 1.1 million ATV's and motorcycles sold in 2003. ATV's continue to account for more than 70% of the OHV market. Cordell (2005) found that in the western region that included Oregon, the highest average OHV user days were attributed to the 51 and older age group. However, in just Oregon, the age group showing the greatest participation in OHV use was "under age 30" at 25.3%.

The 2003 State Park Statewide Comprehensive Outdoor Recreation Planning (SCORP) survey for northeastern Oregon, which includes the JDBRMP area, found motorized activity increasing with almost all types of riders since 1987. Specifically, this survey found four-wheel use had increased 48 percent, OHV riding 47 percent, motorcycle use 73 percent, and snowmobiling increased 10.1 percent. These trends are valid for both BLM and U.S. Forest Service public lands since these riding opportunities are primarily on these public lands in this region.

In addition to the increase in the popularity of OHVs, the advancement of OHV technology makes for more user-friendly four wheel drive vehicles which enable recreation users to go cross-country and cover broader ranges of terrain than before. Each year BLM receives complaints associated with ATV use, specifically vehicles in closed areas, trespass on private lands, wildlife disturbance, and soil and vegetation damage due to cross-country use over muddy terrain. Public lands in riparian areas are particularly susceptible to damage. For example, despite an OHV closure, users enter the John Day River channel at Clarno, Cottonwood, and other locations during low water periods and drive in the channel for many miles to access the river canyon. Some OHV users drive into the John Day riverbed at low flows to camp, leaving behind fire rings filled with trash that wash into the river when flows increase.

Conflicts continue to increase between public land users and adjacent private land owners who are concerned about trespass. Unauthorized OHV use is most frequent on BLM public lands in the North Fork of the John Day, Sutton Mountain/Pat's Cabin and Spring Basin areas. Unauthorized OHV use also occurs on public lands where no public access is available, such as public lands on both sides of the John Day River from Kimberly to Tumwater Falls, Rudio Mountain, and public lands south and south west of Kimberly. In addition trespass is common, during the fall hunting season in game units such as the Heppner unit, where OHV use on USFS and BLM roads and primitive routes has increased.

More user-developed trails on BLM public lands and also U.S. Forest Service designated Class I (ATV) and Class III (motorcycle) trails are available to ride than in past years. Despite this increased use, there are fewer BLM and U.S. Forest Service on-site law enforcement officers in popular OHV use areas to manage this use.

Commercial Recreation

Some individuals do not have the knowledge, skill, equipment, or time to engage in and plan float, fishing, or hunting trips or any of a range of recreational activities that take place within the John Day Basin. As a result guide, equipment rental, and shuttle operations have developed to serve this population. Currently guiding and boat rentals involving the delivery and pick up of boats at BLM managed sites is regulated by the BLM. The BLM issues Special Recreation Permits (SRPs) to authorize these uses on the public lands and related waters. SRPs enable the BLM to manage visitor use, protect natural and cultural resources, and as a mechanism to authorize commercial use, competitive use, vending, special area use, and organized group activities or events.

Within the planning area, BLM currently administers 26 river related SRPs authorizing boat rental, guiding, hunting, and fishing on specified sections of the John Day River. The activities and areas authorized vary by individual SRP. In addition, the BLM administers three upland SRPs for guided hunting during specific hunting seasons and in specified areas. The term of each SRP ranges from one to five years based on an annual evaluation of the permittee's performance.

Between 1996 and 2006, the number of commercial SRPs for the John Day River has dropped from 34 to 26 due to non-renewal of an SRP by the permittee, or non-renewal by BLM due to failure to meet permit stipulations. Outfitter and guide services offered may currently exceed public demand, based on the low number of user days reported by guides and outfitters. Most permitted guides and outfitters are not able to generate adequate income by operating solely on the John Day River. Their income from the John Day River is used to supplement other sources of income, including guiding and outfitting on other rivers or income derived from other businesses or employment.

The BLM has had a moratorium on issuing new commercial guide and outfitter permits for the John Day River since 1996. In 2001 the John Day River Plan required a needs assessment to identify a need for a particular river-related service before a new commercial guide or outfitter permit could be issued.

An estimated 15 vehicle shuttle services are used by John Day River boaters, and none are currently under BLM SRP because the services do not traverse more than one mile of BLM-managed land or water.

There have been no competitive event or vending SRPs issued within the planning area, although a John Day River Plan decision allows BLM to consider issuing vending permits at river launch points to benefit resource protection, such as for the sale of river toilets, firepans, or firewood. The BLM occasionally issues SRPs for organized group activities or events within the planning area.

In 2001, the Prineville District limited the availability of new SRPs for commercial, competitive, and organized group use on public lands within the district boundary. New SRP proposals will be considered for authorization for activities or events not exceeding seven consecutive days in length annually which do not require preparation of an environmental assessment. The BLM has received numerous requests for new river SRPs as well as new upland SRPs for guided hunting, nature hikes, and paleontological tours.

Transportation and Access

Primary ground transportation within the planning area is provided over a mix of federal, state, and county roads and highways. Except for the extreme northern portions of the planning area most of the John Day basin is connected by basically rural roads. While the surface of the Federal Highways and many of the state and county routes are generally in good condition these roads cross difficult terrain and wind around and over rivers, streams, canyons, rimrock, and mountains.

Federal Interstate, State Highways, & County Roads

BLM managed lands are accessible from federal Interstate, state highways, county roads, local roads and private residences. Widespread access to BLM managed public lands provides opportunities for a variety of recreation opportunities, range, timber and mineral utilization and helps provide access to different land ownerships. Local communities are connected by a road system that traverses and meanders through the Eastern Oregon landscape.

Interstate 84 parallels part of the northern end of the planning boundary along the Columbia River. This interstate is a major route used by travelers and commercial trucks between the western and eastern portions of the country. Recreationists and other public land users from the Portland and Seattle areas also use this interstate highway in their trek to public lands in the planning area.

U.S. Highway 26 is a major travel corridor through the heart of the planning area and extends in an east-west direction. U.S. Highway 395 bisects the eastern part of the planning area from North to South. US Highway 97 extends in a North – South direction from Madras to Biggs and forms part of the western JDBRMP planning area boundary.

Table 13: Summary of U.S. and State Highway Mileage within the Planning Area

County	Interstate, U.S. or State Highway	Miles
Baker	**County Total:**	**0**
Gilliam	I-84	51.53
Gilliam	SR 19	52.99
Gilliam	SR 206	39.35
Gilliam	SR 74	8.05
	County Total:	**151.93**
Grant	US 395	80.25
Grant	US 26	76.55
Grant	SR 402	34.85
Grant	SR 19	19.01
Grant	SR 7	7.48
	County Total:	**218.14**
Jefferson	**County Total:**	**0**
Morrow	SR 207	0.06
	County Total:	**0.06**
Sherman	US 97	47.80
Sherman	SR 206	16.06
Sherman	I – 84	10.06
Sherman	SR 216	0.50
	County Total:	**74.42**
Umatilla	US 395	2.70
	County Total:	**2.70**
Wasco	SR 218	13.35
Wasco	US 97	3.17
	County Total:	**16.52**
Wheeler	SR 19	50.13
Wheeler	US 26	45.88
Wheeler	SR 207	39.79
Wheeler	SR 218	19.24
	County Total	**155.03**
Grand Total:		**619.10**

BLM GIS Road database; 2006

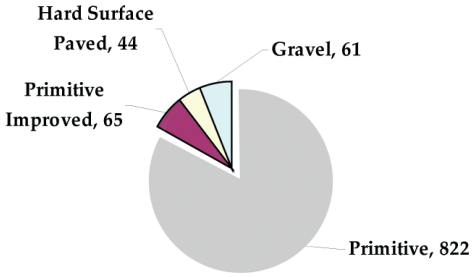
In addition to the above routes, State Highways and county roads provide access within the planning area. These state highways and county roads connect local communities, and ranches, to the John Day River, BLM, Forest Service and National Park lands. These routes also provide for travel within Eastern Oregon and to adjacent states. Table 13 summarizes Interstate, U.S. and State Highway mileage within the planning area by county.

Although state and many county roads are paved, many roads are crooked and traverse hilly topography, increasing travel time between communities. Some county roads are also graveled, increasing potential for sliding off roads. During winter months travel between communities requires longer driving times and is frequently hazardous. In addition, limited county road funding limits road maintenance, road re-construction, sign and ditch maintenance, and snow plowing. Table 14 identifies mileage of county road types within the planning area, which shows a predominance of gravel, cinder or primitive roads maintained by counties within the planning area.

Roads Across BLM Lands

Within the planning area, a wide variety of road types are located on BLM public lands. Not all are maintained by BLM. Many of these roads are maintained and managed by entities such as the Oregon Department of Transportation, county road departments, and utility companies. These various road types are illustrated in figure 31 below.

Figure 31: Miles of Road on BLM Land by Surface Type



Source: BLM GIS road database; 2006

Table 14: County Transportation System in the John Day Basin RMP Area

County	Paved Road	Gravel, Cinder Primitive Surface Road	Total Miles:
Baker	0	0	0
Gilliam	21	429	450
Grant	215	353	568
Jefferson	0	60	60
Morrow	0	0.9	0.9
Sherman	86	190	276
Umatilla	0	0	0
Wasco	0	22	22
Wheeler	36	335	371
Total	**358**	**1390**	**1748**

Estimated County Road mileage from BLM GIS road database; 2006

BLM Transportation System

There are three classes of routes in the BLM transportation system: Roads, Primitive Roads, and Trails. A Road is a route declared a road by the owner, managed for use by low-clearance vehicles having four or more wheels, and maintained for regular and continuous use. A primitive Road is a route managed for use by four-wheel drive or high clearance vehicles. These routes do not normally meet any BLM road design standards. A Trail is a route managed for human-powered, stock, or off-highway vehicle forms of transportation or for historical or heritage values.

The existing primitive road and trail network in the planning area is a combination of historic county roads, BLM maintained roads, roads once constructed that are maintained only by the passage of users, and trails created by a variety of users. Existing routes have been constructed in the past for livestock or timber management, mining, and travel between cities and ranches. Many of these roads were created several decades ago and continue to be used, while others are no longer useable by motorized users. No standard exists for the retirement or obliteration of roads after they have served their functional purpose.

Recreationists, private land owners, and permittees use authorized and unauthorized primitive roads and trails to reach destinations throughout the John Day Basin area. BLM maintenance of primitive roads is done primarily on an “as-needed” basis. Unauthorized use on existing routes and cross-country motorized use has continued to increase annually. These actions continue to result in road rutting, soil compaction, increased muddy water runoff, disturbance to wildlife and trespass on private lands (discussions with Heidi Mottl, John Morris, and Greg Hampton, LEA, 2006).

BLM Roads

Lower John Day River

Though considered part of the Lower John Day the area immediately north of Clarno is displayed on the Sutton Mountain Area Map. From the town of Clarno, approximately four miles of BLM un-maintained primitive road extends north to a locked gate just beyond the Sorefoot Creek drainage. There are no other BLM managed roads across BLM lands in the Lower John Day Area. (See Map 10: Lower John Day Transportation and Map 11: Sutton Mountain Transportation)

Sutton Mountain Area

In the Sutton Mountain area several small proportions of BLM maintained roads exist. North of Mitchell, an old logging road extends east to west from Highway 207 to Bridge Creek Road. This road is called the Myers Canyon road (BLM road 7548) and is a BLM maintained gravel road. The Priest Hole Rd. (BLM road 7559) is a BLM maintained primitive road which extends from Bridge Creek Road down to the John Day River and then east to the Twickenham-Bridge Creek-Cutoff County Road (see Map 11: Sutton Mountain Transportation.).

Rudio Mountain and Johnson Heights Areas

Along the Franks Creek Road (BLM Road 6203), BLM has a reciprocal agreement with a large land owner, D.R. Johnson, which specifies that whoever uses this 9.5 mile road segment maintains it. BLM maintains approximately 7 miles of the Timber Basin Road, which is open for BLM administrative and public use. Holmes Creek Road is maintained by BLM and extends south for approximately 8 miles until public access ends at private land. Just north of the Cant Ranch the very rough, primitive and un-maintained Squaw

Creek Road extends approximately 8 miles until private lands prevent further public access. (see Map 12: Rudio Mountain Johnson Heights Transportation).

South Fork John Day River

The BLM maintains approximately 23 miles of gravel road on the South Fork John Day River. This road is maintained on an annual basis whereas all other BLM road maintenance in the planning area is done on an as needed basis. Grant County Road Department maintains approximately 1.5 miles of paved road and 7.5 miles of gravel road along this river.

Other routes off the South Fork John Day River Road are open seasonally. Jackass Creek and Murderer's Creek roads are limited to designated routes and open seasonally. This area is managed as a Co-operative Travel Management Area by the BLM, USFS and ODFW.

Two other areas in the South Fork John Day area are open seasonally: Battle Creek Road extends south of Highway 26 and Indian Creek road is open seasonally. (see Map 13: South Fork John Day River Transportation)

Upper John Day

There are 17 miles of roads on very steep terrain through public lands in the Little Canyon Mountain area. Many routes have no drainage built into them and rut easily due to high clay content. Many of these routes are used recreationally by OHV enthusiasts. Some routes provide access to mining claims (see Map 14: Upper John Day Transportation).

North of Prairie City along County Road 58,a BLM spur road extends to the Malhuer National Forest Boundary along Dixie creek. This road is not maintained by the BLM but provides public access to the Malhuer National Forest in this area.

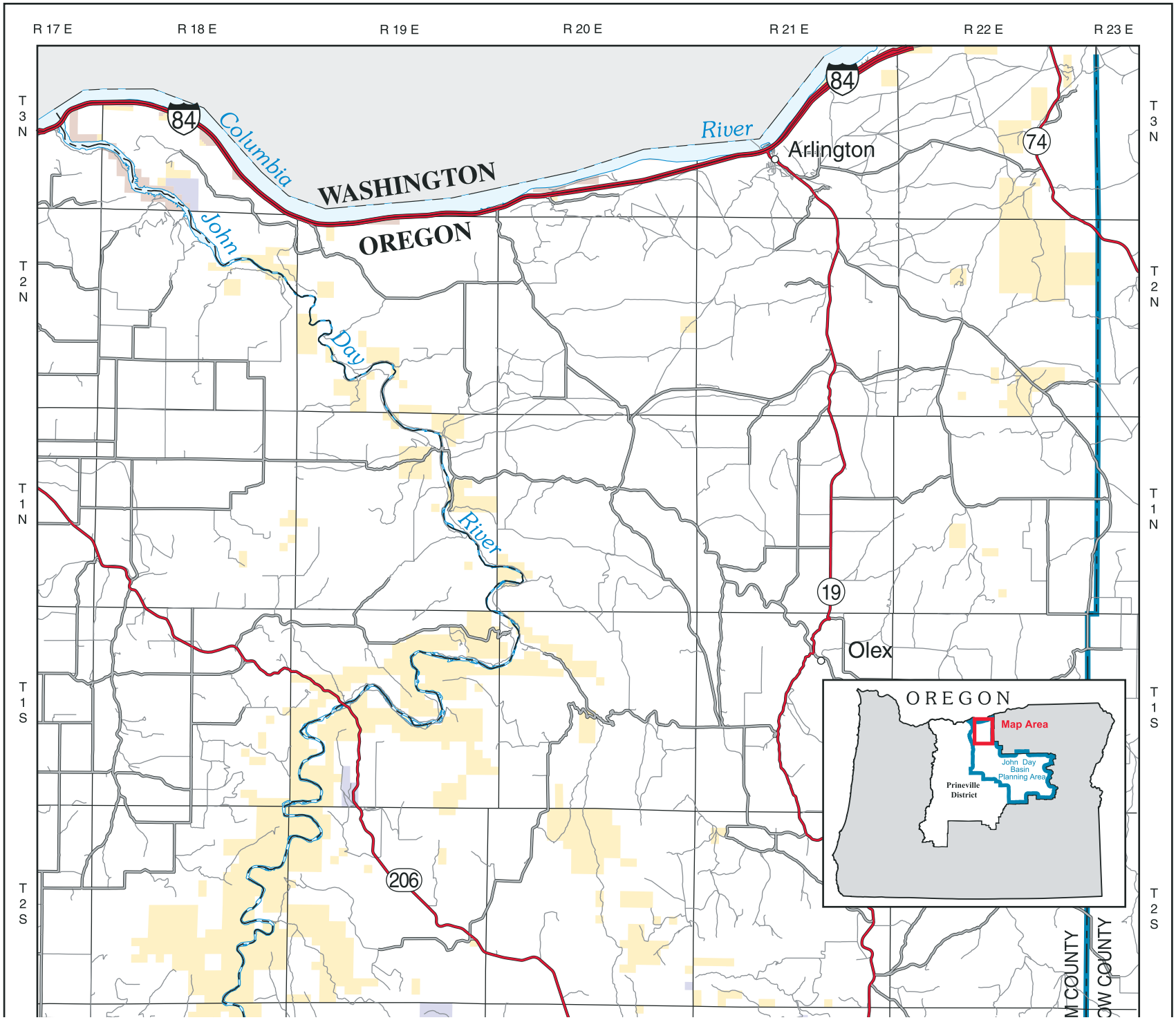
North Fork John Day River Roads

The North Fork John Day River Access Road (BLM road 7569) is a BLM maintained road following the North Fork of the John Day River from its intersection with Highway 395 downstream to the Wrightman Canyon Road (County Road 15).

A primitive road exists downriver from the Wrightman Canyon Road (County Road 15), to the Wall Creek road (County Road 31). This primitive, un-maintained road parallels the north and west banks of the North Fork John Day River. There are 7.15 miles of road on BLM public lands and 7.85 miles of road on private land. No public easements exist through the private lands and no easements have ever been pursued or obtained by BLM or any other public agency. Private land owners have placed gates across this road in the early 1990's and in 2005. These gates have frequently been pulled out by users.

Two primitive, seasonally open roads lead to the north from the North Fork John Day River Access Road. The first, up Jericho Creek has a small spur road but either direction the road soon ends. Near the end of public access on the North Fork road the Mallory Creek Road extends into the Umatilla National Forest. There has been no maintenance on these roads to date. Several primitive roads that are open seasonally extend from the Umatilla National Forest BLM managed lands. Each of these routes ends near the top of rimrock overlooking the North Fork John Day River several hundred feet below.

Public access along the North Fork is available north of the city of Monument for 7.6 miles along County Road 31, to Wall Creek. This county road extends north, past Wall Creek, to BLM and Forest Service lands. At this point several un-maintained BLM roads are open seasonally from April 16 to November 30. (See Map 15: North Fork John Day Transportation).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R 23 E
T 3 N
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84
Columbia
River
WASHINGTON
OREGON
Arlington
74
John
Day
River
19
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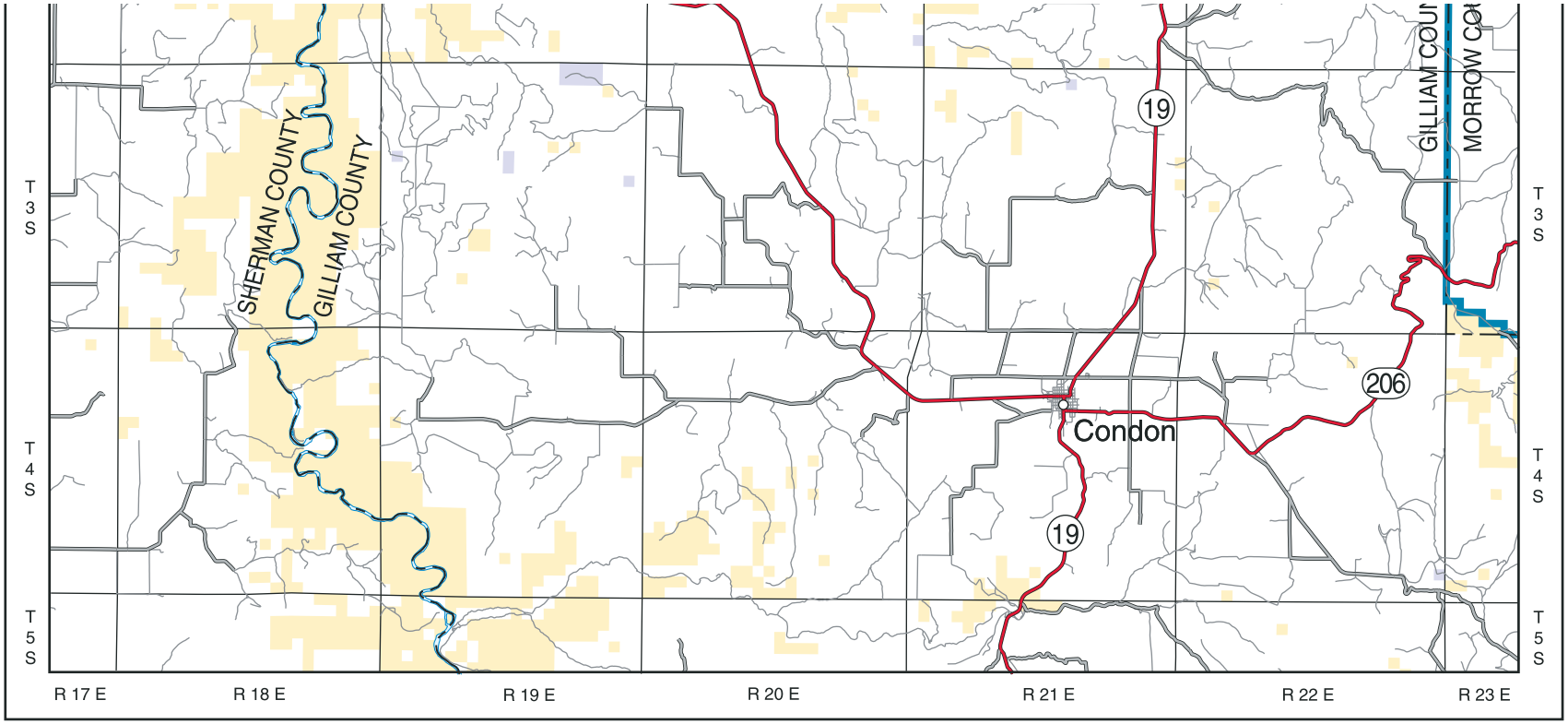
206
OREGON
Map Area
John Day Basin Planning Area
Prineville District



LEGEND

Planning Area Boundary

Transportation

- Interstate (84)
- State Highway (206, 19)
- County Road
- Road:
  BLM- Closed except for adminstrative use
  Private- Closed to public use or unknown

Administered Land

- Bureau of Land Management
- Other Federal
- State
- Private or Other

N
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3 0 3 6 Miles

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Map 10: Lower John Day Transportation

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PRINEVILLE DISTRICT

John Day Basin Resource Management Plan

2006

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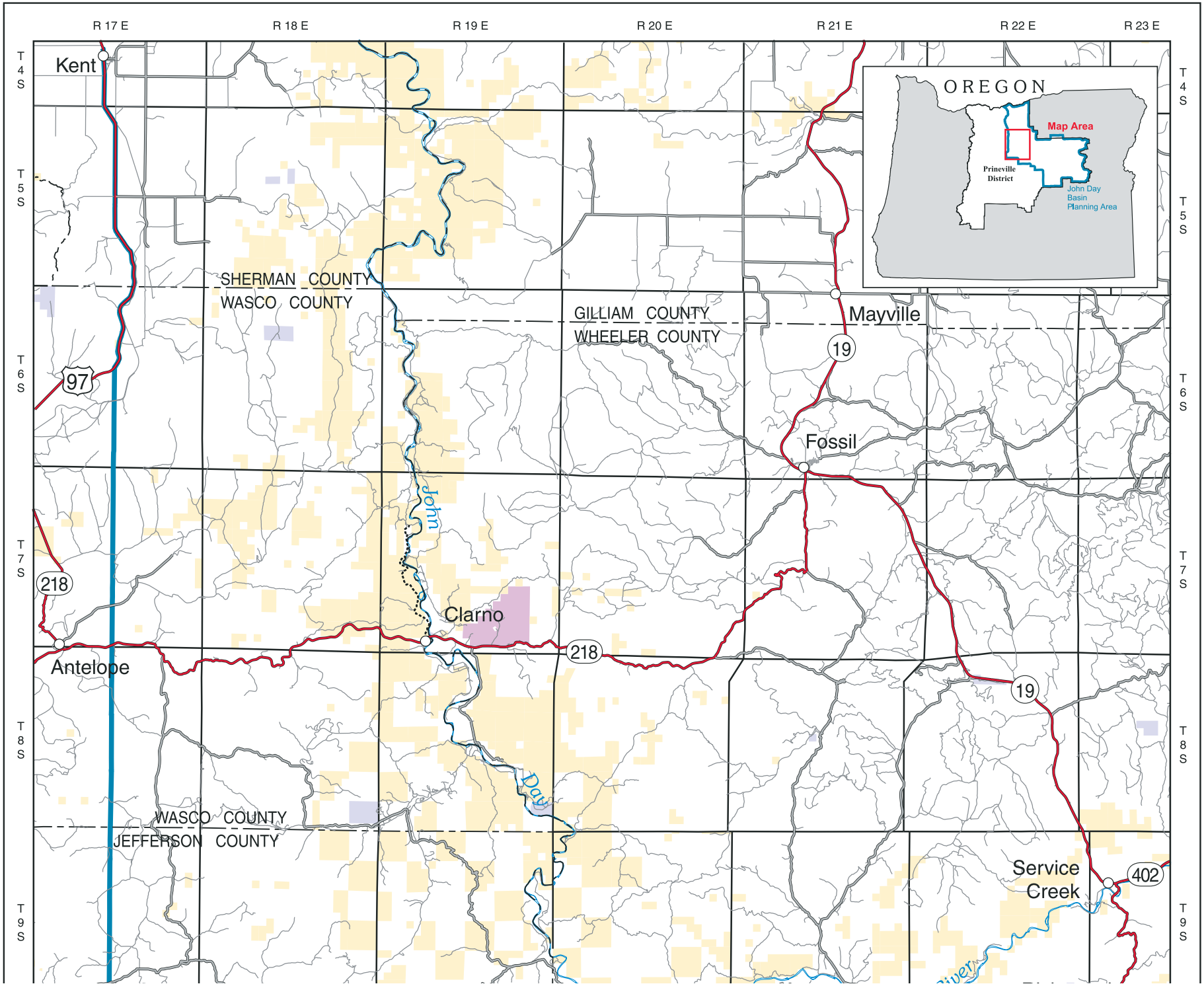
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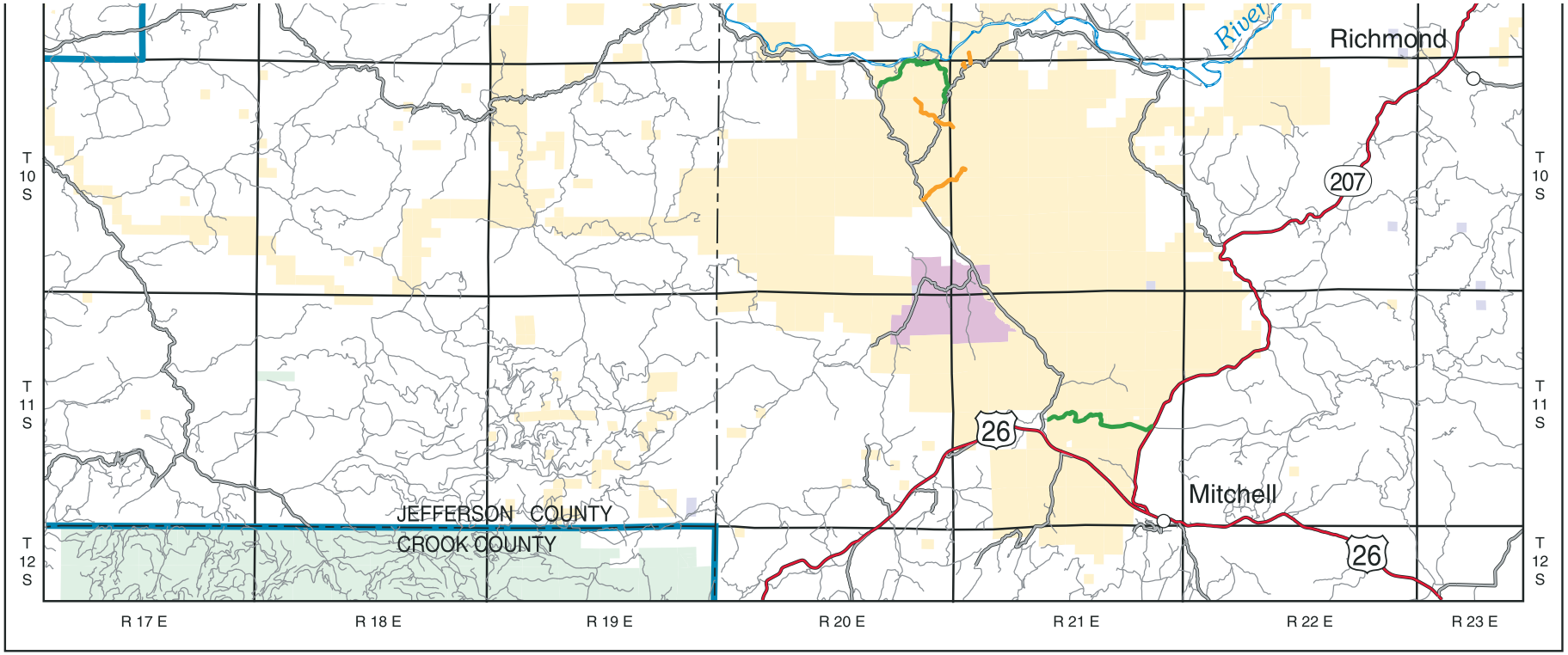
Kent
SHERMAN COUNTY
WASCO COUNTY
GILLIAM COUNTY
WHEELER COUNTY
Mayville
19
97
Fossil
John
218
Clarno
Antelope
218
19
Day
WASCO COUNTY
JEFFERSON COUNTY
Service
Creek
402
OREGON
Map Area
Prineville
District
John Day
Basin
Planning Area



LEGEND

Planning Area Boundary

Transportation

- Open Roads
- Road Open Seasonally
- BLM Maintained Roads
- 26 U.S. Highway
- 218 19 State Highway
- 4 County Road
- Road:
  BLM- Closed except for adminstrative use
  Private- Closed to public use or unknown

Administered Land

- Bureau of Land Management
- Forest Service
- John Day Fossil Beds National Monument
- State
- Private or Other

N W E S

3 0 3 6 Miles

3 0 3 6 Kilometers

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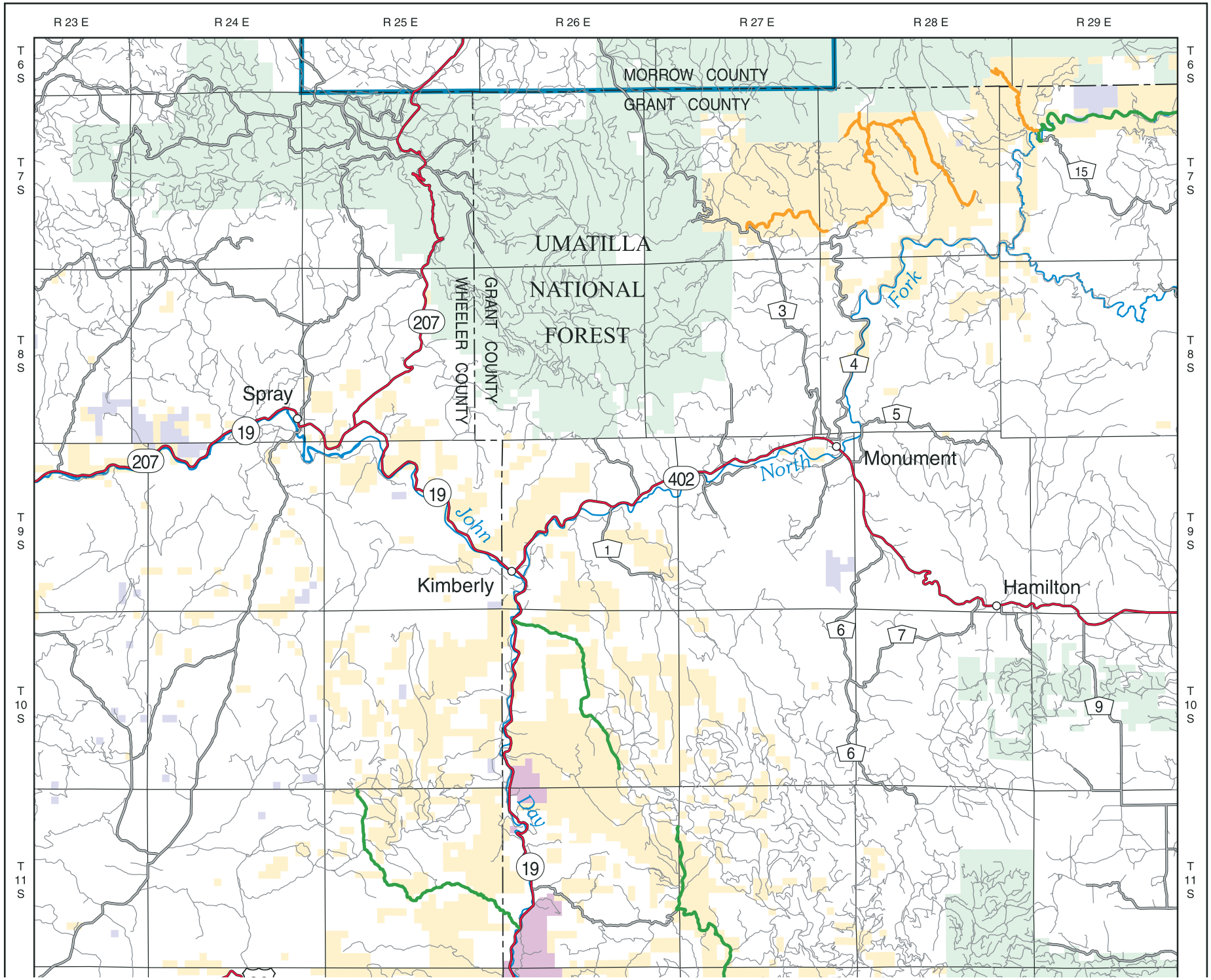
Map 11: Sutton Mountain Transportation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MORROW COUNTY
GRANT COUNTY
UMATILLA
NATIONAL
FOREST
WHEELER COUNTY
GRANT COUNTY
Spray
Kimberly
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Hamilton
John
Day
North
Fork
207
19
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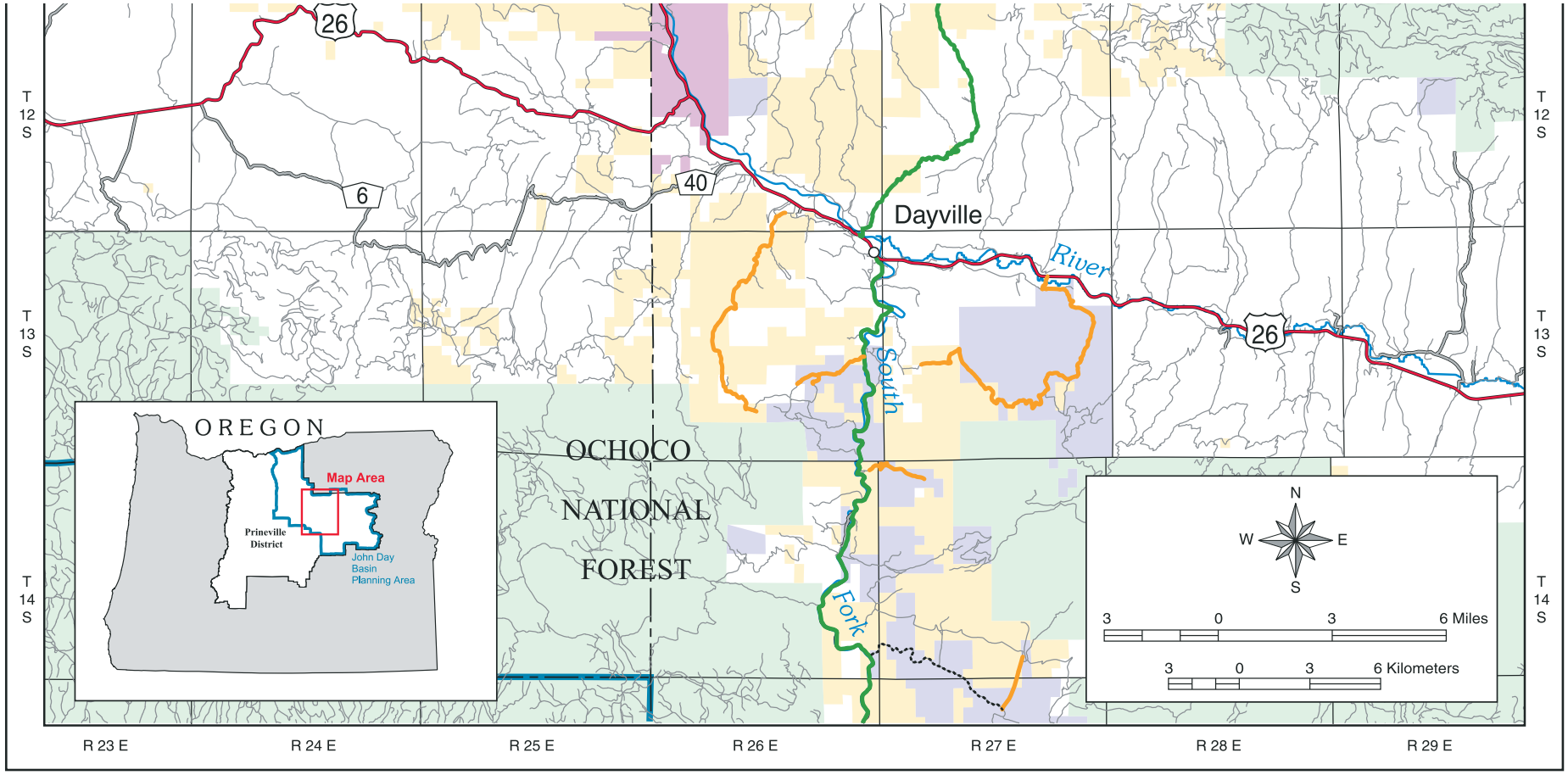

LEGEND

Transportation

- Open Roads
- Road Open Seasonally
- BLM Maintained Roads
- 26 U.S. Highway
- 207 19 State Highway
- 4 County Road

Road:
BLM- Closed except for adminstrative use
Private- Closed to public use or unknown

Planning Area Boundary

Administered Land

- Bureau of Land Management
- Forest Service
- John Day Fossil Beds National Monument
- State
- Private or Other

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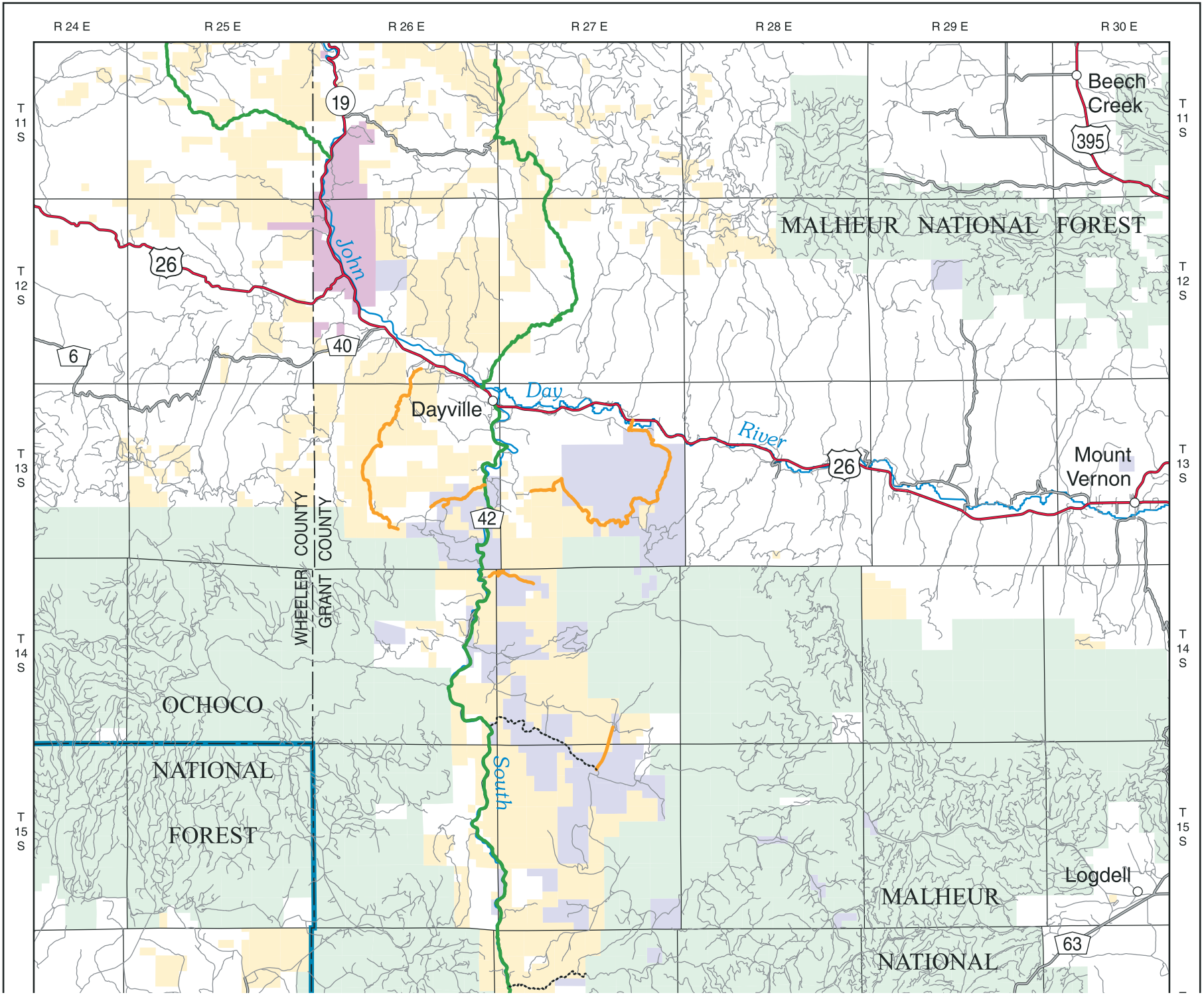
Map 12: Rudio Mountain Johnson Heights Transportation


R 24 E
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T 15 S
Beech Creek
395
19
26
6
40
42
63
John
Day
River
South
Dayville
Mount Vernon
Logdell
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WHEELER COUNTY
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OCHOCO
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FOREST
MALHEUR
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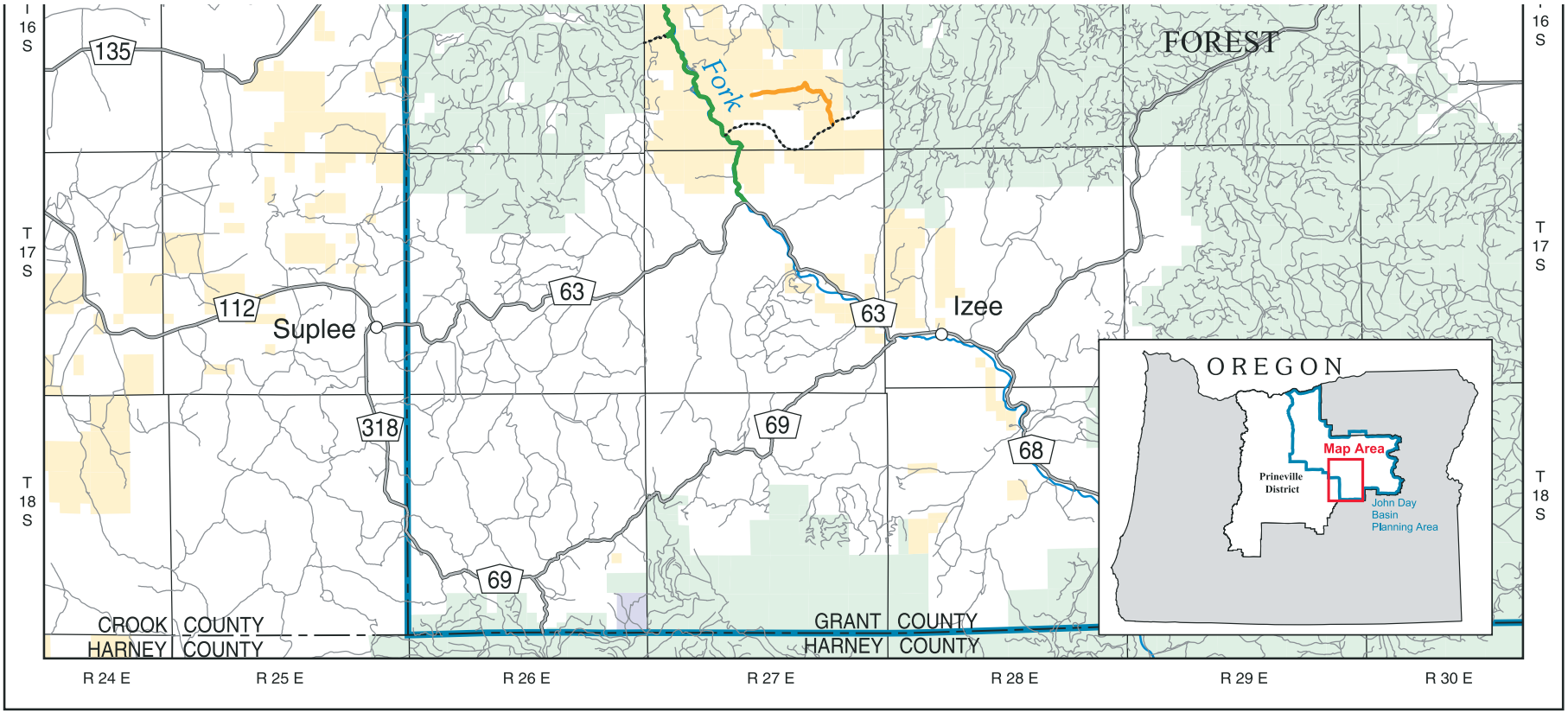

LEGEND

Planning Area Boundary

Transportation

- Open Road
- Road Open Seasonally
- BLM Maintained Road
- 26 U.S. Highway
- 19 State Highway
- 63 County Road
- Road:
  - BLM- Closed except for adminstrative use
  - Private- Closed to public use or unknown

Administered Land

- Bureau of Land Management
- Forest Service
- John Day Fossil Beds National Monument
- State
- Private or Other

N W E S

3 0 3 6 Miles

3 0 3 6 Kilometers

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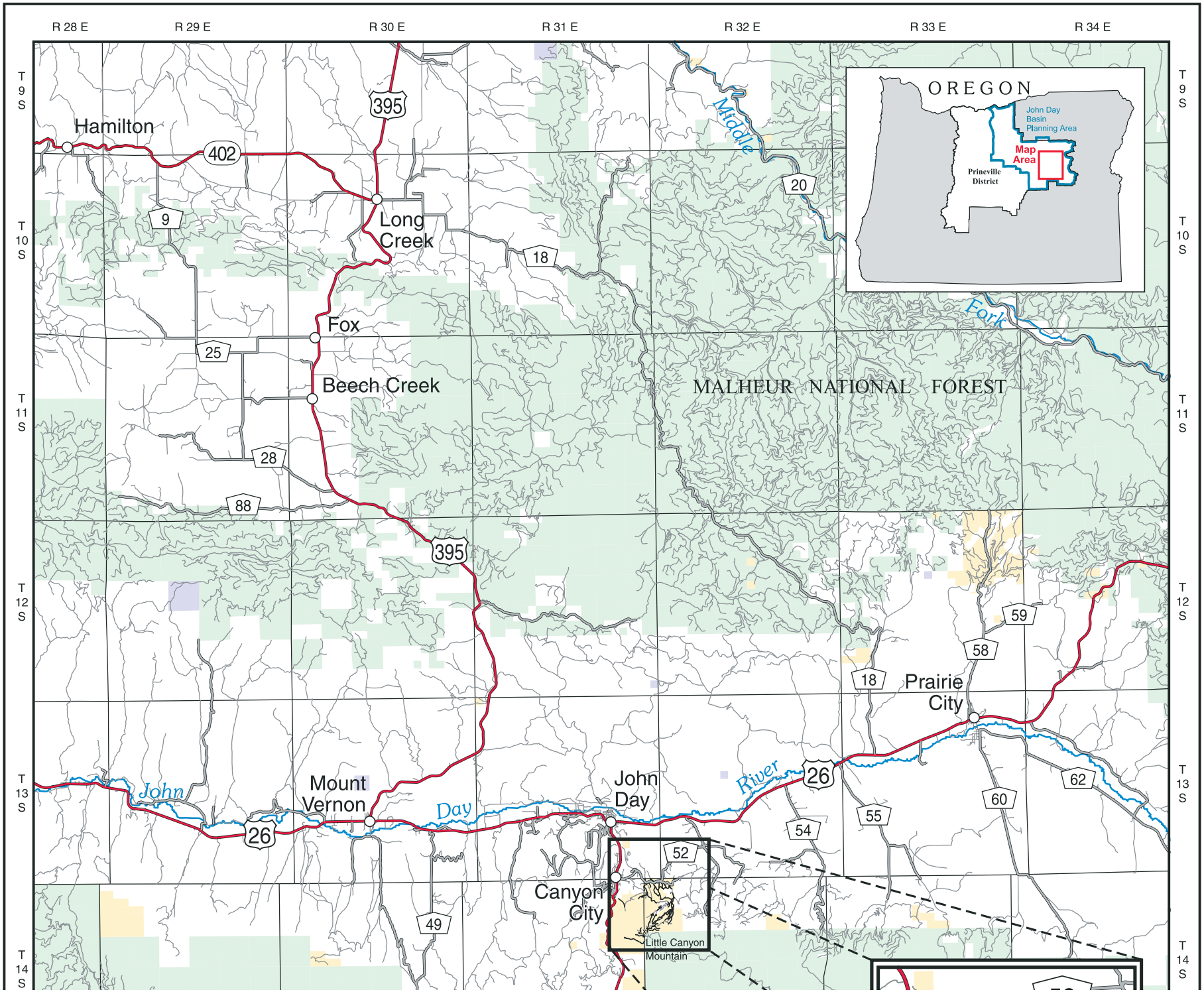
Map 13: South Fork John Day Transportation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Hamilton
402
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Long Creek
18
20
Middle
Fork
Fox
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Beech Creek
MALHEUR NATIONAL FOREST
28
88
395
59
58
18
Prairie City
John
Day
River
26
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54
Mount Vernon
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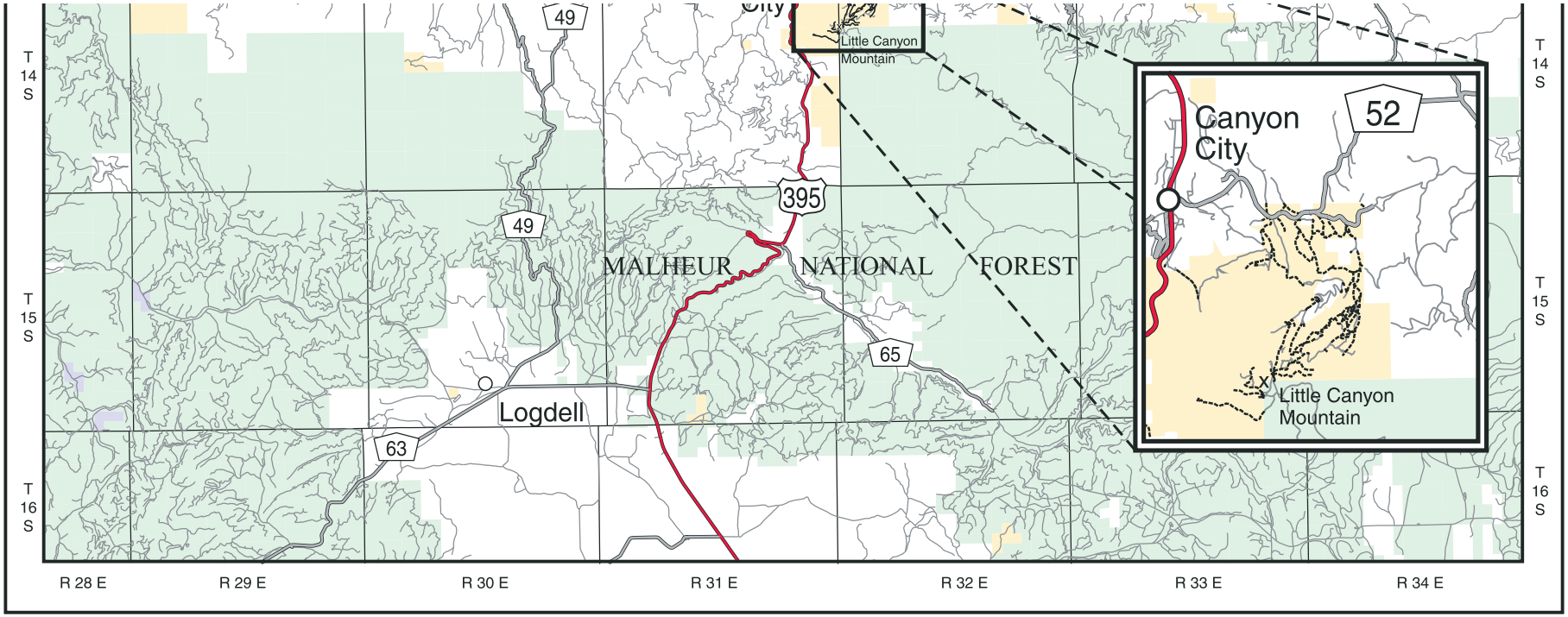
52
Canyon City
49
Little Canyon Mountain
OREGON
John Day Basin Planning Area
Map Area
Prineville District



LEGEND

Transportation

- Open Road
- 26 U.S. Highway
- 402 State Highway
- 52 County Road
- Road:
  BLM- Closed except for adminstrative use
  Private- Closed to public use or unknown

Administered Land

- Bureau of Land Management
- Forest Service
- State
- Private or Other

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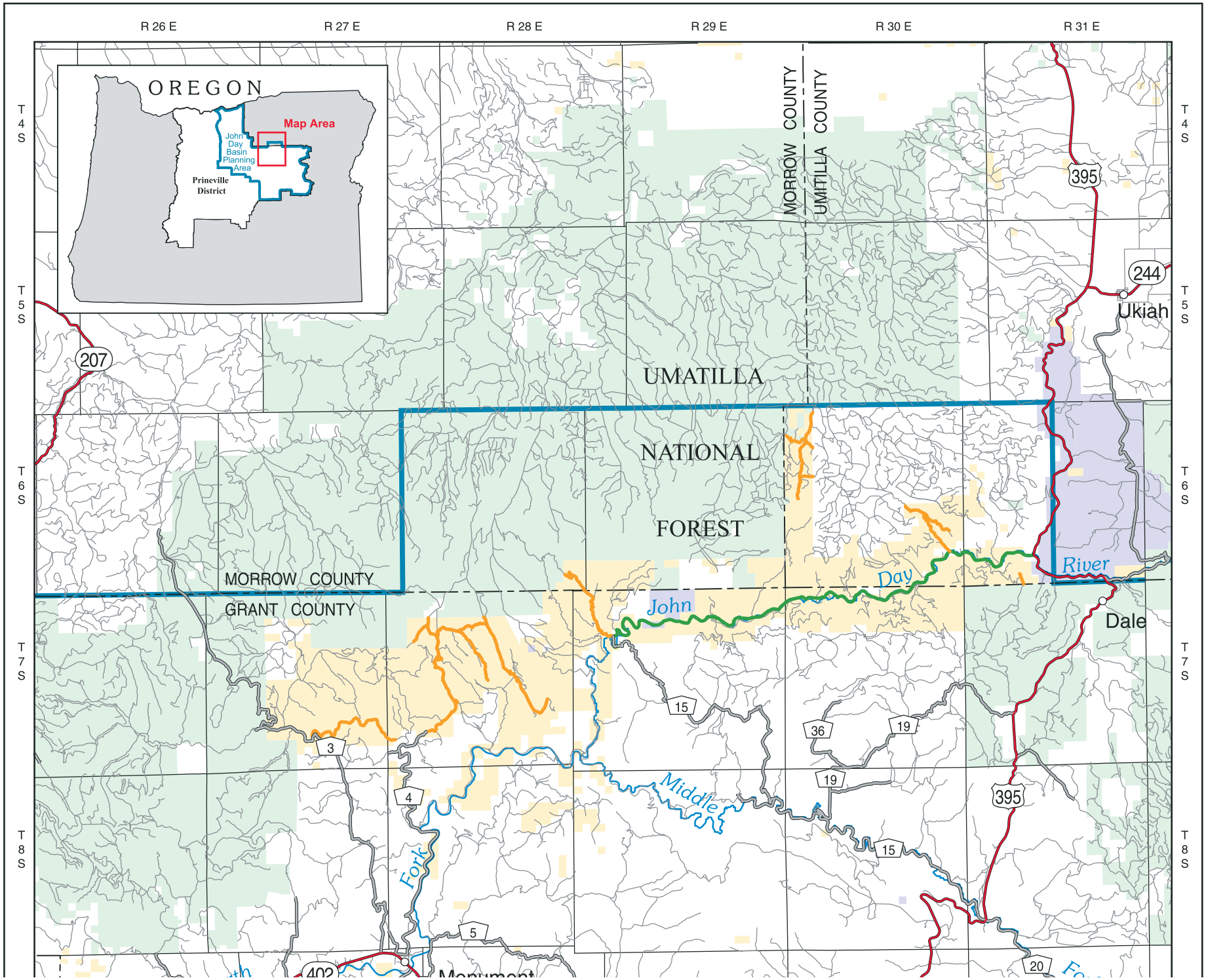
Map 14: Upper John Day Transportation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Map Area
John Day Basin Planning Area
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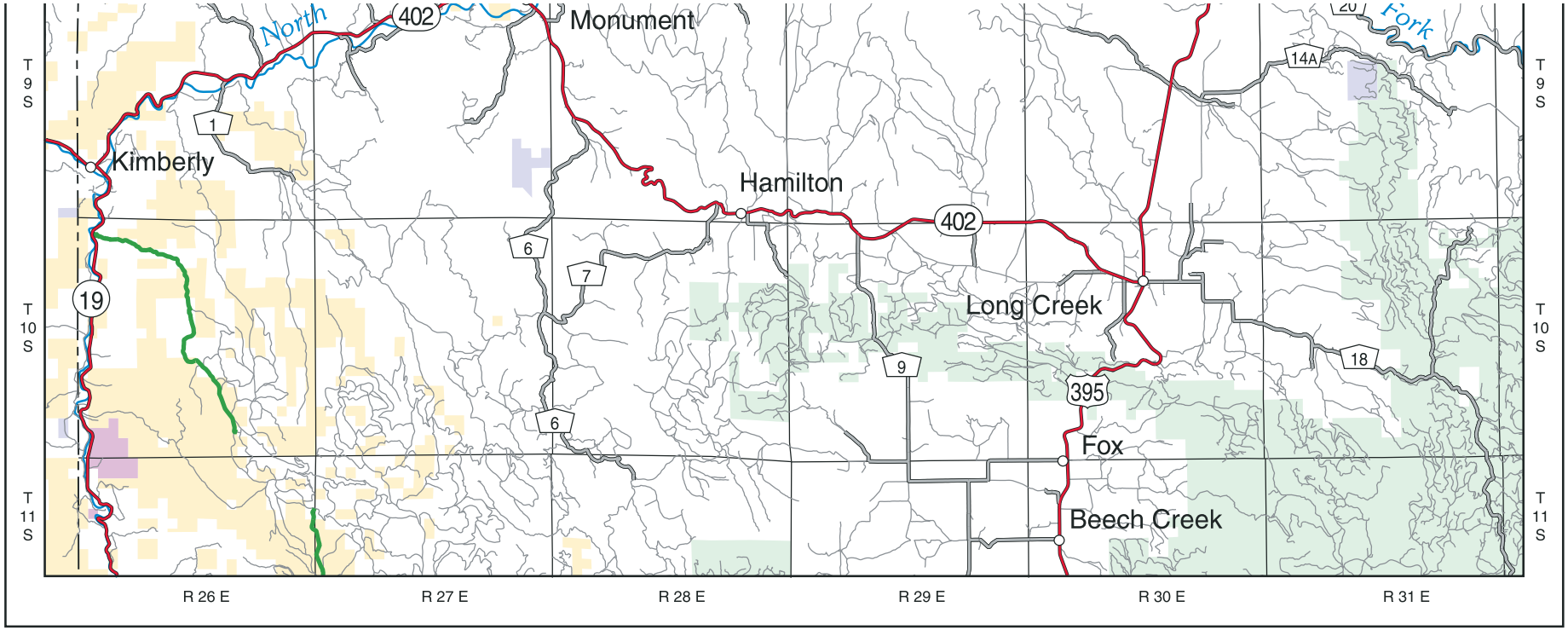

LEGEND

Planning Area Boundary

Transportation

- Road Open Seasonally
- BLM Maintained Roads
- 395 U.S. Highway
- 402 19 State Highway
- 15 County Road
- Road:
  BLM- Closed except for adminstrative use
  Private- Closed to public use or unknown

Administered Land

- Bureau of Land Management
- Forest Service
- John Day Fossil Beds National Monument
- State
- Private or Other

N W E S

3 0 3 6 Miles

3 0 3 6 Kilometers

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Map 15: North Fork John Day Transportation

Special Road Designation

State Scenic Byway

The Journey Through Time Scenic Byway, designated by the Oregon Department of Transportation is approximately 286 miles long and starts at Biggs, Oregon and ends in Baker City. This Scenic Byway explores the history and geology of the route, connecting small towns from north central Oregon to Baker City and the Oregon Trail Historic Center in eastern Oregon.

BLM Back Country Byway

BLM's Back County Byways program designates special roads that cross BLM land and are noted for their scenic attributes. There are two types of Back Country Byways.. Type 1 byways have a paved or all-weather surface. Type 2 byways are generally not paved but frequently have improved gravel surface.

The South Fork John Day River Back Country Byway is the only BLM byway within the JDBRMP. This Type 1 & 2 byway parallels the South Fork of the John Day River through its windy canyon for approximately 50 miles from Dayville to the Malheur National Forest boundary. Fishing, hiking, primitive camping, and excellent views are available along this roadway.

Forest Service Byways

The Blue Mountain Scenic Byway offers a variety of scenery along with historical sites and numerous recreational opportunities. Several sites of national or state significance are the crossing of the Oregon Trail (a National Historic District), the Wild and Scenic John Day River, and the North Fork John Day Wilderness. Also located along this route is a state-managed wildlife area and remnants of historic mining activities and settlements. The area traversed by this scenic route contains one of the largest Rocky Mountain elk herds in the nation.

The Elkhorn Scenic Byway is located on the Wallowa-Whitman National Forest. This Scenic Byway is a 106-mile loop through the Elkhorn Mountains; a country rich in scenery, history, geology, and natural resources. Different recreational opportunities are available along the way, including hunting, fishing, camping, picnicking, boating, skiing, and hiking. Special points of interest include gold mining operations and the historical narrow-gauge railroad grade. Signs along the way mark special points of interest and road junctions. The entire route is paved, however in the winter the route is not snowplowed between Granite and Anthony Lakes.

BLM Road Traffic Trends

Patterns of use on BLM managed roads within the planning area have not been systematically studied. It appears that OHV use on BLM roads, primitive roads and trails continues to increase throughout the planning area, especially during deer and elk hunting seasons. BLM public lands tend to be more popular and receive more OHV use, since OHV access is restricted on Forest Service lands adjacent to the planning area. The OHV resource area profile, describes user created trails and OHV user trends in more detail. Currently an assessment of use patterns on existing roads, primitive roads and trails is underway.

Recreation Access Trends

Private roads that were once open to the public are often no longer available for access to public land as private landowners place gates across these private roads. Recreational use of public lands has joined grazing and timber management as a primary use. Limitations on public access to scattered public lands and a transportation system that does not accommodate changing user needs has contributed to resource damage and increased the incidence of trespass on private lands.

Reduction in access has occurred as roads across private lands are decommissioned and open roads are not repaired. The location and distribution of scattered BLM lands require public land users to become familiar with adjacent private ownership patterns and routes open for public use. The fact that some BLM lands are isolated from public access has also led to trespass. Patterns of land ownership frequently leads to confusion by recreational users and sometimes in intentional trespass on privately owned lands. The Johnson Heights area accessed by Squaw Creek Road experiences some of the most persistent hunter-landowner conflicts in the planning area. The many isolated BLM parcels in this area are coveted by hunters and some attempt to cross private lands at the end of public access in order to reach these lands.

Some ranches that in the past afforded neighbors access to BLM managed lands have been divided or bought by “outsiders” who often manage for fee hunting. These changes in land ownership exacerbate the already limited access. This represents a change in landowner mindset, since they have historically allowed the public to drive on private roads to reach public lands.

While the public at large may be excluded from enjoying BLM managed lands surrounded by private lands, the Private landowners and their guests frequently use OHVs to access public land for deer, elk, sheep and upland bird hunting.

Similarly commercial hunting guides pay a fee to gain access to public lands through private property. Some motorized users have attempted to access public lands through private property with and without landowner permission.

Motorized use is no longer available to the public in the Spring Basin WSA. This 5,982 acre area is located near the east bank of the John Day River, approximately 3 miles south of Clarno. In past years, motorized use occurred on approximately nine miles of undeveloped vehicle routes in this area. This access requires crossing a 40 acre parcel of private land, which has been closed to the public by the landowner.

Rights-of-way and Easements

BLM land in the planning area has 249 miles of easements and 129 miles of granted Rights-of-way involving roads and utilities.

Easements are acquired by the BLM in order to use the land of another for a special purpose or access. Rights of way are granted by the BLM to others for various purposes which include easements, leases, permits, or licenses to occupy, use, or traverse public lands. Rights-of-Way are authorizations for reservoirs, canals, ditches flumes, laterals, pipes, pipelines, tunnels, and other appurtenances for the storage and distribution of water; pipelines and other systems for the transportation of distribution of liquids and gases other than water or oil; transportation and distribution systems, and storage

facilities for solid materials; systems for generation, transmission, and distribution of electric energy; communications systems; roads, highways, trails, and other transportation facilities; and other systems and facilities which are in the public interest.

Withdrawals

A withdrawal is a management tool used to implement resource management planning prescriptions. Withdrawals also represent a means to transfer administrative jurisdiction from one federal agency to another. In addition they are used to close public lands to some or all of the public land laws or mineral law, or to dedicate land for a specific public purpose. The restrictions generally segregate the lands from some or all the public land laws and some or all of the mining and mineral leasing laws for a specific period of time. Examples might include a dewatering limiting river flows or a withdrawal might close an area to non-metalliferous mining (cement quality limestone, diatomite etc.), but open to metal mining (gold, silver, mercury etc.).

In the 1960's federal inventories withdrew land along the John Day River anticipating the need for future hydroelectric dam sites.

Currently the John Day Basin has spring, mineral, and power site withdrawals scattered throughout the planning area.

Land Ownership

"People are moving in and staying. They don't need the land to make a living."
[Gilliam County Resident- JKA, 2006]

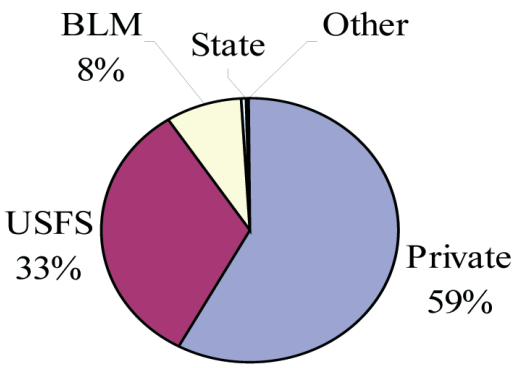
The Western landscape is dominated by open spaces broken by numerous plateaus, mountain ranges, occasionally fences and an increasing amount of urban and suburban areas. Historically, urban areas of the west specialized in the acquisition and distribution of products produced from the surrounding farms, ranches, and forests. The larger ranches were slowly divided and our modern transportation system was developed. Many urban centers are now surrounded by suburban areas, which are then bordered by hobby farms adjacent to public lands.

In the John Day Basin planning area this transition from large landownership to a more fragmented ownership pattern has occurred more slowly than in many parts of the west. Many communities maintain a remnant dependency on the surrounding lands and have yet to fully experience the transition to a Western landscape characterized by suburban areas, and small farms surrounding urban areas. Settlement patterns are however changing, as long-time ranches are bought by wealthier urbanites who often purchase for recreation or conservation purposes (JKA, 2006).

Ownership across the John Day Basin Planning area is dominated by Private landholdings which comprise 59 percent of the total 5.4 million acre planning area. USFS and BLM land make up 33 percent and 8 percent of the plan area respectively. State land, Indian Affairs, National Park, and Army Corps of Engineers make up less than 1 percent of plan area ownership (See Map 1 and Figure 32).

The southern and eastern portions of the planning area contain a high proportion of public lands dominated by US forest Service land. These areas are characterized by USFS land in the higher elevations and BLM land in the lower elevations and drainages.

Figure 32: Land Ownership in the JDBRMP area



Source: BLM GIS database, 2006

Passage of the Oregon Land Exchange Act in 2000 resulted in a land ownership adjustment in Northeast Oregon, primarily in Grant County. In exchange for public lands disposed of in this Act, the BLM acquired approximately 44 thousand acres along the North Fork of the John Day River.

Leases and Permits (Recreation and Public Purposes Act)

Temporary land use permits or leases may be used to authorize such activities as trespass prior to resolution, access, storage, apiary sites national guard or military reserve training, engineering feasibility studies, and other miscellaneous short-term activities. In the John Day Basin Planning Area there are numerous agricultural leases on BLM lands for which fees are not collected.

The Recreation and Public Purposes Act (R&PP) authorizes the sale or lease of BLM managed lands for recreational or public purposes to State and local governments and to qualified nonprofit organizations. In the John Day Basin planning area the transfer of land utilized for a dump to Prairie City under the R&PP Act has been attempted but has not occurred.

Water

Water is the fundamental resource of the John Day Basin. It enables plants to grow and is essential for wildlife. People need water to drink, for play, and to support livestock grazing, irrigation, mining and other economic enterprises. Who gets water and when and how they get it are questions that have dominated the west for over a century and a half.

These questions are answered through the allocation of water rights. Surface and ground water are the property of the State and the Oregon Water Resources Department administers the water to those who have a water right.

Water rights are important tools that have allowed BLM to accomplish a wide variety of their multiple use objectives. Water rights can be used to extract minerals, provide wildlife habitat, and preserve aquatic life. The majority of water rights on BLM land are for irrigation. BLM actively manages over 700 acres of the irrigation water rights under the John Day Wild and Scenic River Plan and the Sutton Mountain Coordinated Resource Management Plan. The remaining 1175 acres of irrigation occur on scattered pieces of agricultural land through out the plan area. Approximately one third of BLM's water rights are related to mining. The majority of the mining water rights are located near John Day on Little Canyon Mountain. This area was hydraulically mined for gold in the late 1800s and early 1900s. Many of the water rights completely overlap each other and include a

200 acre irrigation water right. BLM owns approximately 220 different state administered water rights. BLM actively manages 23 of these. Based on the Oregon Water Resources Department data, between approximately 50 and 70 cfs could be diverted under BLM water rights. This water is scattered across the basin and is not from a single stream channel. The top few sources include the John Day River, Bridge Creek, the North Fork John Day River, Rock Creek, Bear Creek, and Little Pine Creek.

The value of BLM's water rights in the John Day basin is magnified by the fact that the basin water is over allocated (more water rights than water available) for a large portion of the year.

The monthly water availability is illustrated in Figure 33: Water Availability in the John Day Basin 4 out of 5 years.

Most water use requires that water be diverted from the river. BLM land within the John Day Basin contains both points of diversions and places of use for state appropriative water rights.

Less than half of BLM owned points of diversions supply only BLM lands (see figure 34). Rights of way are required for most conveyances of water across BLM land. On the ground conditions are continually changing and water users continually ask to upgrade, move, and change the construction of water transportation and diversion facilities. These require rights of ways when they cross BLM land. The interconnected nature of these water rights indicates the importance of cooperative management to this key resource.

BLM also holds federally reserved water rights for the John Day Wild and Scenic Rivers. The John Day River Plan identified the State Scenic Flows as interim instream flow goals until an instream flow study is needed for the adjudication of the federally reserved water rights.

Many of the BLM ponds and springs may also be federally reserved water rights under PWR107. Inventories of ponds and springs are incomplete at this time. Some have been issued permits, applications, or certificates

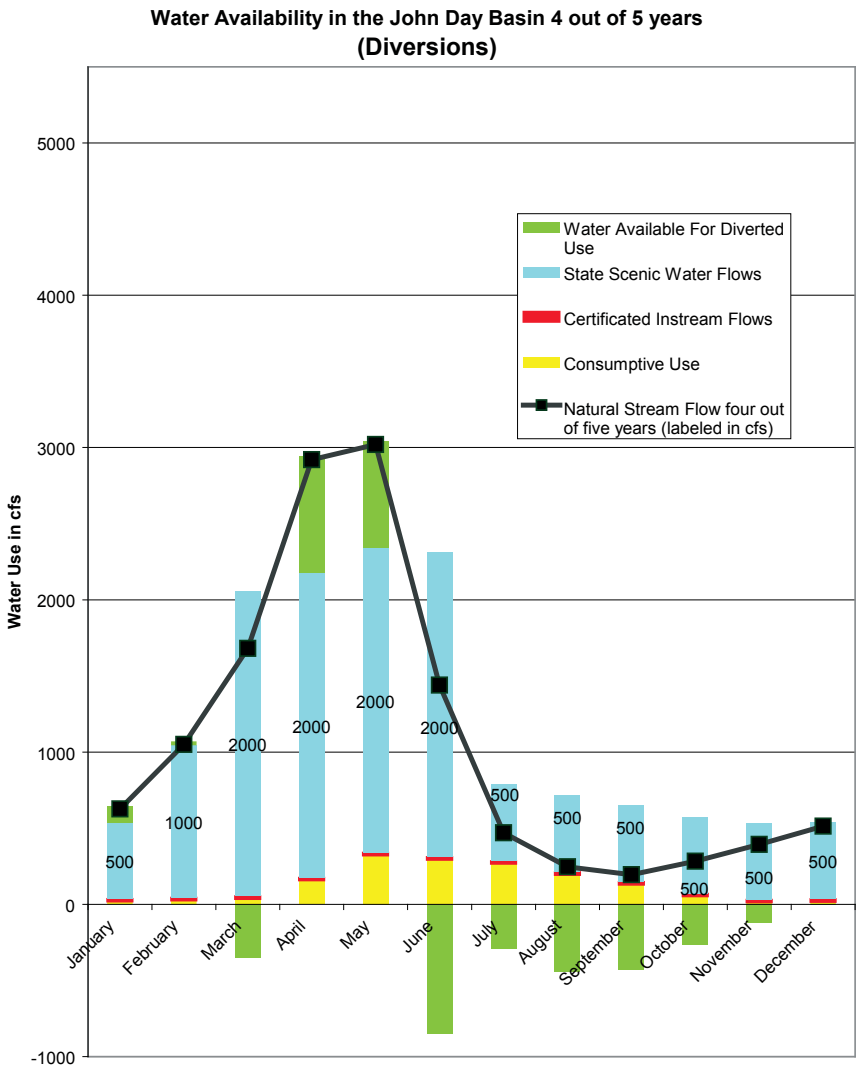


FIGURE 33: WATER AVAILABILITY IN THE JOHN DAY BASIN 4 OUT OF 5 YEARS

from the State of Oregon, but many have not. PWR 107 are the result of an executive order made by Calvin Coolidge in1926. This order withdrew every smallest legal subdivision of the public land surveys and all lands within one quarter mile of important springs and waterholes on unsurveyed lands. The primary purpose of this withdrawal was for current or future livestock watering and human consumption. This withdrawal includes springs and waterholes on land that was vacant and unappropriated and unreserved as of April 17, 1926. This constitutes a federal reserve right with a 1926 priority date. Springs and waterholes do not need to be currently inventoried in order to qualify, but it is useful to have the inventory completed to ensure that the water right is appropriately tracked during land tenure adjustments.

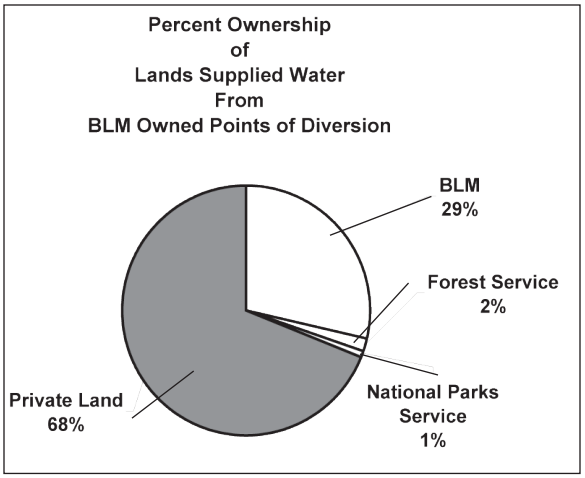
Livestock Grazing

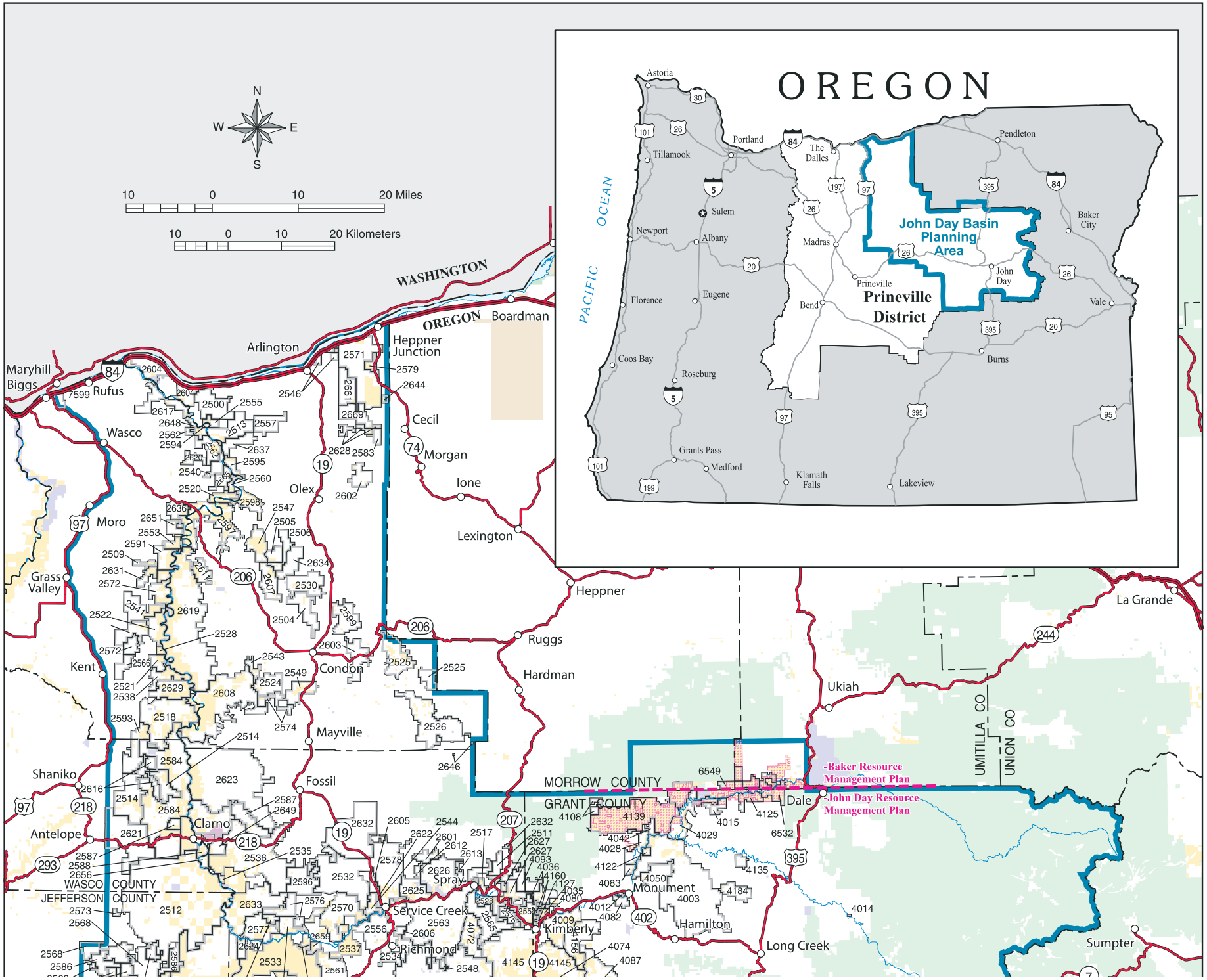
Grazing is one of the most visible and established uses of BLM managed lands. The public lands are an integral part of ranching in the area because of their scattered distribution and ability to provide forage during a critical time of the year. There are many ranches with several hundred acres of public grazing land scattered throughout. Generally these lands are best managed with the adjacent private lands since it is not practical to fence them separately. The larger blocks of several thousand acres are easily managed separately from private lands. These blocks of BLM managed lands are generally located at elevations where they provide excellent forage from early spring to early summer. This is an important transition period as livestock move from winter feeding areas to summer ranges. It also has utility as livestock return in the fall. Livestock grazing is authorized on 432,600 acres or 95 percent of public land managed by the BLM in the planning area. Because BLM lands in the John Day Basin consisted of mostly scattered tracks these lands were not included in a grazing district and are managed under Section 15 of the Taylor Grazing Act.

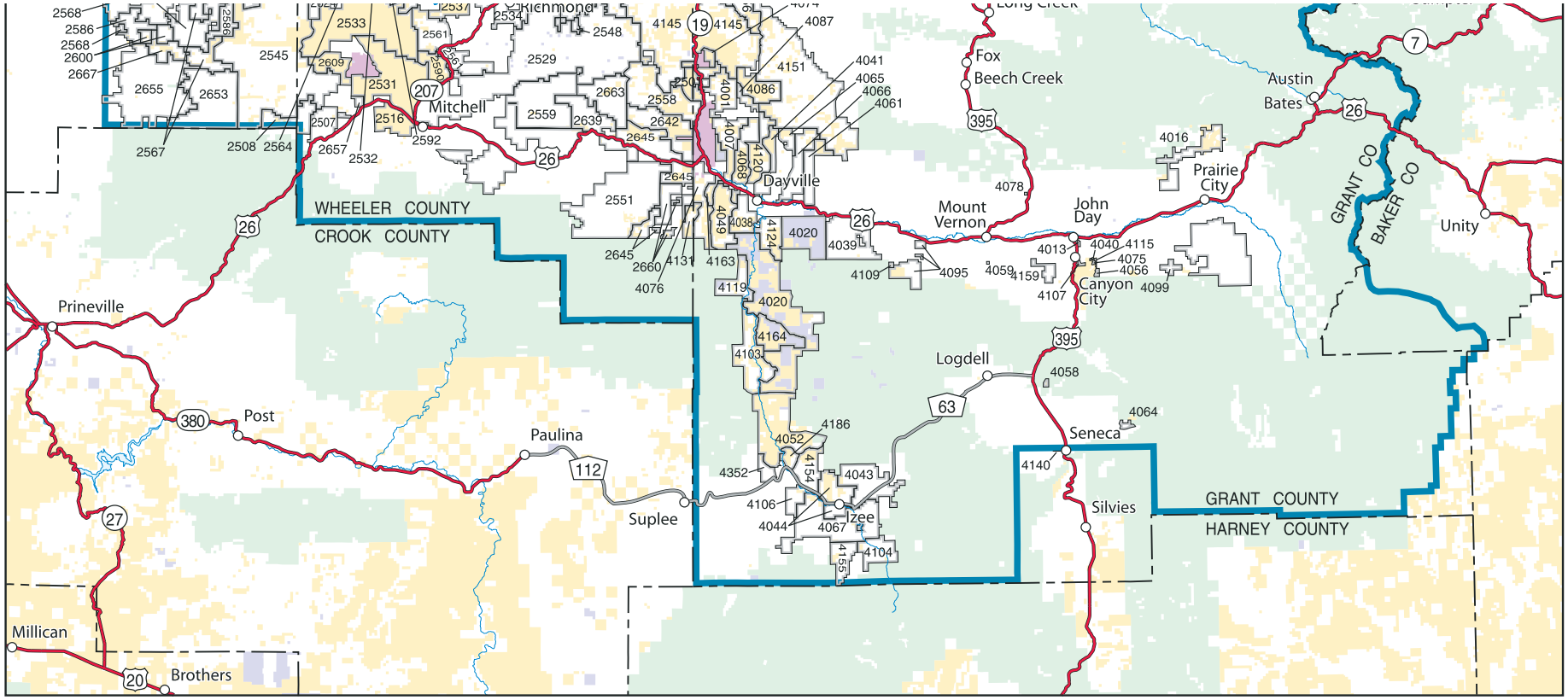
Under Section 15 of the Taylor Grazing Act BLM lands within the planning area are now leased for grazing on an AUM (animal unit month) basis. The number of AUMs available was determined by range surveys completed between 1967 and 1974 in the John Day River basin. These surveys established the grazing use levels that continue to be authorized today.

There are 229 grazing allotments which vary in size from 22 acres of public land to over 25,000 (Map 16). Since the distribution of public land is generally scattered, the number of acres in any one allotment tends to be small. The majority of allotments, 63 percent of the total, contain less than 1,000 acres of public land. A listing of the allotments and

Figure 34: Percent of Ownership of Lands supplied water from BLM Owned Points of diversion




OREGON
Astoria
Portland
Tillamook
The Dalles
Pendleton
Salem
Albany
Newport
Madras
Baker City
John Day Basin Planning Area
Prineville
John Day
Prineville District
Florence
Eugene
Bend
Vale
Coos Bay
Roseburg
Burns
Grants Pass
Medford
Klamath Falls
Lakeview
PACIFIC OCEAN
N
W
E
S
10 0 10 20 Miles
10 0 10 20 Kilometers
WASHINGTON
OREGON
Boardman
Arlington
Heppner Junction
Maryhill
Biggs
Rufus
Wasco
Cecil
Morgan
Olex
Ione
Moro
Lexington
Grass Valley
Heppner
La Grande
Ruggs
Kent
Condon
Hardman
Ukiah
Mayville
Shaniko
Fossil
MORROW COUNTY
GRANT COUNTY
Baker Resource Management Plan
John Day Resource Management Plan
Dale
UMITILLA CO
UNION CO
Antelope
Clarno
Spray
Monument
WASCO COUNTY
JEFFERSON COUNTY
Service Creek
Kimberly
Hamilton
Richmond
Long Creek
Sumpter



LEGEND

Range Allotments

2512 Range Allotment Numbers

BLM Lands-Acquisition Authorized by Oregon Land Exchange Act of 2000

Planning Area Boundary

Administered Land

Bureau of Land Management

Forest Service

John Day Fossil Beds National Monument

Other Federal

State

Private or Other

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PRINEVILLE DISTRICT

John Day Basin Resource Management Plan

2006

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Map 16: Range Allotments

associated acres and AUMs is found in Appendix C. The total number of active AUMs is 28,500 . As with the acreages, the number of AUMs per allotment is generally small, 71 percent or 163 allotments contain 100 or less AUMs. Fifty allotments contain 10 or less AUMs.

The BLM Prineville District completed an Ecological Site Inventory of the public lands in the lower John Day River basin in 1982. This inventory identified ecological sites, delineated geographical areas across the basin on the basis of these ecological sites, and assessed the ecological condition of the geographical areas with respect to what was believed to be their potential.

The Two Rivers (USDI-BLM, 1986a) and the John Day (USDI-BLM, 1985) Resource Management Plans (RMP) prescribed monitoring, evaluation, and planning efforts to improve resource conditions in these scattered tracts. The RMPs prescribed priorities based on the presence of sensitive public resources, rating grazing allotments as “Improve” (I), “Maintain” (M) or “Custodial” (C). There are presently 79 Improve allotments, 25 Maintain, 125 Custodial, and three not assigned to a category. Generally, the resource conditions in the majority of allotments have been steadily improving. Grazing practices have changed for the benefit of vegetation, but juniper encroachment continues even with changes in grazing management.

A total of 100 allotments in the planning area have completed assessments, which is 44 percent of the total number. Out of the ones completed, 40 percent are meeting all standards and 60 percent are failing one standard or more. Of allotments that are failing, only 14 (23 percent) have livestock as a causal factor and 46 (77 percent) have some other factor(s) contributing to the failure. The main reasons for allotments not meeting standards, where livestock are not the cause, are increasing juniper stands, noxious weed infestations, and water quality. Overall it appears livestock are a primary contributor in a minority of the grazing allotments not meeting the Standards for Rangeland Health. In these allotments the BLM is required to take corrective action so livestock will not be the cause in the future. Once all the grazing allotments are assessed, there will be a clear picture of where problem areas exist and in most cases, why.

Urbanization and changes in ranch management are moving the emphasis on livestock grazing to one of hunting and recreation pursuits. More ranches are being acquired by individuals from large metropolitan areas who either hire a ranch manager, lease grazing to a neighboring rancher, or take nonuse. The trend is still small in the John Day Basin, but it appears to be growing.

Forest Products

To the casual visitor traveling through the John Day Basin forest resources on BLM lands are not immediately visible. And it true that commercially valuable trees are not as widespread on BLM managed lands as on some private and Forest Service managed lands. Nevertheless these resources are valuable. Forest vegetation has the potential to provide both biological/physical and socioeconomic benefits.

This section of the AMS will address Forest Products: timber production (sawlogs), biomass (wood chips and hog fuel), and small vegetative products (firewood, posts, poles, etc.). The size, location, accessibility, and type of material available vary throughout the analysis area. Based on these limitations generating Forest Products is not feasible on all areas of forest vegetation. Map 6: Key Vegetation Elements shows timber management zones. These zones have sufficient forested resources to provide forest products if production is consistent with management objectives.

Prior to the Oregon Land Exchange Act of 2000 the BLM managed forested stands were scattered parcels throughout all of Grant County, in the eastern portion of Wheeler County and in the southern portions of Umatilla and Morrow counties. Forest lands consisted of 44,465 acres approximately 32,323 in the John Day and Two Rivers areas respectively. Of these lands 30,962 acres and 11,010 acres of commercial forest land was designated for the management of timber production. (John Day RMP Draft, 1984 and pg. 40, Two Rivers RMP Draft, 1985). The largest acreages of forest lands occurred in the Rudio Mountain, Dixie Creek, Little Canyon Mountain and South Fork John Day River areas.

As a result of the Oregon Land Exchange act of 2000 7,567 acres of forest land were disposed and 11,994 acres were acquired; however not all lands disposed were within the planning area. Disposed lands consisted of scattered 40 and 80 acre tracts and larger blocks of forest stands were acquired. Most of the acquired forest stands are located along the North Fork of the John Day River.

The net change within the planning area amounted to an increase of 3,407 ac. of forest land containing 1,850 MBF. Total forested lands within the planning area before the Oregon Land Exchange Act of 2000 was 76,887 acres and is currently 80,294. Of the BLM managed forest lands within the planning area 47,679 acres (post Oregon Land Exchange Act Of 2000) have potential as commercial forestland.

Commercial forestland on BLM is very minor (less than 1%) in relation to the total commercial forestland within the Interior Columbia basin. Within the Interior Columbia basin the BLM oversees management of approximately six million acres of commercial forestland (Status of the Interior Columbia Basin, PNW-GTR-385, p. 56).

Current Uses

Prior to 1985 the forest vegetation was managed primarily for the production of timber while enhancing other resource values. It would be nice to know how many acres of forestland had been subject to harvest compared to what follows.

Within the John Day RMP area, between 1987 and 1997 a total of eleven timber management projects and four modifications to these projects were offered and sold. Total volume sold during this eleven year time span equaled 24,345 mbf (thousand board feet) which is an average of 2,213 mbf annually.

Since 1997, there have been four timber sales offered and sold. All four projects were timber salvage projects. All projects included the salvage of dead and dying trees but only two projects involved some commercial thinning of green trees in order to attain prescribed basal areas. None of these projects occurred within the area managed under the Two Rivers RMP during this same time span. During this nine year period (1997-2005) 8,604 mbf of volume was offered. That's an average of 956 mbf annually. According to the John Day and Two Rivers RMPs 32,220 mbf could have been sustainably offered during this same nine year period.

The average annual rate of 956 mbf is typically enough volume to supply local mills for a period of a few weeks. Even during the most active of timber sale years the BLM in the past had been responsible for 1/3 or less of the necessary volume to support local mills.

Demand for timber in the planning area will continue as long as there is a demand for wood products. If the current passive management trend continues, this demand will not be fulfilled.

Firewood

The current availability of firewood meets or exceeds demand. In recent years BLM has been issuing permits for approximately 120 cords per year. Prior to 1985 there was a greater demand for firewood. At that time firewood from logging slash was considered a waste product and all permits were free use. More than fifty permits were issued annually within the John Day RMP area. In the early 1980s the BLM started selling firewood permits for two dollars per cord. The current cost for a firewood permit is five dollars per cord.

In addition to forest species, juniper slash is also made available for firewood. Occasionally slash piles have become available and the BLM issue free use permits in order to utilize the more undesirable material for firewood. In recent years there appears to be an increase in the amount of illegal firewood removal.

Other Vegetative Products

Demand for other vegetative products (post, pole, cones, juniper bows, biomass) has been steady. These products are made available upon request, generally 5-10 permits per year primarily for post and poles. Current supply meets or exceeds demand and is expected to remain adequate in the future.

The removal of forest biomass for energy production has been considered within the planning area. Although sufficient biomass exists on BLM lands for energy production many of these lands are scattered with limited access. This reduces the economic feasibility with current technology and infrastructure. There is a potential benefit to the wildland-urban interface (WUI) from removal of biomass; however, the amount of WUI in the planning are would not provide a substantial or sustainable amount of biomass.

Prairie Wood Products in Grant County has two cogeneration plants associated with its mills. While the area of forestland controlled by the BLM is small, future juniper removal could supplement energy production need at these plants. In 1988 Grant and Wheeler counties had juniper trees on more than half of their non-timber land area, indicating an expansion of juniper into many areas that formerly had little to no juniper (PNW-GTR-464, 1999).

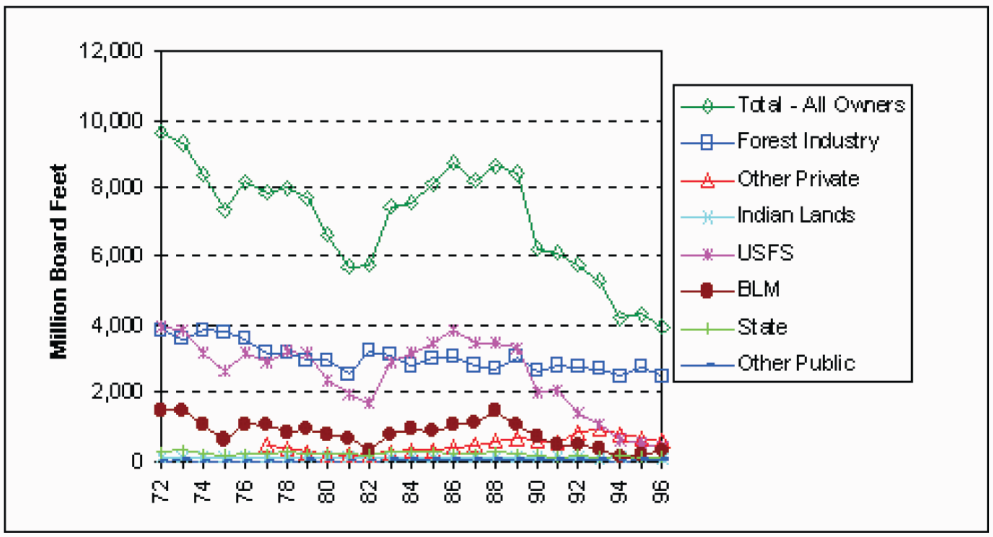
Trend

Timber harvest volumes have declined across most ownerships since the early 1990s. The decline has been the most pronounced on Federal lands during that time frame. Figure 35, represents statewide trends. Trends within the John Day Basin are similar.

The availability of firewood material is expected to continue to increasing. The increase of the material is a result of the increase in mortality due to insects and diseases. As stressed trees die they lose their commercial value and are often available for firewood. However, only a small percentage of these dying trees are within a reasonable distance of open roads and available for firewood use. Demand for firewood in the planning area has been minimal and is not expected to dramatically increase within the next 10 years.

As energy demands increase and additional technologies are developed, demand for biomass is expected to increase and become more economically feasible.

Figure 35: Timber Harvesting in Oregon by Ownership



Timber Harvesting in Oregon by Ownership, 1980-95 (ODF)

Fire and Fuels

Fire risk, priorities for suppression and fuels treatments, and operating procedures have been addressed 2004 Central Oregon Fire Management Service (COFMS) Fire Management Plan. The COFMS organization facilitates full collaboration among member Federal agencies and between the Federal agencies; and State, local, and private entities results in a mobile fire management work force available to the full range of public needs.

The Fire Management Plan designated six Fire Management Units throughout COFMS (see figure 36: Central Oregon Fire Management Plan—Fire Management Units)

Fire Management Unit 1 – Wildland Urban Interface (WUI)
COFMS has defined WUI as a 11/2 mi area surrounding each designated WUI community as well as around each intermixed polygon mapped by Oregon Department of Forestry. The areas meeting these criteria include:

The Fossil Beds area is composed of the area surrounding the John Day Fossil Beds National Monument. Vegetation is grass and shrub steppe.

The Monument area is located adjacent to the community of Monument and includes the communities of Kimberly, and Spray. Vegetation is primarily grass and sage with some timbered areas.

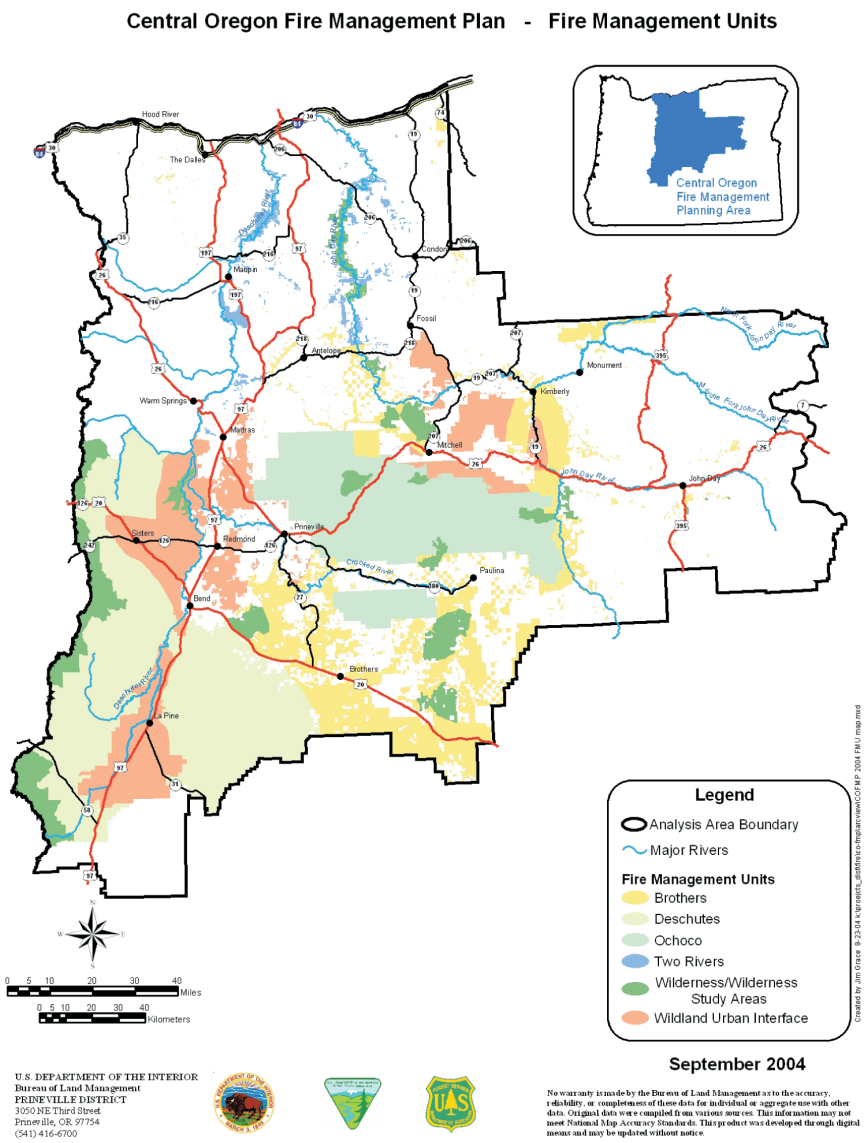
The Wheeler area includes WUI associated with the communities of Fossil and surrounding areas. Vegetation is dominated by grass and shrubs.

Other WUI communities include: Antelope, Anton, Arlington, Austin, Big Muddy Ranch, Biggs Junction, Canyon City, Clarno, Condon, Dayville, Grass Valley, John Day, Kent, Long Creek, Mayville, McDonald Crossings/Rock Creek, Mitchell, Moro, Mount Vernon, Prairie City, Seneca, Service Creek, Shaniko, South Fork John Day, Twickenham, and Wasco.

Community Wildfire Protection Plans (CWPP) are being developed for many of the communities within the planning area. The Grant County CWPP is completed. The Wheeler County CWPP is in progress. Gilliam County is in the process of developing a Natural Hazards Mitigation Plan that will address the threat of wildfire to the communities within the county.

Fire Management Unit 2 – Wilderness and Wilderness Study Areas
This FMU consists of designated Wilderness Study Areas on Prineville BLM District. Vegetation is composed of grass/shrub lands with timbered slopes of juniper and ponderosa pine.

Fire Management Unit 3 – Two Rivers
This FMU consists of lands administered by the BLM, primarily located along the Deschutes and John Day River corridors. The FMU consists of steep canyons associated with the Deschutes and John Day Rivers. Soils are generally shallow with surface rock. Vegetation is dominated by grass and shrubs. Elevation ranges from 2500 to about 500 feet.



Limited road access and irregular land ownership patterns result in poor emergency ingress/egress. The John Day River corridor has a high fire risk and is prone to weedy plant invasion. Much of the BLM lands along the John day River adjoin private lands. The private land (mostly range and farmland) creates an agricultural interface near the river where river access is limited.

Fire Management Unit 4 – Brothers
This FMU consists of lands administered by the BLM, primarily located in the southern and eastern portions of COFMS. A few scattered parcels of land within this FMU are located in the northern portions of COFMS within Sherman and Wasco Counties.

The FMU consists primarily of flat and rolling hill topography. Soils are generally shallow developed from basalt flows, with some areas of thin surface volcanic ash deposits. Vegetation is dominated by sage and other shrubs,

FIGURE 36: CENTRAL OREGON FIRE MANAGEMENT PLAN—FIRE MANAGEMENT UNITS

perennial and annual grasses, and juniper. Ponderosa pine is present in foothill areas and adjacent to national forest areas. Elevation ranges from 2500 to 3500 feet.

Fire Management Unit 5 – Ochoco
This FMU includes the main portion of the Ochoco National Forest located near the center of the FPU. The FMU is located primarily within Crook, Wheeler, and Grant Counties.

The FMU consists of variable topography, vegetation and fuel types. Ponderosa pine and mixed conifer stands are abundant. Juniper and grass/sage types are also common. Scab stringer types are found east of Big Summit Prairie.

Fire Management Unit 6 – Deschutes (Does not occur within the planning area).

Fire Ecology

In this analysis, wildfire risk conditions are identified assigning a Fire Condition Class (FRCC) (USDA and USDI, 2001). Assessing FRCC can help guide management objectives and set priorities for treatments. The classification is based on a relative measure describing the degree of departure from the historical natural fire regime. This departure results in changes to one (or more) of the following ecological components: vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated disturbances (e.g. insect and diseased mortality, grazing, and drought).

FRCC classes serve as generalized wildfire risk rankings. The risk of loss of desired ecological conditions due to unwanted wildland fire increases from Fire Condition Class 1 (lowest risk) to Fire Condition Class 3 (highest risk) within a given fire regime" (USDA and USDI, 2001). (see Figure 37: Fire Regime Condition Class).

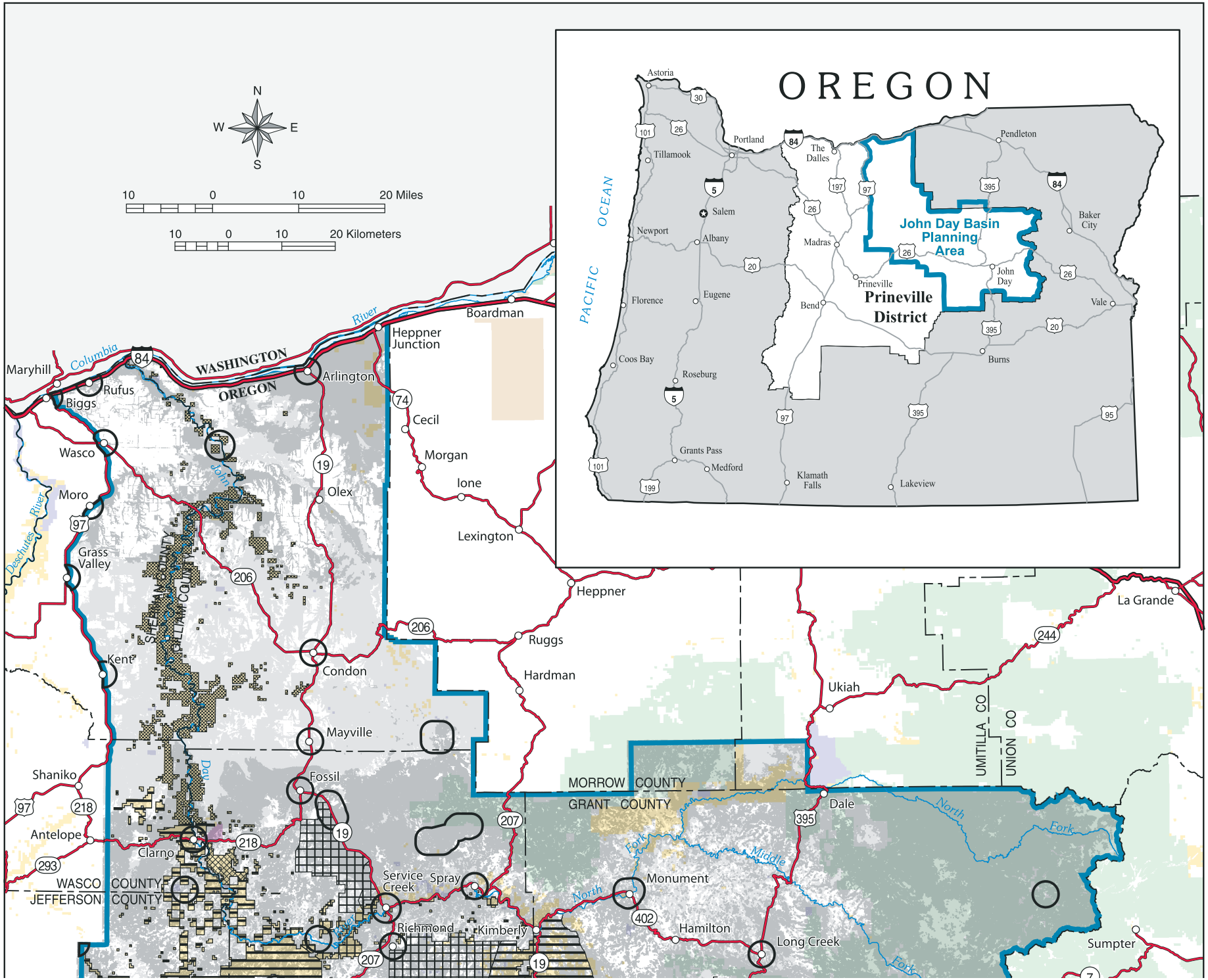
Figure 37 indicates that about 65% of BLM managed lands within the Blue Mountains Ecoregion are in Condition class 2 or 3 and are outside the natural range of variability. The figure also indicates that over 95 percent of BLM Lands within the Columbia Plateau Ecoregion are outside the natural range of variability

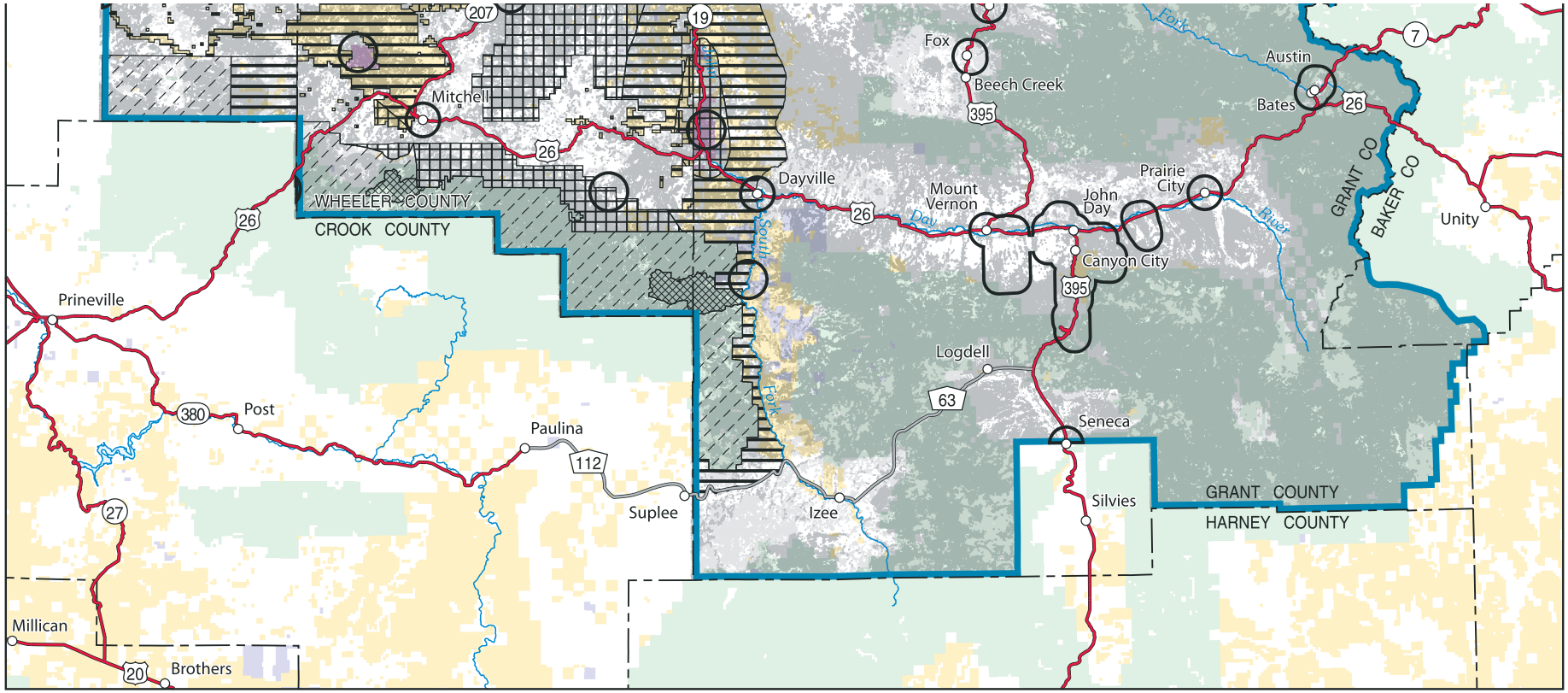
Figure 39 Indicates FRCC is similar between BLM lands and those not managed by BLM (Other). The majority of the landscape is in FRCC 2 and 3 (Blue Mt. EcoRegion3: BLM - 67% / Other - 80%, Columbia Basin EcoRegion3: BLM - 97% / Other - 99%). Of note is the extreme departure within the Columbia Basin primarily due to agricultural conversion. While conditions on BLM lands are similar to those seen on surrounding lands, BLM has the potential to influence approximately 8% of the landbase within the planning area.

In general most shrub steppe/juniper habitats are in Condition Classes 2 and 3. Most of the forested lands are in Condition Class 3. Many of the grass habitats on BLM managed lands have missed one or more disturbance events; however, the vegetative characteristics and fire intensities have not substantially changed. There are significant changes in the grass vegetation types throughout the planning area due to non-native annual grass expansion, noxious weed, and agricultural conversion. These conditions would put these lands in the Condition Class 3 rating. These sites would require extensive management actions (Restoration treatments) to allow them to function appropriately after disturbances such as fire.

Historical Fire Occurrence

Historic Fire Occurrence data below is a summary of the entire COFMS area contained in the Central Oregon Fire Management Plan. Relative acreages of FMUs by Land Management Agency can be ascertained from the following map.


OREGON
PACIFIC OCEAN
Astoria
Portland
Tillamook
Newport
Salem
Albany
Eugene
Florence
Coos Bay
Roseburg
Grants Pass
Medford
Klamath Falls
Lakeview
Bend
Madras
The Dalles
Prineville
John Day Basin Planning Area
Prineville District
John Day
Pendleton
Baker City
Vale
Burns
N
W
E
S
10 0 10 20 Miles
10 0 10 20 Kilometers
WASHINGTON
OREGON
Columbia River
Maryhill
Rufus
Biggs
Wasco
Moro
Grass Valley
Kent
Shaniko
Antelope
Clarno
Condon
Mayville
Fossil
Arlington
Heppner Junction
Boardman
Cecil
Morgan
Ione
Lexington
Olex
Heppner
Ruggs
Hardman
Ukiah
La Grande
Dale
Monument
Hamilton
Long Creek
Sumpter
Service Creek
Spray
Richmond
Kimberly
WASCO COUNTY
JEFFERSON COUNTY
SHERMAN COUNTY
GILLIAM COUNTY
MORROW COUNTY
GRANT COUNTY
UMATILLA CO
UNION CO
John Day River
Deschutes River
North Fork John Day River
Middle Fork John Day River
North Fork John Day River



LEGEND

Land Fire Rapid Assessment

- Fire Regime Condition Class 2
- Fire Regime Condition Class 3

Fire Management Units

- Unit 1
- Wildland Fire Urban Interface
- Unit 2
- Unit 3
- Unit 4
- Unit 5

- Planning Area Boundary

Administered Land

- Bureau of Land Management
- Forest Service
- John Day Fossil Beds National Monument
- Other Federal
- State
- Private or Other

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2006

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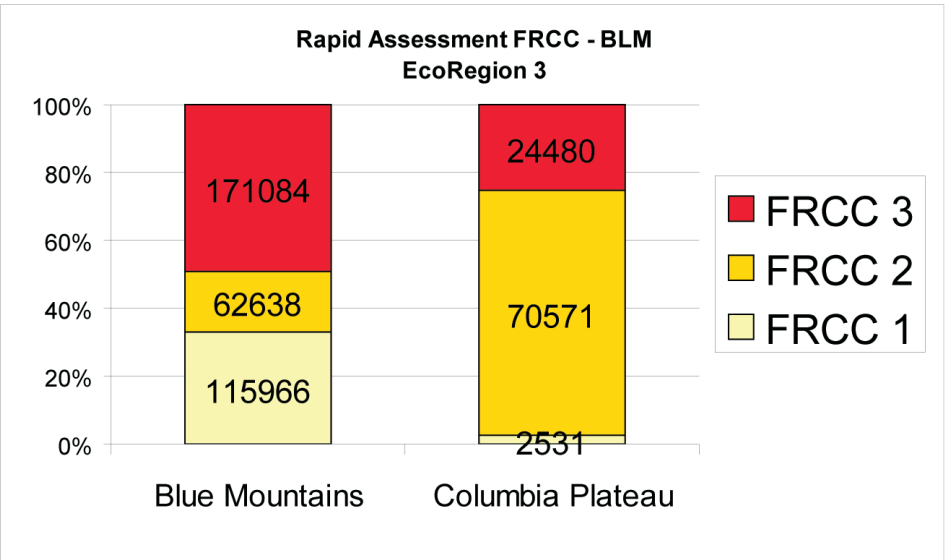
Map 17: Fire and Fuels

Figure 37: Fire Regime Condition Class

Fire Regime Condition Class	Description	Potential Risks
Condition Class 1	Within the natural (historical) range of variability of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances	Fire behavior, effects, and other associated disturbances are similar to those that occurred prior to fire exclusion (suppression) and other types of management that do not mimic the natural fire regime and associated vegetation and fuel characteristics. Composition and structure of vegetation and fuels are similar to the natural (historical) regime. Risk of loss of key ecosystem components (e.g. native species, large trees, and soil) are low
Condition Class 2	Moderate departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances	Fire behavior, effects, and other associated disturbances are moderately departed (more or less severe). Composition and structure of vegetation and fuel are moderately altered. Uncharacteristic conditions range from low to moderate; Risk of loss of key ecosystem components are moderate
Condition Class 3	High departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances	Fire behavior, effects, and other associated disturbances are highly departed (more or less severe). Composition and structure of vegetation and fuel are highly altered. Uncharacteristic conditions range from moderate to high. Risk of loss of key ecosystem components are high

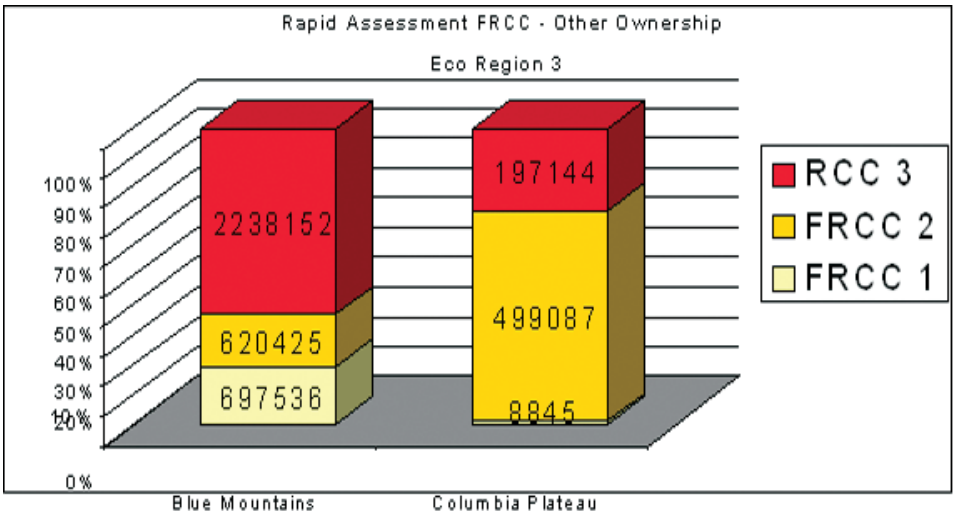
Figure 38: Rapid Assessment Fire Regime Condition Class – BLM Managed Lands



Fire Management Unit 1: WUI—There have been a total of 1,101 fires within this FMU during the period 1980 – 2002. The average annual occurrence is 50 fires per year. About 50% of the fires are lightning caused. Forty-three fires have exceeded 100 acres in the last 10 years, and 15 were larger than 1,000 acres. Average annual expected burn acres is about 5,540 acres.

Fire Management Unit 2 – WSA: There have been a total of 781 fires within this FMU during the period 1980 – 2002. The average annual occurrence is 35 fires per year. About 80% of the fires are lightning caused. Twelve fires have exceeded 100 acres in the last 10 years, and 6 were larger than 1,000 acres. Average annual expected burn acres is about 1,250 acres.

Figure 39: Rapid Assessment-Fire Regime Condition Class—Other Ownership



Fire Management Unit 3 – Two Rivers: There have been a total of 227 fires within this FMU during the period 1980 – 2002. The average annual occurrence is 10 fires per year. About 51% of the fires are lightning caused. A higher percentage of human caused fires occurs along the Deschutes River due to a railroad line and higher recreation use. Sixty-five fires have exceeded 100 acres in the last 10 years, and 16 were larger than 1,000 acres. Average annual expected burn acres is about 9,380.

Fire Management Unit 4 – Brothers: There have been a total of 648 fires within this FMU during the period 1980 – 2002. The average annual occurrence is 29 fires per year. Fire cause is 84% lightning. Seven fires have reached a size of 100 acres or larger. The largest was a fire in 1998 that reached a size of about 8,000 acres. Expected annual burn area is about 1,700 acres per year.

Fire Management Unit 5 – Ochoco: There have been a total of 1,425 fires within this FMU during the period 1980 – 2002. The average annual occurrence is 64 fires per year. About 75% of the fires are lightning caused. Eight fires have exceeded 100 acres in the last 10 years, and 2 were larger than 1,000 acres. Average annual expected burn acres is about 1,450 acres.

Historical Fuels Treatments

Since 2001 and the National Fire Plan Implementation the fuels management program, which includes prescribed burning and mechanical fuels treatments (manipulation of vegetation with chainsaws or other equipment) is on a steady increase. Prescribed burning and mechanical fuels treatments for the years 1995 through 2005 is summarized in Table 15. For more information on silvicultural treatments of forest fuels see the Timber section of this document.

Table 15: Historical Fuels Treatments		
Year	**Prescribed Fire**	**Mechanical Treatments**
1995	2411	
1996	450	
1997	2445	
1998	673	
1999	1034	
2000	725	
2001	12247	
2002	3915	63
2003	17488	100
2004	16656	2291
2005	14665	1500
TOTAL	**55221**	**3954**

Mineral Uses

Mining for gold and other metal ores have been important activities during the settlement and development of the John Day Basin. The quarrying of mineral material for construction purposes remains an important activity in the John Day Basin.

Locatable Minerals

Presently, there are 80 active mining claims within the planning area.

The Canyon Mining District includes the area surrounding John Day and Canyon City. Notable placer deposits were mined in the John Day River and in Canyon Creek. Lode deposits in quartz veins were mined on Little Canyon Mountain and on Miller Mountain. Between the discovery in Canyon Creek in 1862 and 1908, an estimated 600,000 ounces of gold were produced from the Canyon Mining District (Thayer and others, 1981). Dredges in Canyon Creek and the John Day River produced 124,000 and 13,000 ounces of gold and silver respectively from 1916-1942 (Brooks and Ramp, 1968; Thayer and others, 1981). Relatively small amounts of gold have been produced from the Canyon Mining District since the last dredge was dismantled in 1942.

The Quartzburg Mining District includes Prairie City and the Dixie Creek drainage basin. Placer deposits are found both in Dixie Creek and the John Day River and six lode mines were also worked in the area. Reliable production figures prior to 1930 are not available. Dredges in Dixie Creek and the John Day River produced more than 22,500 ounces of gold from 1930-1941 (Brooks and Ramp, 1968).

The Spanish Gulch Mining District is relatively small and is located near Antone in southwest Wheeler County. Mining in the district began in 1864 (Willingham, 1982).

Placer deposits in Rock and Birch Creeks were worked and some quartz veins were mined (Brooks and Ramp, 1968). According to Collier (1914), at least 5,000 ounces of gold were produced from the placer mining. This district has been designated as the Spanish Gulch ACEC for the historic mining structures that remain (USDI BLM, 1986).

Other productive areas included the Granite, Greenhorn, and Susanville Mining Districts (Brooks and Ramp, 1968). All of these districts are located in northeastern Grant County.

Mining claims are still held in many of the historical mining districts, though most operations are small-scale (casual use). Present operations mainly involve small adits and reworking of tailings left by the larger operations of the past.

Copper

In the Granite District, the Cougar, Independence, and La Belleview mines collectively produced 16,275 pounds of copper (Brooks and Ramp, 1968). Another notable producer of copper was the Standard mine in the Quartburg District. At total of 57 tons of ore containing 20% copper were mined and smelted (Brooks and Ramp, 1968). Copper ore was also produced from other mines in other mining districts but reliable production figures are unavailable.

All known copper deposits in the area are either too small or have an insufficient grade for production under current economic conditions.

Lead

The only notable recorded lead production was from the Cougar, Independence, and La Belleview mines in the Granite District; 34,598 pounds of lead were produced (Brooks and Ramp, 1968). Some lead was probably produced from the sulfide ores of other mines in other mining districts, but reliable production figures are not available.

Chromium

Historically, the chromite deposits of Grant County have not been able to compete with foreign sources with the exception of the three time periods of war (Thayer and others, 1981). Mining of the chromite deposits began in 1916 when World War I cut off chromium imports and continued until the war's end in 1918. Production resumed in 1939 and continued through most of World War II, ending in 1944. The last phase of production occurred from 1951 to 1958 as the U.S. government stockpiled strategic minerals during the Korean War (Thayer et al., 1981; Orr et al., 1992). In all, chromite production in Grant County reached 30,000 tons. Some claims are held on chromite deposits in the planning area in anticipation of more favorable economic conditions in the future.

Mercury

The Horse Heaven Mine, located in eastern Jefferson County, was the largest producer of mercury (quicksilver) in the planning area. Mining began in 1934 and continued intermittently until 1958 (Brooks, 1963). During this time, 17,214 flasks of mercury were produced, placing the Horse Heaven Mine was among the top 5 producers in Oregon (Orr, et al., 1992). Other prospects and smaller mines are present in the area around Horse Heaven. The only other notable production was 150 flasks from the Axehandle mine (Brooks, 1963).

A notable mercury deposit was discovered in 1963 near the confluence of the East Fork of Canyon Creek and Canyon Creek (Thayer et al., 1981). Production from the Canyon Creek Mine totaled 3,830 kg between 1963 and 1968. Currently, mercury is not being mined anywhere in the planning area.

Cinnabar is also present in the Diadem mine in the Greenhorn Mining District (Brooks and Ramp, 1968). No production records are available.

Bentonite

Bentonite clay is another locatable mineral found within the planning area. Active mining claims are located in the area about 1.5 miles northwest of Clarno.

Other Minerals

Deposits chrysotile asbestos, nickel, and platinum-group metals (platinum, palladium, and rhodium) (Thayer et al., 1981), zinc, iron, arsenic, antimony, cobalt, bismuth, molybdenum, and manganese are all present in one or more of the mining districts in the planning area (Brooks and Ramp, 1968). Like copper and lead, these minerals are present in the same veins that were mined for gold and silver. Thus, minor amounts of these metals may have been produced from the gold and silver mines.

Saleable Mineral Materials

Common variety mineral materials such as sand, gravel, rock, and cinders may be purchased at fair market value or acquired by free use permits from the BLM. Free use permits are generally limited to government agencies and non-profit organizations. Mineral materials may also be mined under a material site right of way (ROW).

Currently, there are 15 mineral material sites (quarries) in the planning area, some of which have never been developed. Over the next 10 years, approximately 5,000 to 7,500 cubic yards of mineral materials are expected to be mined annually, mostly by Grant County. The Oregon Department of Transportation (ODOT) has 8 existing material site ROWs; only 2 of these sites have been developed. See Table 16)

Mineral Leasing

Fluid mineral resources including oil, gas, and geothermal and some solid mineral resources such as coal and oil shale are obtained from BLM-administered lands by leasing. Presently, no areas within the planning area are leased and no exploration is occurring. This situation could change as technology improves or if energy prices rise notably.

Oil and Gas

Several exploratory or “wildcat” wells have been drilled in the planning area, mostly near Clarno and Mitchell. One well, located near Clarno, produced 4 million cubic feet of gas (MMCFG) (Tennyson, 1995). Oil and/or gas shows were reported in at least 12 wells, but none represented commercial accumulations (DOGAMI, 1989; Tennyson, 1995). Other evidence of oil/gas accumulations comes from numerous water wells that have encountered asphalt-filled fractures and cavities and small amounts of gas.

Table 16: Existing Mineral Material Sites in the Planning Area			
Site Name	**Site Number**	**Owner/Operator**	**Instrument**
Big Creek	OR-037135	BLM-Grant County	Community Pit
Bridge Creek	N/A	BLM	Unknown
Magic Lantern	OR-037134	BLM	
Meyers Canyon	N/A	BLM	Unknown
Meyers Canyon Hwy 207	N/A	BLM	Unknown
Monument Pit	OR-58539	BLM-Grant County	Free Use Permit
Smokey Creek	OR-036867	BLM	Common Use Area
Unnamed	OR-02126	BLM-ODOT	Material Site ROW
Unnamed	TD-029897	BLM-ODOT	Material Site ROW
Unnamed	TD-030633	BLM-ODOT	Material Site ROW
Unnamed	TD-030673	BLM-ODOT	Material Site ROW
Unnamed	TD-031358	BLM-ODOT	Material Site ROW
Unnamed	TD-031780	BLM-ODOT	Material Site ROW
Unnamed	TD-031811	BLM-ODOT	Material Site ROW
Willow Creek Quarry	OR-013350	BLM-ODOT	Material Site ROW

Geothermal

Available information on existing geothermal resources comes from 8 natural hot springs and 18 exploratory geothermal wells in the planning area. Data from other wells adjacent to the planning area were used to interpolate the geothermal energy potential to the planning area boundaries.

All of the hot springs are scattered throughout the southeast part of the planning area. It is not known if any of these hot springs represent geothermal reservoirs capable of supporting a geothermal power plant.

The geothermal exploratory wells are somewhat evenly distributed across the planning area. Only four of these wells have temperatures exceeding 30° C (86° F).

Minimum temperatures of 100° C (212° F) are required for geothermal power plant development. No temperatures in wells or hot springs in the planning area have temperatures sufficient for electricity generation. However, temperatures of about 20° C (68° F) and higher have direct use applications such as aquiculture, therapeutic bathing, melting ice and snow, and heating homes, buildings and greenhouses. All but 4 of the wells and 2 of the hot springs have temperatures that are marginally into the lower limits of direct use.

Chapter 4 Existing Management Direction

When BLM specialists identify problems that require management action they turn to Resource Management Plans (RMPs) and a few other key documents for guidance. The following Resource Management Plans provide specific direction for management of public lands within the John Day Basin:

John Day Resource Management Plan, published by the Burns District BLM in 1985.
Two Rivers Resource Management Plan, published by the Prineville District BLM in 1986.
Baker Resource Management Plan, published by the Vale District BLM in 1989.

Each of these plans has been amended by the John Day River Management Plan, 2001 developed by the Prineville District BLM. This plan provided updated direction for land management within river corridors in the John Day basin and serves as the congressionally required Wild and Scenic River Plan for the designated Wild and Scenic Rivers within the basin.

The John Day Resource Management Plan was also amended by Land Tenure Adjustment: Proposed Plan Amendment and Finding of No Significant Impact for the John Day Resource Management Plan (USDI-BLM, 1995). This document implemented a three zone land tenure classification for lands within the John Day Planning area. This plan also proposed land exchanges that did not take place but were the precursor for the Oregon Land Exchange Act of 2000. This document also addressed paleontological resources by considering those resources when considering whether a parcel was suitable for either disposal or acquisition.

Resource Management Guidance from Existing Plans and Other Sources

The John Day, Two Rivers, and Baker Resource Management Plans set objectives and guidance for managing resources within the planning area. While the language of each plan is somewhat different it is remarkable that three plans, created by different staff from different districts created virtually identical guidance. The following summary of guidance in these plans will focus on the resource categories contained within each.

Soils

Each plan has the objective to manage soils to maintain productivity and minimize erosion. Most direction for soils is provided through forestland and range management.

Air

The John Day and Two Rivers plans focus on monitoring air quality. The Baker RMP does the same but also places emphasis on maintaining the Class II air classification assigned BLM managed lands under the Clean Air act, as amended (1977).

The Clean Air Act requires each state to develop, adopt and implement a State Implementation Plan to ensure that National Ambient Air Quality Standards are attained and maintained for the criteria pollutants. Federal agencies are required to ensure

that their actions conform to applicable State Implementation Plans. None of the BLM lands within the John Day Basin RMP Planning Area lie within Non-Attainment Areas. All federal land management activities currently comply with the Oregon State Implementation Plan.

Vegetation

The primary focus of the John Day, Two Rivers, and Baker Resource Management Plans is on grazing management. However important vegetation communities and habitats are also addressed.

Each plan acknowledges sites/situations where natural resource objectives would take precedence over livestock/commodity production. One example of this in the Two Rivers RMP is the Horn Butte Area a few miles south of the Columbia River where allotments are managed to "enhance habitat of the long billed curlew." Similarly the Oregon Land Exchange Act of 2000 mandates the BLM to manage lands acquired within the North Fork of the John Day subwatershed . . . "primarily for the protection of native fish and wildlife habitat, and for public recreation."

Livestock Grazing Management

The Standards for Rangeland Health and Guidelines for Livestock Management (BLM 1997) provides direction for assessing the condition of rangelands and adjusting the management of grazing when standards are not met. Because of the detailed work required and number of allotments about one half of the allotments in the John Day Basin remain to be assessed. See Appendix C and Map14 for additional information.

The assessments, used in Oregon, rate the functionality of the ecosystem based on five standards as described in the Standards for Rangeland Health and Guidelines for Livestock Grazing Management in Oregon and Washington:

When a standard is not met and significant progress towards meeting the standard is not occurring, an effort is made to identify if the causal factor is livestock grazing or another cause (Rangeland Health Standards Handbook H-4180-1, 2001).

If failure of a standard is due to current grazing practices and progress toward meeting the standard is not occurring, the BLM is required to take actions which will stop further damage and begin to improve conditions. This may require additional assessments or monitoring to determine a corrective solution along with NEPA analysis and a subsequent decision. The BLM is presently required to take action within 12 months after a determination is made (Grazing Regulations 4180.2.c.1.i).

The Northwest Power Planning Council completed the Strategy for Salmon (Collette and Harrison, 1992 a, b) to outline and guide salmon recovery efforts in the Northwest. In response to this strategy, BLM placed emphasis on completing allotment evaluations and adjusting grazing management for all grazing allotments in the John Day basin that would affect anadromous fisheries habitat. Priority was placed on grazing allotments containing substantial public land riparian areas, either on the John Day River or on important tributaries.

Twenty-one allotments have either an allotment management plan (AMP) or a coordinated resource management plan (CRMP) on them. This is a written management plan which directs how grazing will occur on an allotment and includes the timing of

livestock use, grazing intensity, grazing frequency, and grazing duration. These plans are fully coordinated with other resources such as wildlife so their needs have been considered. Allotments under a written management plan and those pastures under the John Day River Management Plan have adequate monitoring in place. All allotments and pastures which have habitat used by the Mid Columbia Steelhead and have a manageable amount of accessible public land will have riparian and channel studies in place. To date, about 60% of those pastures have existing studies. In addition, the John Day River Management Plan instituted grazing restrictions on portions of 52 allotments within the mainstem John Day WSR corridor, and 12 grazing allotments within the South Fork John Day WSR corridor.

Prior to the Oregon Land Exchange Act of 2000 grazing was authorized on the public lands in nine allotments along the North Fork of the John Day River. As a result of interim guidance most grazing has been eliminated on BLM managed lands adjacent to the North Fork John Day River.

Rangeland Assessments

The BLM is required to conduct monitoring of all land-use plans. Plans shall establish intervals and standards for monitoring and evaluation of the plan to determine how well land use objectives are being met. Such intervals and standards shall be based on the sensitivity of the resource decisions involved (43 CFR 1610.4-9). To help comply with these monitoring requirements, the BLM in Oregon and Washington developed the Rangeland Monitoring in Oregon and Washington, August 1985; which the Prineville District adopted into the Districts Range Monitoring Plan. This document establishes minimum standards for monitoring grazing allotments in the three different selective management categories – Maintain, Improve, and Custodial (M, I, C).

The various techniques used for monitoring are described in a series of Interagency Technical References developed by the BLM, Forest Service, Natural Resource Conservation Service, and Cooperative Extension Service. Monitoring results show variations, depending on site potential and climate, but generally vegetation trends appear to be improving. This generalization has been validated through the Standards and Guides Assessments.

Interior Columbia Basin Ecosystem Management Project (ICBEMP)

ICBEMP contains some strategic guidance related to grazing management. The first item provides criteria for classifying allotments into one of three selective management categories. The BLM categorizes allotments as Maintain (M), Improve (I), or Custodial (C) (See Appendix D). ICBEMP provided following criteria for the three categories.

Maintain Category Criteria
1. Present range condition is satisfactory
2. There is moderate or high resource production potential and production is near potential or moving in that direction
3. No serious resource-use conflicts or controversy exist
4. Present management appears satisfactory
5. Other criteria appropriate to EIS area

Improve Category Criteria
1. Present range condition is unsatisfactory
2. There is moderate to high resource production potential, but currently producing at a low to moderate level
3. Serious resource-use conflicts or controversy exist
4. Present management appears unsatisfactory
5. Other criteria appropriate to EIS area

Custodial Category Criteria
1. Present range condition is not a factor
2. There is low resource production potential and current production is at or near potential
3. Limited resource-use conflicts or controversy may exist
4. Present management appears satisfactory or is the only logical practice under existing resource conditions
5. Other criteria appropriate to EIS area

Forest Management

The BLM is mandated by the Federal Land Policy and Management Act (FLPMA) to manage public lands under the principles of multiple use and sustained yield and without permanent impairment to the productivity of the land and the quality of the environment. Each of the three plans views forestland from a multiple use perspective. That is to provide for commodity production while protecting or even enhancing wildlife, fisheries, water quantity and quality, and recreation. As with rangeland where unique qualities exist, such as riparian areas, special status species concerns, or wilderness or other special designations management may be directed toward preserving those qualities. For example forest management may be an absence of management in the case of wilderness or management may be limited to enhancing forest health or other values in the case of Wild and Scenic Rivers.

Each plan identifies areas suitable for commercial forest use and provides similar standard operating procedures for forest practices.

The John Day River Plan amended the John Day and Baker RMPs for lands within Segments 10 and 11 (within South Fork John Day Wild and Scenic River boundary and within ¼ mile of the North Fork John Day River) by restricting timber removal to “when necessary to reduce the risk of catastrophic timber loss due to insect infestation, disease, wildfire, or when public safety is of concern).

For the newly acquired lands along the North Fork John Day River the Oregon Land Exchange Act of 2000 limited any forest management to actions that would protect native fish and wildlife habitat, and support public recreation.

Woodlands

Each plan permits fuelwood and other minor forest product harvest.

Riparian Vegetation

Each plan makes improvement of riparian vegetation a priority with a range of tools available to implement changes but primarily through grazing management. Key guidance is also provided by PACFISH. This guidance includes goals, objectives, standards and guidelines, and creates Riparian Habitat Conservation Areas. This plan covers the majority of the John Day Basin Planning area. Several watersheds in the Upper South Fork area are excluded due to natural barriers (Izee falls). The Riparian Management Objectives (RMOs) include criteria for pool frequency, water temperature, large wood, width/depth ratios, bank stability, and bank angle. Standards and guidelines are spelled out for proposed projects and activities including timber, roads, grazing, recreation, minerals, fire/fuels, lands, restoration activities and general riparian area management. Where Properly Functioning Conditions (BLM Technical Reference 1737-9) are present, PACFISH goals relative to grazing guidelines are being met (PACFISH Enclosure B, 1995).

PACFISH guidance is supplemented by A Framework for Incorporating The Aquatic and Riparian Habitat Component of the Interior Columbia Basin Strategy into BLM and Forest Service Plan Revisions (2004) (the Framework). The Framework directs the development of aquatic and riparian resource components for land management revision plans, including the John Day Basin Plan. Guidance from the Framework directs the major components required to replace the interim PACFISH RCAs, RMOs, and Standards and Guides.

The “Standards for Rangeland Health and Guidelines for Livestock Management” (BLM 1997) provides another source of guidance for managing riparian areas. Standard #2 requires that riparian-wetland areas are in properly functioning physical condition appropriate to soil, climate, and landform. Within the planning area, PFC assessments (BLM 1991) have been used as the indicator for this standard.

Special Status Plants

The three RMPs do not address management of special status plants. Each, however includes a list of special status plants that could possibly be present in the planning area. An updated list is provided in Appendix A. BLM policy is to monitor and maintain or improve habitat for Threatened or Endangered Species during project planning and implementation. Proposed project areas are subject to botanical inventory for special status species prior to project initiation. Federally listed Threatened and Endangered plant species are not known to occur or suspected to occur within the planning area.

BLM policy (BLM Manual 6840) is to conserve the species and the ecosystems upon which they depend, ensure that all actions authorized, funded or carried out by BLM are in compliance with the ESA, cooperate with the USFWS in planning and providing for the recovery of listed species, retain in Federal ownership all habitat essential for the survival or recovery of any T&E species, and consult/confer with USFWS during development and implementation of management plans to conserve species and their habitats. The types of actions and level of interaction with USFWS are dependent on the status of the species in question.

For state listed species, BLM policy is to carry out management for the conservation of such species. State laws protecting these species apply to all BLM programs and actions to the extent they are consistent with FLPMA. The Oregon/Washington Special Status Species Policy, IM No. OR-91-57 (11/5/90, as amended by IM No. OR-91-57 change 1, issued 8/5/91) categorizes these species as either Bureau Sensitive or Assessment. Bureau Sensitive Species are protected, managed and conserved in the same manner as Candidate Species. Assessment species must be addressed in any planning or NEPA documentation and are protected when possible. For Bureau Sensitive Species, BLM is to work with the Oregon Department of Agriculture and the State Natural Heritage Program to determine which species should be designated as such. The minimal level of protection will be the level of protection provided to candidate species, which includes the following actions: considering these species in land use plans; developing plans, strategies and assessments to conserve these species and their habitats; ensuring BLM actions are consistent with objectives for managing these species; and monitoring to determine if objectives are being met.

Noxious Weed Control

The John Day RMP is silent on the issue of weed control. The Two Rivers and Baker RMP recognize the need to address weed control but for the most part defer to regional and national guidance. Currently the BLM Prineville District operates under the noxious weed management protocols set forth in the District Environmental Assessment (EA) titled Prineville District *Integrated Weed Management* (EA# OR-053-3-062), which was based on and tiered to the following documents: *Vegetation Treatment on BLM Lands in Thirteen Western States FEIS and ROD* (1991); *Supplement to the Northwest Area Noxious Weed Control Program FEIS and ROD* (1987); and the *Integrated Noxious Weed Control; and the Northwest Noxious Weed Control FEIS* (1985) and *ROD* (1986). Weed prevention and control practices prescribed in the Prineville District EA includes a full spectrum of tools using integrated weed management concepts. The District weed management program contains four key components: detection, prevention, control, and rehabilitation. Detection is normally done using ground or remote sensing techniques. Prevention activities focus on public education and awareness as well as project design guidelines and mitigation measures. Control measures include manual, mechanical, chemical and biological methods. A more detailed description of the District's weed management program may be found in EA# OR-053-3-062, available at the Prineville District Office.

Fire Management

The three RMPs emphasize prevention and suppression of wildfire to protect public values. Prescribed fire may be used to achieve multiple use objectives. Use of Prescribed fire must carried out in accordance with approved fire management plans and smoke management goals and objectives. The Baker RMP provides additional standard design features for fire management activity. In 2004 the Central Oregon Fire Management Service (COFMS) Fire Management Plan was developed to guide the coordination of fire management by the Prineville BLM, the Deschutes and Ochoco National Forests, and the Crooked River National Grassland.

Direction in the Central Oregon Fire Plan provides more specific guidance than provided by RMPs. The basic premise of the COFP is to base suppression action on values of at risk classes. Classes 4 through 6 call for aggressive and immediate suppression. Classes 1 through 3 allow for more suppression options based on fire potential and availability of suppression resources to manage the values at risk in the wildland fire environment. WSAs require conditional fire suppression action. Wildland urban interface (WUI) areas are the top priority for fire suppression.

Fire and Fuels

The Central Oregon Fire Plan (2002) identified Fire Management Units throughout Central Oregon that include BLM managed lands within the planning areas. These Fire Management units and associated information are used to determine fire risk and severity and in turn establish priorities for fuel treatments. Target fuel loads are determined on a case by case basis by the fuels specialist designing the fuel or vegetation treatment. Treatments are subject to interdisciplinary team review.

Fire Suppression

The actual suppression approach is to suppress all unplanned ignitions while allowing for the safety of the public and fire personnel, regardless of the risk class. This approach is a response to growing concern over sage grouse viability and habitat in the high desert, which generally is assigned lower risk class than forested areas. Cooperation with other state and federal agencies, as well as local fire protection organizations, is a key to fire suppression in the planning area and throughout Central Oregon. The Central Oregon Fire Plan identified Fire Management Units in order to prioritize fuels treatments and suppression response.

Each Fire Management Unit (Described in chapter 3) described in the Central Oregon Fire Management Plan identifies a set of variables that must be considered when managing fire and fuels. These variables include:

- Location
- Characteristics
- Strategic and Measurable Management Objectives Specific to the FMU
- Management Constraints or Criteria Affecting Operational Implementation
- Historical Fire Occurrence
- The Fire Management Situation
- Weather patterns influencing fire behavior and historical weather analysis
- Fire Season determination
- Fuels conditions in the FMU likely to influence fire behavior
- Fire regime alteration
- Control problems and dominant topographic features
- Other elements of the fire environment affecting management

There are no existing Wildland Fire Use (WFU) Plans within the Planning Area.

In addition to direction provided by the RMPs and the Central Oregon Fire Plan, all fire suppression activities are to be conducted under the guideline of the Interagency Standards for Fire and Fire Aviation Operations (“The Red Book”). (5.) These standards require safe fire suppression operations and provide the local line officer and incident commander the discretion of use the most appropriate suppression response.

Fire Closures

The BLM has authority to impose temporary restrictions on public access to public lands in times of extreme fire danger. This authority is not frequently invoked, but when dry, volatile conditions exist, restricted access to public lands can prevent ignitions. The industrial fire precaution levels are designed to limit certain activities that can spark a fire. This applies only to industrial equipment use. Complete closure during periods of extreme burning conditions, at level III, allows no mechanized equipment at any time. Partial closure, level II, restricts the use of chainsaws, cable logging operations, or blasting during the active burning period in the afternoons.

The BLM currently closes BLM managed lands within ¼ mile of the mainstem, North Fork, and South Fork John Day Rivers to campfires from June 1 to October 1st.

Water Quality and Quantity

Each plan seeks to improve water quality and quantity. *The John Day River Plan* amended the three RMPs by establishing interim instream flow goals for the federal water reserve right and specific actions for achieving the goals. Key guidance is provided under Clean Water Act and associated direction described in Chapter 2, Legal Mandates. Management of Water Quality and Quantity is largely indirect, by managing riparian and terrestrial vegetation, primarily through management direction for grazing, forest resources, travel management, and recreation.

Fish

Each plan provides for the maintenance and restoration of aquatic habitat. The Northwest Power Planning Council's Columbia River Basin Fish and Wildlife Program generated the Columbia Basin System Planning Salmon and Steelhead Production Plan-John Day River Sub-basin (ODFW 1990). The John Day River Subbasin Plan and the Columbia River Anadromous Fish Restoration Plan (CRITFC 1996) established spring Chinook salmon and summer steelhead production goals and objectives for the John Day subbasin. Under the Wild Fish Management Policy (OAR 635-07-525), spring Chinook salmon and summer steelhead are managed exclusively for wild production (ODFW 1990). An amendment to the Columbia River Basin Fish and Wildlife Program, known as the Strategy for Salmon (Collette and Harrison, 1992 a, b), called on resource management entities to implement measures designed to rebuild Columbia Basin anadromous fish populations. Subsequent to the Strategy for Salmon, the BLM adopted "PACFISH" (USDA-FS and USDI-BLM 1995), which was designed to halt the degradation and promote restoration of riparian areas on federal lands.

PACFISH establishes an expectation of the characteristics of healthy, functioning watersheds, riparian areas, and associated fish habitats. The goals are to maintain or restore.

1) Water quality to a degree that provides for stable and productive riparian and aquatic ecosystems.
2) Stream channel integrity, channel processes, and the sediment regime (including the elements of timing, volume, and character of sediment input and transport) under which the riparian and aquatic ecosystem developed.
3) Instream flows to support healthy riparian and aquatic habitats, the stability and effective function of stream channels, and the ability to route flood discharges.
4) Natural timing and variability of the water table elevation in meadows and wetlands.
5) Diversity and productivity of native and desired non-native plant communities in riparian zones.
6) Riparian areas to:
   A) Provide and amount and distribution of large woody debris characteristic of natural aquatic and riparian ecosystems.
   B) Provide adequate summer and winter thermal regulation within the riparian and aquatic zones.
   C) Help achieve rates of surface erosion, bank erosion, and channel migration characteristics of those under which the communities developed.
7) Riparian and aquatic habitats necessary to foster the unique genetic fish stocks that evolved within the specific geo-climatic region; and

8) Habitat to support populations of well-distributed native and desired non-native plant vertebrate, and invertebrate populations that contribute to the viability of riparian-dependent communities.

In February of 1998, the National Marine Fisheries Service (NMFS) proposed listing the Middle Columbia River (MCR) steelhead ESU population as Threatened, under the Endangered Species Act (ESA). In April of 1997, USFWS decided to propose listing bull trout under the Endangered Species Act (ESA)). MCR steelhead were listed as threatened under the ESA on March 25, 1999 (64 FR 14517), and NMFS reaffirmed its threatened status on January 5, 2006 (71 FR 834). MCR steelhead critical habitat was designated on September 2, 2005 (70 FR 52630) and the designation became effective January 2, 2006.Two populations were included in the proposal, bull trout in the Columbia River Basin, and the Klamath River Basin. On June 10, 1997 the U.S. Fish and Wildlife Service proposed listing the bull trout as Threatened. As a result of these proposals the BLM may not take any management actions that adversely affect or may contribute to the need to formally list these species.

Wildlife

Existing management for wildlife habitat is described in the three RMPs, other supplemental coordinated RMPs, habitat management plans, environmental assessments, and the ESA. Benefiting wildlife is an important objective in the management of rangeland, forest and woodlands, and riparian areas in each of the management plans. Each contains list of actions to restore wildlife habitat. Habitat for Special status species and other locally important species are also addressed by each plan. *The John Day River Plan* amended each of the plans by phasing out irrigated, commercial agriculture from BLM lands adjacent to the river and its main branches and to use such lands to provide wildlife habitat, food and cover for wildlife, or to provide cottonwood stock for use in the restoration of riparian areas.

Within the river corridor and adjacent grazing pastures partially within the corridor *The John Day River Plan* also prohibits public land use by non-native and/or feral sheep, goats, and pigs and supports the removal of these species by the use of BLM regulations and/or cooperation and coordination with the Oregon Department of Agriculture, ODFW, and private landowners. *The John Day River Plan* also requires BLM lands within the river corridor to be managed to provide for wildlife species and habitat diversity. Crucial habitats are to be monitored for forage production, habitat condition changes, and overall effectiveness of improvements. Existing improvements that relate to wildlife habitat are be maintained. Habitat management plans are to be written for selected areas of wildlife habitat and specific wildlife objectives would be included in all activity plans. Existing seasonal restrictions are to be applied to mitigate impacts of human activities on important seasonal wildlife habitat.

The RMPs provide the following guidance:
1) Improve and maintain vegetative condition to benefit wildlife.
2) Maintain all existing improvements and continue existing activity plans.
3) Manage upland habitat for diversity to provide for a variety of wildlife species.
4) Manage upland vegetation through grazing management and range/wildlife habitat development to achieve maximum wildlife habitat diversity.
5) Intensively manage commercial forestlands suitable for timber production while recognizing harvest restrictions or exclusions to protect wildlife and wildlife habitats.
6) Monitor, maintain, or improve habitat for threatened and endangered species.
7) Monitor, maintain, or improve winter range for deer and elk.

8) Utilize existing road systems and limit new permanent road entries to protect wildlife habitat.

Forage would be provided to meet ODFW management objective numbers for deer and elk. Additional forage may be allocated to livestock whenever present big game population objectives are exceeded.

Each of the plans provide for the development of Habitat Management Plans to protect selected species and areas.

Cooperative Mgmt Areas (CMAs) will continue to be developed with ODFW, WDW and/or other affected individuals and organizations.

Special Status Wildlife

Each RMP recognizes the need to protect habitat inhabited by or potentially inhabited by any listed or considered for listing species. Each plan recognized the need to consult with the appropriate federal agency before taking an action that may affect any federally listed or candidate threatened or endangered species. See Appendix B for the list of Special Status Wildlife. Threatened and endangered and special status species habitat will continue to be monitored, maintained, and/or improved.

In order to protect California Bighorn Sheep *The John Day River Plan* modified the Two Rivers RMP by prohibiting grazing by domestic sheep.

Sage Grouse Management

BLM developed a National Sage-grouse Habitat Conservation Strategy (National Sage-grouse Strategy) to guide future actions for conserving sage-grouse and associated sagebrush habitats and to enhance BLM's ongoing conservation efforts. BLM designed this National Sage-grouse Strategy around four main goals. Associated with each goal are specific strategies and actions that BLM will undertake to meet the goal. The four goals are:

1) Improve the effectiveness of the management framework for addressing conservation needs of sage-grouse on lands administered by the BLM.
2) Increase understanding of resource conditions in order to prioritize habitat maintenance and restoration.
3) Expand partnerships, available research and information that support effective management of sage-grouse habitat.
4) Ensure leadership and resources are adequate to continue ongoing conservation efforts and implement national and state-level sage-grouse habitat conservation strategies and/or plans.

Wild Horse and Burro Management

Wild horse and burro management occurs within designated herd management areas. There is one herd management area within the John Day Basin, the Murderer's Creek Herd Management Area and is identified in the John Day RMP. The 108,568 acre Herd Management Area is located adjacent to the South Fork John Day River on Forest Service, state, and private lands and 34,639 acres of BLM managed land. The herd size is managed to range from 50 to 140 animals and is administered by the Forest Service in cooperation with the BLM. Any horses and burros found on BLM managed lands in other locations within the planning area are considered to be trespass animals and removed.

Visual Resources

The BLM uses the Visual Resource Management (VRM) system to classify scenery and provide a framework for managing visual impacts of activities occurring on BLM-administered lands... Visual Resource Management (VRM) Classes specify desired objectives for retaining or enhancing visual quality.

VRM Class I is the most sensitive and is applied to areas having high scenic quality, or to Congressionally designated areas such as Wilderness areas and Wild and Scenic Rivers. A recent change in BLM policy also classifies all lands within Wilderness and Wilderness Study Areas (WSAs) as VRM Class I, which requires that natural processes dominate the landscape, allowing limited management activity, provided it does not attract attention. According to the BLM VRM Program Manual, VRM Class I management allows natural ecological changes and limited management activity. Any contrast created within the characteristic landscape must not attract attention. Wilderness Study Areas on the Lower John Day River are examples of VRM Class I public land.

VRM Class II management regarding changes in any of the basic landscape elements (form, line, color and texture) caused by a management activity should not be evident in the characteristic landscape. Contrasts are seen, but must not attract attention. Public lands along the Lower John Day River outside Wilderness Study Areas are examples of VRM Class II. All WSR segments, most non-designated segments, and portions of some tributaries are also classified as VRM Class II.

VRM Class III management allows contrasts to the basic elements caused by a management activity to be evident, but should remain subordinate to the existing landscape. Public lands in Rudio Creek and Miller Flat are examples of VRM Class III. These public lands are located on the north slopes of Rudio Mountain and can be seen from the Kimberly-Monument highway.

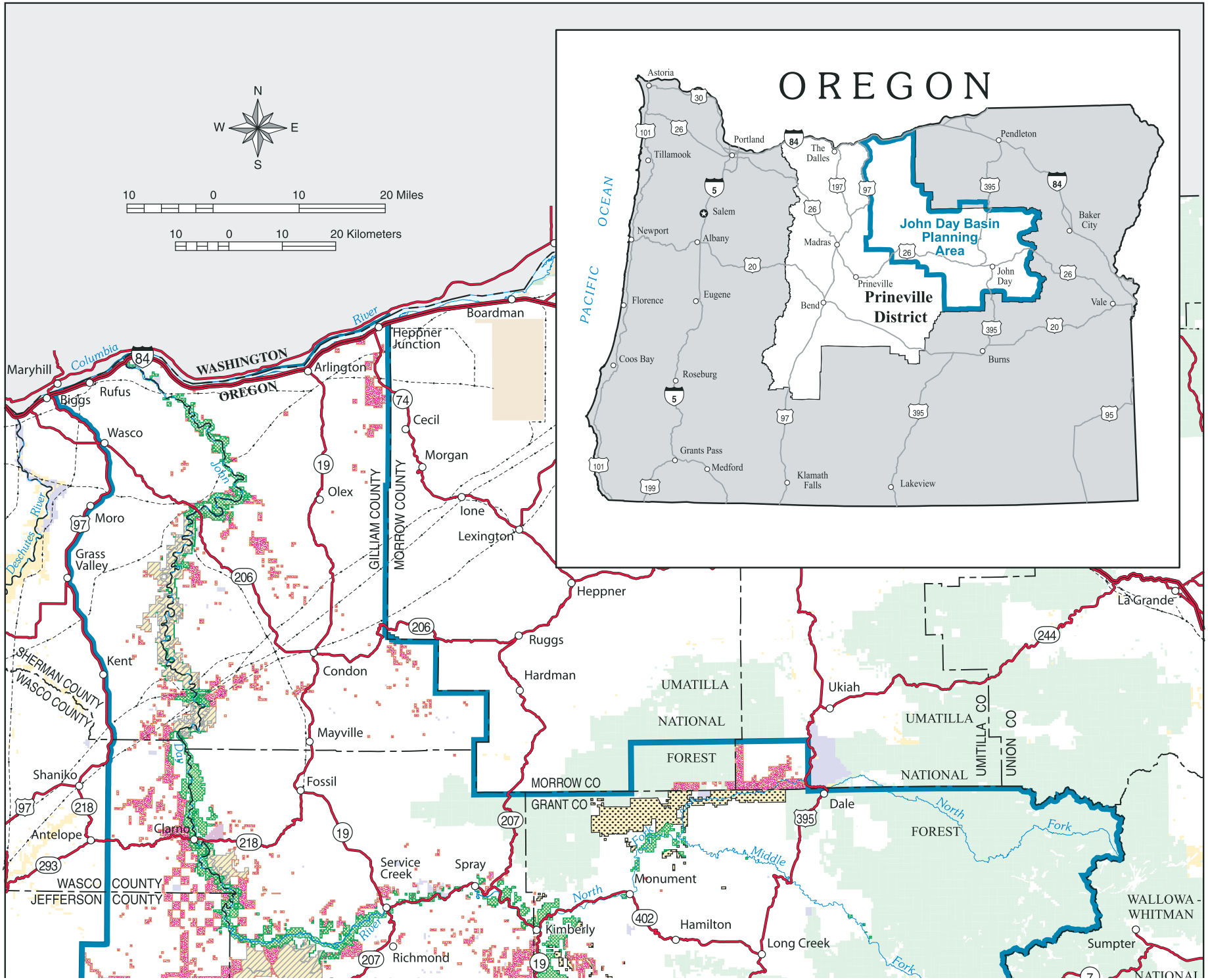
VRM Class IV is the least sensitive class and includes areas of low scenic quality and are not frequently seen by many public land users. Contrasts in the landscape attract attention and is a dominant feature in the landscape in terms of scale, but it should repeat the form, line, color and texture of the characteristic landscape. Public lands in the high plateaus of Rudio Mountain in the vicinity of Sunflower Flats and Timber Basin are examples of VRM Class IV and are seldom seen.

Each of the RMPs for the John Day Basin identified the VRM classifications are shown on Map 18. The acreage for each VRM class is listed in Table 17.

Table 17: Visual Resource Management Classification Acreage

Visual Resource Management Class:	Approximate BLM Acreage Within Planning Area
VRM Class I (Highest Scenic Value)	97,00
VRM Class II	90,085
VRM Class III	217,926
VRM Class IV (Lowest Scenic Value)	49,572
Total:	454,429

* VRM classifications from Record of Decisions for the Two Rivers, John Day, and Baker RMP/EISs; interim BLM VRM classification for private lands acquired through the 2000 Oregon Land Exchange Act; and the 2001 BLM Record of Decision for the John Day River River Management Plan.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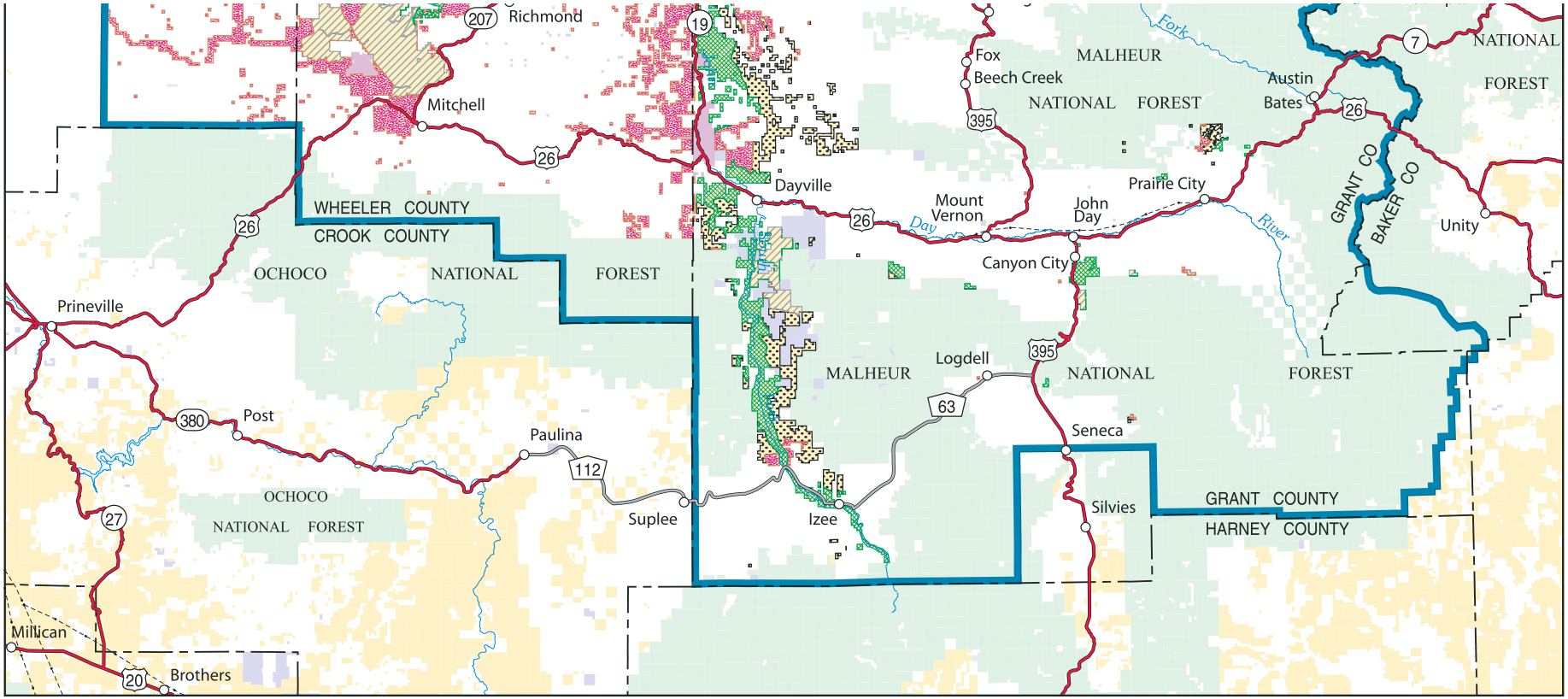
OREGON
Astoria
Portland
Tillamook
Salem
Newport
Albany
Eugene
Florence
Coos Bay
Roseburg
Grants Pass
Medford
Klamath Falls
Lakeview
Bend
Madras
The Dalles
Prineville
John Day
Baker City
Pendleton
Vale
Burns
PACIFIC OCEAN
John Day Basin Planning Area
Prineville District
Maryhill
Columbia
River
WASHINGTON
OREGON
Biggs
Rufus
Wasco
Moro
Grass Valley
Kent
Shaniko
Antelope
Clarno
Deschutes River
John Day River
Arlington
Boardman
Heppner Junction
Cecil
Morgan
Olex
Ione
Lexington
GILLIAM COUNTY
MORROW COUNTY
SHERMAN COUNTY
WASCO COUNTY
WASCO COUNTY
JEFFERSON COUNTY
Condon
Mayville
Fossil
Service Creek
Spray
Richmond
Heppner
Ruggs
Hardman
Kimberly
Monument
Hamilton
Long Creek
Ukiah
Dale
La Grande
Sumpter
UMATILLA NATIONAL FOREST
MORROW CO
GRANT CO
UMATILLA CO
UNION CO
North Fork
Middle Fork
WALLOWA - WHITMAN NATIONAL



LEGEND

Visual Resource Management on BLM Administered Land

- Class 1: Highest Scenic Value
- Class 2
- Class 3
- Class 4: Lowest Scenic Value

Utility Corridors

Planning Area Boundary

Administered Land

- Bureau of Land Management
- Forest Service
- John Day Fossil Beds National Monument
- Other Federal
- State
- Private or Other

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John Day Basin Resource Management Plan

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Map 18: Visual Resource Management

The Two Rivers, John Day, and Baker Resource Management Plans provide VRM management direction for projects on BLM public land. (Pg. 32, Two Rivers ROD, Pg. pg. 49, Baker ROD, and page 54 of the John Day Final EIS).

"Before the BLM initiates or permits any major surface disturbing activities on public land, an analysis will be completed to determine adverse effects on visual qualities. Activities that will result in significant, long term adverse effects on the visual resources of the John Day or Deschutes River canyons in areas normally seen from these rivers will not be permitted."

"Activities within other areas of high visual quality that may be seen might be permitted if they do not attract attention or leave long term visual changes on the land. Activities in other areas may change the landscape but will be designed to minimize any adverse effect on visual quality" (Pg. 32, June, 1986 Two Rivers ROD).

The North Fork of the John Day river canyon area contains approximately 42,183 acres of private land that was acquired in 2002 by the Prineville District BLM, as part of the Oregon Land Exchange Act of 2000. This acreage, in addition to approximately 10,520 acres of existing BLM public lands were tentatively classified by BLM as VRM Class III, until a final VRM classification is determined through the John Day Basin RMP/EIS.

Special Management Designations

Wild & Scenic Rivers

Management direction for BLM managed Wild and Scenic Rivers within the Planning Area is provided by the *John Day River Management Plan, Two Rivers, John Day, and Baker Resource Management Plan Amendments* (2001). This document provided for management of a full range of resources and activities within the boundaries of the following Wild and Scenic Rivers:

Lower John Day River (Tumwater Falls upstream to Service Creek)

South Fork John Day River (Smokey Creek upstream to the Malheur National Forest boundary

Guidance for all resources focused on protecting and enhancing the Outstandingly Remarkable values for which the Wild and Scenic River Designation was applied to these rivers. This guidance is referred to in the resource and use discussions throughout this chapter.

Wilderness

The "Interim Management Policy and Guidelines (IMP) for Lands Under Wilderness Review" (BLM 1995) provides guidance for managing lands under review by congress to determine wilderness suitability. This policy requires all lands within WSA boundaries be managed so as not to impair their suitability for wilderness designation. Certain activities conducted in WSAs before the passage of FLMPA are called "Grandfathered Uses". These activities, which include grazing, mining and mineral leasing may continue in the same manner and degree as they occurred in 1976. Most non-motorized recreation activities are allowed, and users are encouraged to follow "Leave No Trace" principles. Motorized and mechanized travel, including trail and mountain bikes, is limited to either existing or designated roads and trails, and cross-county travel is prohibited. Standing trees may not be cut for either personal or commercial use. Any unauthorized activity which results in surface disturbance must be reclaimed as close to its natural condition as possible.

The Sutton Mountain Coordinated Resource Management Plan (USDI-BLM, 1996) provides management direction for the Bridge Creek area roughly between Highway 26 and the John Day River. Contained within this plan is direction for the management of the Sutton Mountain and Pat's Cabin Wilderness Study areas.

Caves

The RMPs are silent on management of caves. However, the Federal Cave Resources Protection Act of 1988 (FCRPA) requires federal agencies to identify and manage, to the extent practical, cave resources determined to be significant. Procedures for determining the significance of caves are found in 43 CFR Part 37. Significance is determined based on criteria for biotic, cultural, geologic, mineralogic, hydrologic, recreational, educational, or scientific values, features, or characteristics as defined in 36 CFR, Part 290.3 (c) and (d).

Cultural Resource Management

Each plan is consistent with national guidance by requiring cultural resource clearances on all projects requiring BLM approval or initiated by the BLM that include surface disturbance. Areas or sites eligible for nomination to the National Register of Historic Places will be considered for nomination.

The Spanish Gulch Historic Mining District was designated as an ACEC's in the Two Rivers RMP (1986). In addition, the Fourmile Canyon and the John Day Crossing (McDonald Crossing) segments of the Oregon Trail were considered "special management areas" in the Two Rivers RMP. Both, the Fourmile Canyon segment of the Oregon Trail and Spanish Gulch Historic Mining District have been formally nominated to the National Register of Historic Places.

The Two Rivers and Baker RMPs specify that avoidance and mitigation are alternatives for enabling clearances when cultural resources are found at project locations. *The John Day River Plan* amended each of the RMPS by providing more detailed direction for the River corridors. This direction includes:

- Re-record known sites.
- Evaluate sites for appropriate BLM Use Categories/National Register eligibility.
- Conduct Class III inventory in areas of high probability and/or potential high use not previously inventoried and which are not necessarily associated with specific projects.
- Conduct limited site testing/salvage excavation, where appropriate.
- Apply appropriate rehabilitation/stabilization techniques to sites as needed.
- Develop and implement appropriate interpretive/public outreach/educational techniques.
- Pursue development of a more active role for tribal involvement (beyond that required by law) in any or all of the above (participating in the rehabilitation of a damaged site).
- Pursue development of partnerships with various internal and external entities to accomplish any or all of the above.

BLM activities must also be consistent with the laws, directives, and policies listed in Chapter 2.

Native American Uses

The John Day, Two Rivers, and Baker RMPs provide no specific direction for providing opportunities for traditional Native American Uses. The authorization for such uses may be found in treaties, laws, regulations, and Memoranda of Understanding between the BLM and tribal governments. The BLM 8120 Manual and Handbook H-8120-1 identify opportunities for consulting Tribes on traditional cultural uses of public lands and resources. Provisions for consultation prior to taking management actions are to ensure that opportunities to continue to practice traditional cultural activities are maintained.

Paleontological Resources

Management of Paleontological resources is a relatively new activity for the BLM. The John Day and Two Rivers RMPs are silent about paleontological resources. The 1995 John Day Land Tenure adjustment considered paleontological resources and excluded parcels with known resources from the Z-3 designation. *The John Day River Plan* ROD (2001), however, provides specific guidance for the management of paleontological resources within the river corridor which is consistent with recently published BLM 8270/H-8270-1 Manuals. The BLM manages significant fossil resources in the John Day region and beyond with technical assistance from the National Park Service, through an interagency agreement. This assistance is limited to the NPS scope of collection which covers fossils that are between 40 and 5 million years ago (mya).

The Baker Resource Management Plan and *The John Day River Plan* provide similar guidance for managing paleontological resources. The primary elements of paleontology resource management are identification, evaluation, protection and use. The BLM's main "objectives are to manage them for their scientific, educational and recreational values, and to mitigate adverse impacts to them". In addition, *The John Day River Plan* ROD specifically outlines additional actions for management purposes. These actions include conducting inventory and cyclic prospecting at all potential fossil-bearing localities, coordinate with the National Park Service and other outside entities to conduct appropriate scientific research, implement appropriate interpretive/public outreach/ educational techniques, and the development of partnerships with external entities to accomplish any or all or the above.

Recreation Management

Each RMP has an objective that opportunities for recreation should be maintained and protected. The Baker RMP designated public lands adjacent to the North Fork John Day as an Extensive Recreation Management Area that is regionally and locally significant. The Two Rivers RMP provides recreation guidance for off road vehicle use and provides for the collection mineral resources by rockhounders. One objective of the John Day Plan is to "keep public lands and roads open for a variety of recreational uses …"

Developed and Dispersed Recreation

The Baker RMP provides the following specific guidance:

- Limit camping to a 14-day stay.
- Inventory recreation resources.
- Develop recreation facilities on identified key parcels of public land.

The John Day RMP provided the following guidance, "The Recreational … resources will be evaluated as a part of activity and project planning. Dispersed recreational activities will continue commensurate with demand. Developed recreation sites where low public use levels and/or deteriorated facility conditions do not justify the expenditure of additional maintenance funds will be closed or maintenance transferred to other entities.

The John Day River Plan Amended all three RMPs by allowing the improvement or upgrading of developed sites within river corridors but limiting new sites to a single campground near the Ellingson Mill site on the South Fork John Day River.

The John Day River Plan amended each RMP by allowing for the rehabilitation or closure of dispersed sites if necessary. This plan also amended the Two Rivers RMP by converting a small portion of an agricultural field near river mile 101 to perennial vegetation in order to open sites for dispersed camping.

The John Day River Plan Amended the Two Rivers RMP by initiating monitoring for a Limits of Acceptable Change (LAC) study on the Lower John Day River to determine acceptable levels of camping and boating downstream from Service Creek. *The John Day River Plan* also amended each of the RMPs by proposing the utilization of an LAC study for other segments of the river when needed to address recreation management issues.

Boating Use Allocation

The John Day River Plan amended the Two Rivers RMP by proposing interim daily launch targets until the LAC study determines appropriate boating use levels. Until the LAC study is completed individuals and groups would be requested to utilize off peak periods to float the river and mandatory no impact camping, equipment restrictions, party size limits, and use fees would be imposed. Under the River plan if it is determined that launch limits are necessary to keep boating levels under the limits of acceptable change then a Common Pool system of boating permit allocation would be utilized. This system would require commercial users to apply for permits to boat the river in the same manner as private, non-commercial users. The system is based upon a system developed for the Deschutes River and if it is determined that the system on the Deschutes does not work then a different, split allocations system (in which commercial and noncommercial boater have separate pools of permits to draw from) would be implemented.

Motorized Boating

The John Day River Plan amended the Two Rivers RMP by prohibiting use of personal watercraft upstream of Tumwater Falls, permitting seasonal motorized boating between Tumwater Falls and Cottonwood Bridge, and closing the river between Service Creek and Clarno to motorized boating between May 1 and October 1 except use of one 40 pound thrust electric motor per boat may be used during this period. The River Plan also amended the John Day RMP by closing the South Fork John Day to motorized boating.

Motorized Recreation

BLM-managed lands are designated as either "Open," "Limited," or "Closed" to motorized use through all BLM Resource Management Planning efforts. These designations are defined by the BLM's National OHV Strategy (2000) as:

Open: The BLM designates areas as “open” for intensive Off-Road Vehicle (ORV) use where there are no compelling resource protection needs, user conflicts, or public safety issues to warrant limiting cross-country travel.

Limited: The agency designates areas as “limited” where it must restrict ORV use in order to meet specific resource management objectives. These limitations may include: restricting the number or types of vehicles; limiting the time or season of use; permitted or licensed use only; limiting use to existing roads and trails; and limiting use to designated roads and trails. The BLM may place other limitations, as necessary, to protect resources, particularly in areas that motorized OHV enthusiasts use intensely or where they participate in competitive events.

It is important to note that many acres of public lands designated open, limited to designated roads and trails, or limited to designated roads may not be available to the general public because access is dependent upon permission granted by an adjacent landowner.

Closed: The BLM designates areas as “closed” if closure to all vehicular use is necessary to protect resources, ensure visitor safety, or reduce use conflicts. These designations are incorporated in the BLM’s 8340 Manual (issued May 25, 1982) which provides land managers with general guidance in managing ORVs on public lands.

Due to identification of WSAs and consequent changes in guidance for motorized use since the RMPs were completed RMP guidance concerning open, closed and limited no longer reflects on the ground management.

Special Recreation Permits

The three RMPs are silent on Special Recreation Permits (SRPs) except as amended by the John Day River Plan. Existing BLM policy includes the following criteria for issuing Special Recreation Permits:

- Type of public service to be provided by the permittee or applicant and consistency with management goals and objectives.
- Ability of that person to provide the service and make a business profit
- Safety of commercial customers.
- BLM workload in administering and monitoring permits.
- Other ramifications of that decision.

Generals decisions to issue SRPs are on a case by case basis. However in 2002, the Prineville District limited the availability of new SRPs for commercial, competitive, and organized group use on public lands within the district boundary. New SRP proposals will be considered for authorization for activities or events not exceeding seven consecutive days in length annually which do not require preparation of an environmental assessment.

In addition to this change the John Day River Plan amended the three RMPs by including specific requirements John Day River commercial permits and requiring a needs assessment prior to the authorization of a concession permit.

Transportation

The *John Day, Two Rivers*, and *Baker RMP*s are virtually silent on the concept of transportation. The *John Day RMP* does acknowledge that keeping roads open “for

a variety of recreational purposes" is an objective. Each of the plans contains best management practices for roads created to facilitate timber harvest. The John Day River Plan identifies both roads to remain open and roads to be closed to protect and enhance Outstandingly Remarkable values associated with the Wild and Scenic River Designation. It also identifies some roads for maintenance.

Realty

Within the planning area BLM's Realty and Ownership program consists of two major components.

The first is land tenure adjustments, such as acquisition of fee title or interests in private lands (through purchase or exchange) and the disposal of fee title or interests in public lands (through sale, grant, or exchange).

The second component provides various public and private entities with permission to use public lands for: 1) Right-of-Way (ROW) authorizations for pipelines, electric transmission lines, roads, communications sites, etc; and 2) use and development of public lands through easements, permits, and leases. See Map 19 for display of land tenure zones and major utility rights-of-way.

Land Tenure

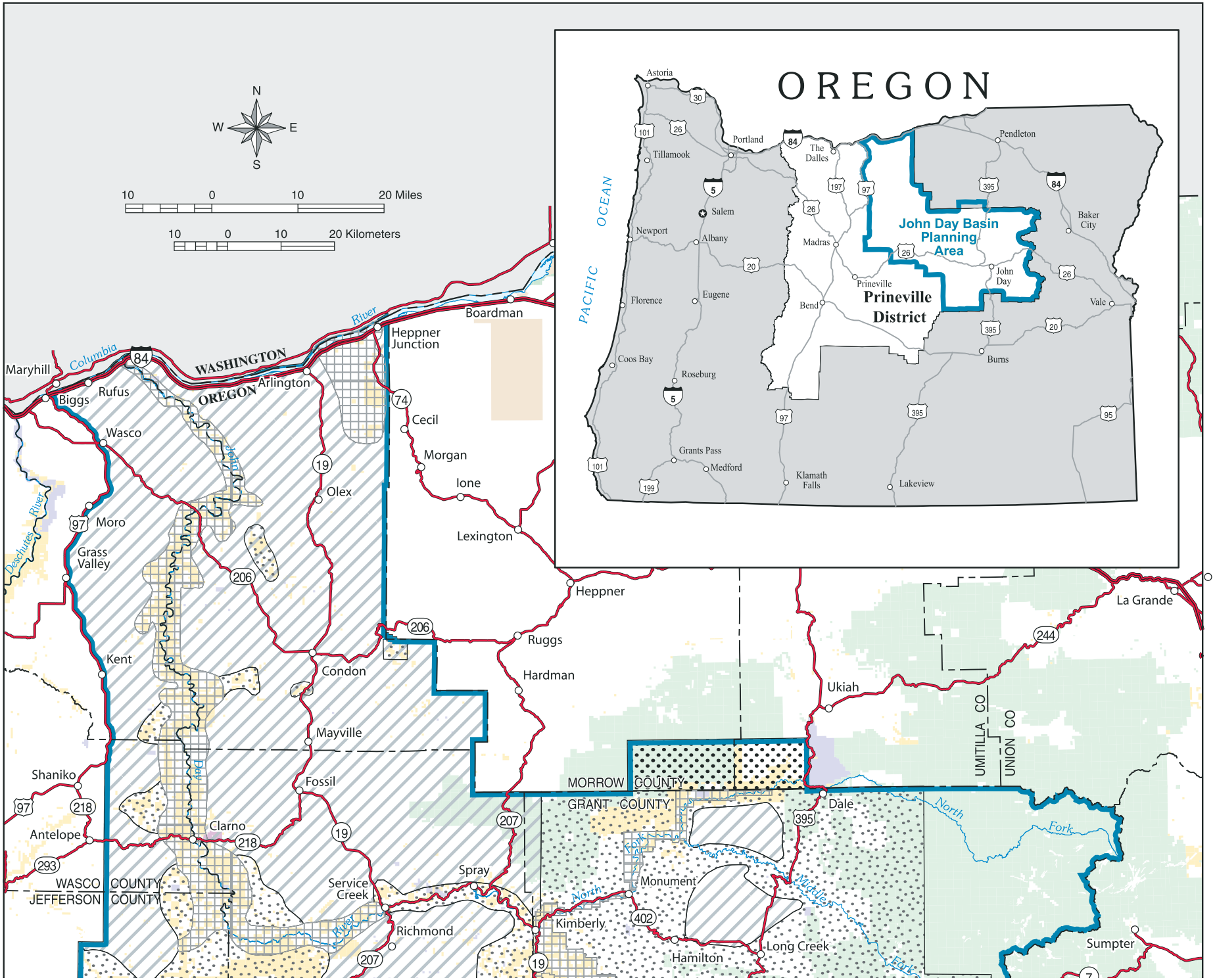
Each plan provides for managing lands for public benefit and each reflects guidance provided by the Federal Land Policy and Management Act of 1976. The John Day and Two Rivers RMPs have a 3 zone system for determining whether and how to retain or dispose public lands (The John Day Plan was amended in February 1995 to adopt a 3 zone system.) The first zone, Z-1, are those lands that should be retained because they are high value either due to special qualities or because they are an integral part of a block of public land that as a whole provides a public benefit. The second zone, Z-2, identifies lands that provide public benefit but may be exchanged for lands that provide equal or greater public benefits. The final zone, Z-3, identifies lands that do not provide substantial benefit and therefore are suitable for disposal via sale, exchange, or other mandated means of disposal. Typically these lands are relatively small, isolated parcels, frequently without public or administrative access.

The Baker RMP accomplishes the same ability to make land tenure adjustments through a two zone system by combining the elements of Z-1 and Z-2 into a single, Z-1, category. This category recognizes that lands with higher public values, including special management areas, will be retained while other lands within this category are be retained except under specific conditions that serve an important public objective.

Z-2 category in the Baker RMP provides essentially the same guidance as the Z-3 category under the John Day and Two Rivers RMP. The Baker Plan provides more specific criteria for acquisition of lands than either the John Day or Two rivers plans.

Easements and Rights-of-Way

Each RMP has designated all utility/transportation corridors identified by the Western Utility Group in May 1980. ACECs and WSAs are considered exclusion areas for new rights-of-way. Baker RMP lists steps and information required for application and consideration of new rights-of-way while the John Day and Two Rivers plans do not. BLM regulations however, do require a process and certain information so the omission from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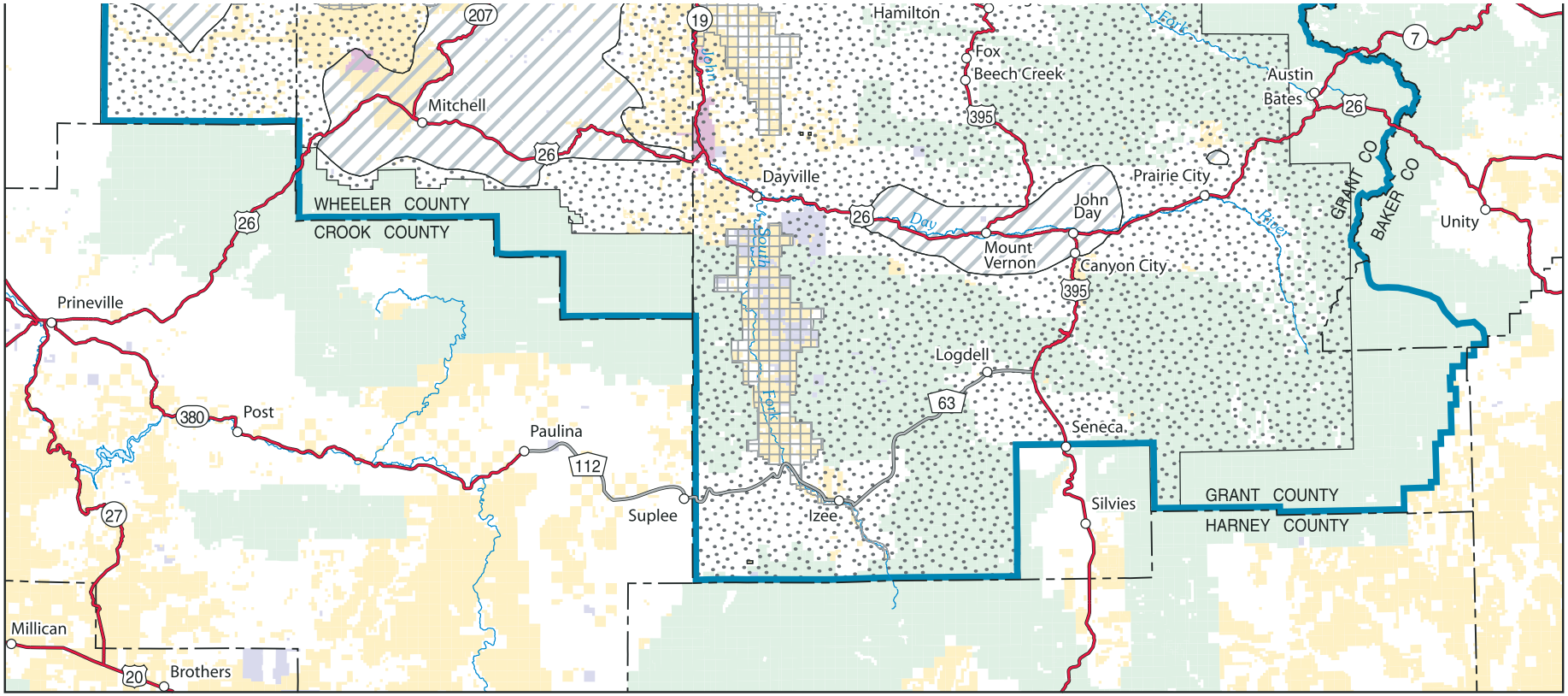
Florence
Coos Bay
Roseburg
Grants Pass
Medford
The Dalles
Madras
Prineville
Bend
Klamath Falls
Lakeview
Pendleton
Baker City
John Day
Vale
Burns
John Day Basin Planning Area
Prineville District
PACIFIC OCEAN
Boardman
Heppner Junction
Cecil
Morgan
Ione
Lexington
Heppner
Ruggs
Hardman
Ukiah
La Grande
Maryhill
Biggs
Rufus
Arlington
WASHINGTON
OREGON
Columbia River
Wasco
Moro
Grass Valley
Deschutes River
Olex
Condon
Kent
Mayville
Fossil
Shaniko
Antelope
Clarno
John Day River
WASCO COUNTY
JEFFERSON COUNTY
Service Creek
Richmond
Spray
MORROW COUNTY
GRANT COUNTY
Monument
Kimberly
Hamilton
Long Creek
Dale
North Fork John Day River
Middle Fork John Day River
UMATILLA CO
UNION CO
Sumpter



LEGEND

Past Resource Management Plan Zone Coding

- Zone 1: Classified for Retention
- Zone 2: Classified for Retention with Option to Exchange
- Zone 2 (Baker District): May be Retained, Exchanged, or Sold
- Zone 3: Classified for Disposal

Planning Area Boundary

Administered Land

- Bureau of Land Management
- Forest Service
- John Day Fossil Beds National Monument
- Other Federal
- State
- Private or Other

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Map 19: Land Tenure Classification

these plans does not mean a lesser standard for consideration of rights-of-way than the Baker RMP. Both the Baker and Two Rivers RMPs require that existing developed routes be the first consideration for new rights-of-way. The John Day plan provides more general direction that new rights-of-way be "consistent with the plan."

Revised Statute (RS) 2477, included in the 1866 Mining Law, was intended to assist settlement of the West by granting rights-of-ways on public lands. While RS 2477 was repealed in 1976, existing claims were grandfathered. RS 2477 right-of-way claims are not subject to BLM determinations of validity per the January 22nd 1997 court decision of Southern Utah Wilderness Alliance vs. Bureau of Land Management. However this decision emphasized that the ruling "does not mean that the BLM is forbidden from determining the validity of RS 2477 rights of way for its own purposes." In addition, the state or county bears the initial burden of providing appropriate evidence that the claimed right-of-way was properly accepted in accordance with governing state law principles prior to 1976. Basically, any state or county road improvements on roads with legal RS 2477 rights of ways are acceptable. Any proposed road improvements, beyond maintenance, on disputed RS 2477 claims must be validated, and the proof must be presented by the claimant.

In 1976, the State of Oregon, acting through its Fish and Wildlife Commission, acquired a public access easement through private lands owned by the Louisiana-Pacific Corporation on the North Fork of the John Day River. This easement covered a logging road which parallels the north side of the North Fork of the John Day River, from its junction with State Highway 395, downriver to its junction with the Grant County Wrightman Canyon Road (County Road 15) (Easement of Way, State of Oregon and Louisiana-Pacific Corporation, 1976). Private landowners have provided easements for 2.5 miles of road to the state of Oregon between Camas creek and Wrightman Canyon Road." BLM maintains approximately 15.35 miles of BLM road and one mile of ODFW road along this stretch of the North Fork John Day River (See 13: North Fork John Day Transportation). Maintenance of roads crossing private property is based on informal agreements with landowners. As a new land manager in the North Fork area the BLM agreed to accept the land it received with the easement as an encumbrance over that land.

Leases and Permits and the Recreation and Public Purposes Act

Leases and permits are issued for purposes such as a commercial filming, advertising displays, croplands, apiaries, livestock holding or feeding areas not related to grazing permits and leases, harvesting of native or introduced species, temporary or permanent facilities for commercial purposes (does not include mining claims), residential occupancy, ski resorts, construction equipment storage sites, assembly yards, oil rig stacking sites, mining claim occupancy if the residential structures are not incidental to the mining operation, and water pipelines and well pumps related to irrigation and non-irrigation facilities. Temporary authorizations under leases and permits differ from withdrawals in that the permitted use is short term, the BLM Retains administrative responsibility for the lands, and few or no permanent facilities are permitted.

Congress enacted the Recreation and Public Purposes (R&PP) Act (1954) to authorize the sale or lease of public lands for recreational or public purposes to State and local governments and to qualified nonprofit organizations. Examples of typical uses under the act are historic monument sites, campgrounds, schools, fire houses, law enforcement

facilities, municipal facilities, landfills, hospitals, parks, and fairgrounds. The BLM may sell or lease only the amount of land required for efficient operation of the projects described in an applicant's development plan.

The John Day and Two Rivers RMPs provided for permits and leases to develop public lands for uses that are consistent with the objectives of the RMP and do not conflict with other resources and uses. (Note that permits and leases involving grazing, minerals, recreation, and other resources are administered under those programs and are discussed elsewhere.)

The Baker RMP provided for permits under the following conditions:

(1) The use does not conflict with riparian area management, important wildlife habitat, recreational use of public lands, or other significant resource values.
(2) The use is compatible with historical use on adjacent private lands.
(3) The use would maintain or enhance other resource values, such as providing habitat requirements for game and non-game wildlife species.

The John Day River Plan amended the Two Rivers RMP by eliminating agricultural use of BLM administered lands along the lower John Day River. It also amended all three RMPs by requiring that if unauthorized agricultural use is found on BLM administered lands adjacent to the river that such use will be converted to perennial vegetation, tree and shrub propagation, wildlife food and cover plots, or the land be disposed (the Baker RMP already had a similar provision).

Both the Two Rivers and Baker RMPs sought to obtain access to public lands through purchase or easement when access was not available. The John Day RMP focused on maintaining existing public access.

Mining and Minerals

Each plan provides for keeping public lands open for exploration/development of mineral resources except when restrictions are needed to protect resource or other values.

The Oregon Land Exchange Act of 2000 effectively eliminates mineral development on acquired lands along the North Fork John Day until an RMP is completed and environmental analysis finds that mineral extraction can occur without adversely affecting fish and wildlife habitat and recreational values. In other areas adjacent to the river, *The John Day River Plan* requires that mineral entry be subject to stipulations including no surface occupancy for leaseable minerals; requirements to protect water quality, scenic quality and vegetation plus adopting State Scenic Waterway requirements for screening mining operations and road construction for locatable mineral mining; and not permitting new sites and not renewing or renegotiating existing sites when they expire for salable minerals.

Public Information and Education

The Baker RMP provided the following guidance: Develop area-wide recreation maps and brochures for information and education.

The Two Rivers and John Day RMPs do not address Public Information and Education. *The John Day River Plan* amended each RMP by including the following direction for the

John Day River: "The BLM will continue these actions, as well as continue the current policy of discouraging media coverage and public outreach that is intended to bring more users to the John Day River. … In addition, the BLM will install information boards at more public access points; increase personnel contacts with visitors: and create new user brochures, detailed land ownership maps, and interpretive signs. An information kiosk will be constructed on the South Fork John Day Backcountry Byway to educate the public about wildlife, riparian, wilderness, and weed management programs. Where trespass is a problem, ownership identification markers will be installed between BLM, state, and private lands to clearly identify land ownership and reduce trespass potential. … The BLM will also increase cooperative efforts with counties, local businesses, state agencies, and others to provide river users with consistent information."

Law Enforcement and Emergency Services

Each of the three RMPs were silent about Law Enforcement and Emergency Services until amended by *The John Day River Plan*. This plan added the following direction for the river corridor: … commit the BLM to improve management of law enforcement and emergency services by increasing levels of cooperation and support for BLM and local agencies.

Monitoring

Each plan provides for monitoring to determine:

1. if management actions are resulting in satisfactory progress toward achieving objectives,
2. if actions are consistent with current policy,
3. if original assumptions were correctly applied and impacts correctly predicted,
4. if mitigation measures are satisfactory,
5. if it is still consistent with the plans and policies of state and local government, other federal agencies, and Indian tribes, and
6. if new data are available that would require alteration of the plan.

Chapter 5 Management Opportunities

Introduction

As discussed in Chapter 1, The John Day Basin Resource Management Plan will revise and consolidate management decisions from portions of three existing Resource Management Plans. The No Action Alternative in the Draft Environment Impact Statement will be based on decisions contained in the existing plans.

Many of the decisions in the existing plans are still timely and management actions are working well. Those decisions will be brought forward as Actions Common to All Alternatives in the Draft Environmental Impact Statement.

The intent of this planning process is to focus on those decisions that will provide management direction for the acquired lands on the North Fork John Day River area, and decisions that will update or provide new management direction for resources, areas or actions that either were not addressed in previous plans, or where conditions (including the availability of new information or science) have extensively changed.

These new decisions or ***management opportunities*** are listed below. They were developed after considering issues and concerns elevated by the public during scoping for the AMS, and they will serve as a starting point as we develop alternatives in the next stage of the John Day Basin planning process. We have not listed all resources and resource uses below, only those where we will be considering a range of new decisions.

For the resource/resource use groupings below, we also briefly discuss the future ***desired conditions*** or outcomes which are the goal of our management actions.

Newly Acquired Lands

The lands on the North Fork of the John Day River that were newly acquired by the BLM in 2000 will require a full set of new decisions that will cover relevant natural, biological and cultural resources; and decisions about resource uses and any potential special designations.

Public Lands Managed by BLM Prior to Land Exchange

Water Quality and Quantity, and Riparian Areas

The primary features relating to the management of water quality and quantity, which the BLM has jurisdiction over with the planning area, are riparian areas including stream channels and floodplains. While only 7% of the total basin precipitation is intercepted BLM-managed lands in this planning area, a majority of the miles of larger river channels flow across BLM lands. As such, BLM shares the responsibility for many of the potential actions that can affect water quality and quantity with other adjacent land managers and owners.

The Interior Columbia Basin Ecosystem Management Project (ICBEMP) and a resultant Memorandum of Understanding (MOU) guide revision of BLM RMPs in the Interior Columbia Basin. Both local conditions and the ICBEMP aquatic/riparian framework need to be integrated with new management direction.

Desired Conditions

The planning area is a healthy and productive landscape where diverse stakeholders from within and outside the John Day Basin work together to maintain and improve fish and wildlife habitat in a manner that supports the stewardship efforts of local land managers, makes efficient use of resources and respects property rights. Sustainable, resource-based activities contribute to the social, cultural and economic well-being of the Basin.

Riparian habitat has a diversity of shrub/tree species and age classes to provide habitat structure for those wildlife species using this habitat type. The herbaceous component of riparian/wetland areas is also stable and diverse to support species that use this component for nesting and/or foraging activities.

Vegetation, such as juniper, which alters the basin water yield is present in densities and locations within range of historic variability. Overland flow is in balance with the landscape. Erosion associated with overland flow does not shorten flow durations in intermittent streams.

Ribbons of stream flows are observed throughout the year and maintain a diverse texture of vegetation. Stream flows are dependable and sufficient for crop production during the peak of the growing season. John Day Basin wild fish run are healthy and sustainable.

Management Opportunities

The RMP will identify criteria or thresholds for determining watersheds that may need special emphasis because of human health concerns, aquatic or upland ecosystem health, or public uses.

This plan will incorporate ICBEMP information to develop an aquatic conservation strategy sufficient to protect anadromous and other native fish in the planning area. New science on disturbance regimes and riparian area management may be incorporated into the standards and guidelines for riparian areas. The mechanisms to achieve desired conditions for fish, water quality, water quantity, stream channels and floodplains may also be addressed through Best Management Practices.

Source water protection areas for public drinking water will be incorporated into the RMP along with management opportunities and Standards and Guidelines.

The existing RMPs did not address water quality limited streams (listed as 303d by the State of Oregon). The RMP will guide implementation of the Clean Water Act to protect and restore water quality and support state development and implementation of water quality measures (such as Total Maximum Daily Loads of sediment). BLM management opportunities to improve water quality on the 303d listed streams are greater in streams with considerable BLM ownership and cooperative neighbors.

With declining budgets, costs associated with management of water rights may be addressed with cooperative approaches to maintenance and utilization of water rights.

Leasing water rights to the water resources department on a temporary basis is an opportunity to contribute to instream flows and maintain these rights.

Stakeholders from within and outside of the planning area can provide grants to restore stream channels and floodplains in a fashion that meets their objectives and provides for the compatible beneficial uses of these resources. Examples include the National Fish and Wildlife Foundation, the Nature Conservancy, and the Northwest Power and Conservation Council.

Higher order BLM managed stream channels and BLM managed floodplains give BLM the opportunity to store water in the floodplains for late season beneficial uses such as fishing, boating, irrigation, agriculture, etc. Restoring these floodplains presents opportunities to recharge alluvial aquifers and sustain the health, diversity, and productivity of the public lands.

Terrestrial Vegetation and Wildlife Habitat

Many of the desired vegetation and wildlife habitat goals and direction in the existing Resource Management Plans still apply, including guidance to promote forest health and sustainable resources, and provide habitat for native plant, fish, and wildlife habitats. However, specific objectives will be reviewed and updated to include new direction and science from ICBEMP and to identify priority plant species and habitats.

Desired Conditions

BLM land in the John Day Basin provides wildlife habitat where adequate forage, water, cover, structure, and security necessary for wildlife species are available and related to appropriate soil, climate and landform conditions.

Upland sagebrush-grassland habitat includes a mosaic of multiple aged shrubs, native and desirable non-native perennial grasses, and forbs to support species that utilize these habitat types. Western juniper dominance is limited to those areas where fire frequency is limited. Forested habitats are healthy, disease and insect resistant, and have a variety of structural stages.

Wildland and prescribed fires are an integral part of maintaining diverse and healthy upland and forested landscapes.

Non-native and/or feral sheep, goat and pig populations do not pose a threat to native wildlife species and their habitats.

Noxious and invasive weeds are not infesting new land, and infestations do not advance to large scale infestations. Large scale infestations have been isolated and controlled in all habitat types to reduce the threat to wildlife habitat and populations. Previously infested lands are re-vegetated with functional and structural groups of vegetation that closely match the potential ecological site description.

Management Opportunities

Specific objectives will be reviewed to include new direction and science from ICBEMP. In addition the RMP will, in close coordination with Oregon Department of Fish and Wildlife, describe existing and desired winter range for big game, and will address changes in federal listings of wildlife species with habitat in the planning area. Criteria

may be developed for deciding where resource uses may need to be modified to protect, mitigate, or restore important plant communities, wildlife habitats, and sensitive species.

There are opportunities to improve sustainability and resiliency of terrestrial vegetation conditions, and reduce the risk of uncharacteristic losses from insect and disease outbreak or severe wildfire through management actions such as thinning stands to reduce densities, and use of prescribed fire to reduce amounts and concentrations of fuels. Determining locations and best methods for meeting these desired conditions can be achieved by comparing current vegetative conditions with those conditions predicted to occur within historic ranges. Sites with the greatest deviation from desired conditions may be prioritized for treatment. Implementation schedules will be updated to facilitate a more consistent means to meet demands and needs of the local communities within the planning area.

BLM was authorized under the 2003 Omnibus Appropriations Act (Section 323 of P.L. 108-7) to use stewardship contracting to reduce hazardous fuels and restore forest and rangeland health. Long-term contracts (up to 10 years) foster a public/private partnership by giving those who undertake stewardship contracts the security to invest in equipment and infrastructure that will enable them to productively use the biomass generated from these stewardship services to make products or to produce biomass energy. Local economies may benefit in this manner.

Fire is an important ecological component, as well as a primary public safety concern. The RMP will identify areas within the planning area desired conditions may be met through the use of wildfire as a management tool.

Special Designations, Wilderness Study Areas, and Wild and Scenic Rivers

The Resource Management Plan will identify the long-term desired condition, distribution and location of areas with special management emphasis. Within the John Day Basin planning area there are potential special management areas that contain unique or representative resource values. Other areas may have characteristics that make them eligible for consideration as a National Wild and Scenic River or Wilderness Study Areas. For areas which meet the relevance and importance criteria, the plan will identify goals, standards, and objectives for each area. Constraints and mitigation measures will be identified that are needed to protect the areas.

Desired Condition

The resources that led to the designation of special management areas are protected and guidelines for the amount and type of public uses are established. Wilderness Study Areas, and river segments that are considered suitable for Wild and Scenic designation, are managed to maintain suitability characteristics. Opportunities and partnerships for public education, enjoyment and interpretation for these resources are fostered.

Management Opportunities

The management guidance for the current Areas of Critical Environmental Concern (ACEC) of Horn Butte Curlew and Spanish Gulch will be reviewed, and potential ACECs will be determined.

BLM managed lands within the planning area will be assessed for wilderness characteristics and those areas that meet the criteria may be proposed as Wilderness Study Areas. This review will include proposals for potential wilderness areas that are submitted by the public.

All river segments in the planning area will be assessed for suitability as National Wild & Scenic River designation. Those sections determined suitable will be recommended for inclusion into the National Wild & Scenic River System (though final designation would be an Act of Congress), and interim management will be developed. Existing designated Wild and Scenic Rivers will be managed in order to protect their outstandingly remarkably values and maintain and enhance the outstanding river related values.

Land Ownership, Rights-of-Way and Easements

Land ownership patterns have changed since the previous RMPs were developed, and there is a need to review and update land tenure classifications, lands suitable for disposal, and rights-of-way.

Desired Conditions

BLM lands are managed in the best ownership patterns to serve national interests and the needs of state and local people, including needs for lands for the economy, community services, recreation areas, food, fiber, minerals and fish and wildlife. Changes in public land ownership are considered where consistent with public land management policy and where these changes would result in improved management efficiency.

Management Opportunities

The John Day Basin RMP will determine the desired location and arrangement of BLM managed lands across the planning area, consistent with the goals, standards, and objectives for natural resources, efficiency in land management, consolidation of ownership, and community expansion.

During the planning process, mutually beneficial solutions to access concerns will be identified, as well as areas where individual right-of-ways (ROW) may be appropriate. Locations for ROW corridors to minimize adverse environmental impacts of multiple, separate right-of-way corridors, and corridors for potential renewable energy projects will be assessed.

There is also an opportunity to identify conditions where existing ROWs would be abandoned, e.g., when combined with other compatible uses, terminated, or no longer necessary due to change in land ownership as a result of Oregon Land Exchange Act of 2000. We will explore new public easement opportunities for access to lands acquired under the Oregon Land exchange Act of 2000.

Transportation and Access

The RMP will delineate travel management areas and designate off-highway vehicle management areas within BLM managed lands across the planning area. Decisions will

include whether the area is open, limited or closed to motorized vehicles and acceptable modes of access and travel for each travel management area.

Desired Conditions

The transportation system meets recreational, commercial, educational and administrative user needs while minimizing impacts to other resource values such as sensitive soils, wildlife, visual quality, cultural resources, and fisheries. Routes that remain in the managed transportation system are managed to provide for public safety and resource protection.

Management opportunities

The RMP will examine regional and local transportation systems in the planning area, focusing primarily on BLM-managed roads to assess access concerns for visitors and local communities. Conditions or criteria would be developed to help evaluate BLM-managed roads which currently are not classified as part of the system, to help determine whether they should remain in the system, or be decommissioned.

The RMP will examine the long-term desired conditions for areas within the planning area that would be “open”, “limited” or “closed” to OHV use. The RMP will identify criteria for resolving conflicts between motorized users and adjacent residents or other uses of BLM-managed lands. Opportunities for areas suitable for motorized routes that could provide winter riding opportunities will be assessed. Adjacent county and Forest Service management will be incorporated into future decisions on open, limited or closed designation of the John Day Basin planning area.

The RMP will provide guidance for coordination with local and state transportation managers to develop accurate transportation maps for the public.

Management guidelines for motorized route maintenance will be provided.

Recreation

The Resource Management Plan will assess and identify, if suitable, any special recreation management areas (SRMA) and the recreation management strategies associated with those areas.

Desired Condition

A variety of land and river-based, non-motorized and motorized recreation opportunities are available on BLM-managed lands, resulting in enjoyable recreation experiences, minimizing conflicts with other public land users and promoting sustained, diverse, visitor use without degradation of resources.

Management Opportunities

The RMP will identify criteria for reducing conflicts between recreation users and other uses on BLM-managed lands. Priority actions and recreation site improvements will be identified. Potential for using permits or R&PP leases to address recreation-related opportunities will be addressed.

Livestock Grazing

The existing RMPs made decisions about forage allocation and areas available for livestock grazing based on resource conditions that, for the most part, are unchanged. The existing plans did not, however, provide guidance for the resolution of conflicts between public land livestock grazing, and uses and values on public land and adjacent private land.

Desired Condition

Livestock grazing occurs in a pattern across the planning area where economically feasible, socially compatible, and environmentally responsible, that support community demands and contribute to local economy and quality of life.

Management Opportunities

The RMP will develop a set of indicators to measure potential conflict in livestock grazing allotments. Conflicts are those between livestock grazing and resource values, and between livestock grazing and other uses on or adjacent to public land. When indicators reach a threshold, priorities will be established for actions to reduce conflicts. Actions may involve vegetation management to improve livestock forage or wildlife habitat, modifications or reductions in grazing use, or modification of other uses such as recreation and rights-of-way.

Chapter 6
Collaborative Planning

Though assigned the responsibility of managing over 450,000 acres of Federal Lands within the planning area the BLM shares a interest in the management of these lands with other federal, state, and local governmental agencies, Native American Tribes, local residents, visitors, and other individuals and organizations.

Public, governmental, and tribal involvement is mandated by CEQ regulations for implementing NEPA. This mandate is reflected in the BLM planning Manual and Handbook. Tribal involvement is mandated by other documents as described below.

More important than any law or regulation, it is just good sense to involve the public, other governmental agencies, and tribes in the planning process. Each of these entities has unique interests and knowledge. Sharing interests and knowledge in a collaborative setting contributes to the development of a plan that effectively addresses the significant planning issues and is more likely to meet local, regional, and national needs than a process without meaningful collaboration.

Cooperating Agencies

The BLM has convened a group of local, state, and federal agencies and tribal governments to collaborate with the BLM during the development of the John Day Basin Resource Management Plan. Representatives from these agencies and tribes bring vast knowledge and a broad range of interests to the table and will enhance the ability of the BLM to identify important issues and to address them with an appropriate range of alternatives.

This group will meet on regular basis to review and develop content initiated by BLM staff. The Cooperator Group will play a key role in refining issue development, formulating alternatives, identifying key publics, and implementing a public involvement strategy. Cooperators will keep the BLM informed of new concerns for their organizations or community that may be relevant to the RMP process. When needed and to the extent that cooperator staff time is available small subgroups will be designated to work on specific problems during the planning process. This group will also provide prepublication review of key documents.

Tribal Involvement

The BLM is guided by national policy and law and is committed to continuing consultation and cooperative management whenever possible. The three plans are silent on this topic except as modified for lands covered by the John Day River Management Plan. Regardless of this silence the BLM recognizes its responsibility to provide to federally recognized tribal governments and individuals sufficient opportunity to contribute to land use decisions and that those concerns or issues are given proper consideration related to cultural/religious and natural resources. This trust relationship is acknowledged by the U.S. Constitution and is based upon negotiated treaties or other agreements that recognize the sovereignty of American Indian Nations to govern themselves as distinct political communities. Treaties such as The Treaty with the Tribes of Middle Oregon (with tribes now on the Warm Springs Reservation, signed June 25, 1855, ratified March 8, 1859 (14 STAT. 751) and the Treaty of 9 June (with tribes now located on the Umatilla Reservation), 1855 (12 Stat. 945) acknowledged the rights of tribes to fish, off-reservation, at usual and accustomed stations and to hunt, gather resources, and pasture animals on public lands in common with other citizens of the United States. Though a

treaty with the Burns Paiute was never ratified, formal recognition on October 13, 1972 established certain rights for that tribe as well.

In April 2003 the Confederated Tribes of the Warm Springs Reservation of Oregon (CTWSO), the BLM, the Forest Service, and BIA signed a Memorandum of Understanding (MOU), "For the Purpose of Providing a Framework for Government-to-Government Consultation and Collaboration On resource Management Plans, Proposals, Actions, and Policies and to Make a Statement of Mutual Benefits and Interests." Similar MOUs exist between the BLM and The Burns Paiute Tribe and the Confederated Tribes of the Umatilla Reservation. These three MOUs describe the rights and responsibilities of Cooperative Management and Consultation. Consequently each tribe has been offered the opportunity to become involved in the planning process for the John Day Basin RMP.

Local Government

County and municipal governments as representatives of local constituencies have a vested interest in land use planning involving federal lands. Lands managed by the BLM can provide areas for recreation as well as a source of income for residents of the planning area. BLM managed lands can contain roads of importance to local communities and frequently provide the most desirable routes for utilities. Because of their awareness of the needs of local communities it is important that representative of local government be involved in the planning process. Officials of Grant, Wheeler, and Sherman counties have participated in the early stages of the planning process.

State Government

Several State agencies have jurisdiction over certain activities within the John Day Basin. As a result it is important that these agencies be represented in the planning process. The state has decided to limit participation in the planning process to three agencies: Oregon Parks and Recreation Department, Oregon Department of Fish and Wildlife, and Oregon Department of Transportation. These agencies are expected to represent all state interests in the planning process.

Federal Government

In addition to the BLM several federal agencies have resource management responsibilities within the John Day Basin. Several agencies have chosen to participate in the John Day Basin RMP planning process. The Fish and Wildlife Service and National Marine Fisheries Service have oversight responsibilities for compliance with the Endangered Species Act. The Environmental Protection Agency is required to review and evaluate all Environmental Impact Statements. The Soil Conservation Service plays an important advisory role for private land owners in the John Day Basin and also has an interest in the management of public lands as well. The National Park Service and the U.S.D.A Forest Service each manage lands and resources adjacent to BLM managed lands and have shared interests with the BLM in making management of lands and resources complementary, while recognizing different missions, whenever possible. Each of the above agencies has chosen to participate in the planning process.

Resource Advisory Council

The John Day-Snake Resource Advisory Council (RAC) is an official federal advisory committee, providing advice and recommendations on all aspects of public-land management to the Bureau of Land Management's Prineville, Vale, and Spokane District Offices and the Umatilla, Wallowa-Whitman, Malheur, and Ochoco National Forests.

The RAC consists of local residents who represent broad interest categories: commodity interests, non-commodity interests, and community interests. RAC members are selected and appointed by the Secretary of the Interior. Representation includes:

> Five members representing commodity interests such as grazing permittees, commercial timber, energy and mining, developed recreation and/or off-highway vehicle groups, and transportation & rights-of-way.
>
> Five members representing conservation interests such as environmental organizations, historic & culture interests, conservation, and dispersed recreation.
>
> Five members representing community interests such as elected officials, Indian Tribes, State resource agencies, academicians involved in natural sciences, and the public-at-large.

The John Day-Snake RAC meets quarterly at various communities within the RAC's area. The RAC schedules occasional field tours for specific projects or issues on their agenda. All RAC meetings are open to the public with a portion of each meeting reserved for the public to present or comment on issues for RAC consideration.

The BLM will periodically update the RAC on the progress of the planning effort. It has also requested that the RAC provide assistance in developing Alternatives for managing Off Highway Vehicle use on BLM managed lands within the planning area.

Public Involvement

The most critical element of cooperative management is public involvement. Congress has mandated that the BLM manage public lands for public benefit. At the same time the public is not a single cohesive entity. Rather the BLM serves a diverse public with multiple and sometimes conflicting interests and positions about key issues. It is important that the diversity of public interests be represented during the planning process. Both the Coordination Group and the John Day/Snake RAC provide a representation of diverse public interests. However it is the intent of the BLM planning team to provide the public with direct access to the planning process. This will be accomplished in the following manner:

1. Public Scoping-This initial step, requesting the public provide information about public lands and identify problems associated with public lands in the John Day Basin has been completed and is described in Chapter 7.

2. Publication and public review of the Analysis of the Management Situation

3. Public participation in planning meetings held to formulate alternatives that resolve significant planning issues.

4. Public comment on the Draft John Day Basin Resource Management Plan and Environmental Impact Statement. Comments may be submitted via U.S. mail, E-mail, or orally at public review meetings or via telephone.

Information Sharing

The BLM will use a number of information sharing techniques to give people the opportunity to share new information and to be kept up-to-date on the planning process. The following is a brief summary of some of those techniques.

John Day Basin Resource Management Plan Web Site

The John Day Basin RMP web site will provide information such as plan updates, meeting dates, plan schedule, and working documents of the Issue Teams.

The address is: http://www.blm.gov/or/districts/prineville/index.htm

Plan Updates

Periodically, consolidated "snapshot" portraits of the plan's status will be prepared, posted to our web site, and mailed to our mailing list. News releases in local newspapers, and feature stories and broadcasts on local television and/or radio stations will be associated with major public meetings.

Chapter 7
Scoping Report

The planning team values the role of public input in the planning process. To maximize public involvement we have added opportunities beyond the scoping requirements found in the Federal Land Policy and Management and National Environmental Policy Acts.

The Planning Team has pursued several additional avenues to help encourage public participation during the development of the Resource Management Plan. We have hosted several, more formal, public involvement processes including public meetings and social and economic workshops; the team has also invited input and feedback through less formal means such as mail, e-mail, phone conversations and personal interactions. These venues are intended to invite public participation and obtain valuable feedback which can then be used to frame the planning process – to focus on topics of concern; to identify various solutions, guidance and direction; and to determine the extent of analysis required to reach an informed decision.

Public Involvement

The Planning Team has invited public interaction through a variety of venues:

An electronic mailbox has been set up which can be accessed at any time to provide comments, concerns and feedback:

John_Day_Basin_RMP@or.blm.gov

Letters and other mailings can be sent at any time to:

John Day Basin RMP
Prineville BLM
3050 NE 3rd Street
Prineville, OR 97754

The BLM contracted the expertise of sociologists and anthropologists (James Kent Associates) to spend time in the planning area visiting with local officials, business owners, travelers and residents in order to gather information on BLM land management concerns.

The BLM co-hosted, with the help of Wheeler County and the cities of John Day and Canyon City, several Economic Profile Workshops in the planning area, with the intent to explore economic and social trends within the area

The BLM hosted a series of meetings open to the public throughout eastern, central and western Oregon, to gather public input and feedback on concerns and problems with BLM management in the planning area

The BLM, in conjunction with several other governmental authorities – including: Grant, Wheeler and Sherman counties, the Confederated Tribes of the Warms Springs Reservation of Oregon, US Fish and Wildlife Service, NOAA Fisheries, Environmental Protection Agency, Oregon Department of Fish and Wildlife and Parks and Recreation – has established a Cooperating Agencies group to provide input and feedback to BLM throughout the process.

To date the BLM has received feedback through all of these venues with the James Kent Associates work, Economic Profile Workshops and BLM Public Meetings/letters and e-mails providing the bulk of the feedback that has been received. The findings from each of these venues are described in the following pages.

James Kent Associates

James Kent Associates (JKA) was hired to sample viewpoints and opinions about the role of public lands in the basin. The fieldwork took place in Grant, Wheeler, Sherman, Gilliam, and Morrow Counties. This work was designed to provide the BLM with an understanding of how public land management affects citizens and their communities, identifying concerns about public land management, identifying current social and economic conditions, and identifying opportunities for greater community dialogue about alternatives for future management of public lands.

The key findings were grouped according to community life, natural resource management and citizen interests. In addition to these findings the report also recommends communication strategies for each geographic area based on coaching by local residents about the best time and place for meetings, key people to involve, and appropriate methods of local communication. Generally speaking, residents appreciate personal connection and want a planning process that builds off of local interests and includes national interests in a positive manner. Residents generally favor an approach that eschews the radical fringes of thought and builds a practical, moderate course of action for future BLM management.

Community Life:

Population in four of the five counties has declined or has remained the same over the last fifteen years, while Morrow County, by virtue of its Columbia River location, increased population substantially. No clear trend was identified with rates of poverty, although per capita income has dropped in real terms throughout most of the region. The population is older than the state or national average. Hispanics have notably increased in Morrow County, while only modestly increased in other areas.

The traditional economic sectors of timber, ranching, farming and mining, have slowly declined over the last 30 years in terms of income and employment generated in these counties. Like other areas of the state and nation, the economic growth has occurred in trades and services, particularly professional and business services, reflecting the retirement and recreation basis of these sectors.

County and local leadership has been active in fostering efforts at economic diversification with some successes, notably, wind energy development in Sherman County, Painted Hills Beef and the development of paleontological resources in Wheeler County, an OHV Park in Morrow County, and a broadening of service and recreation oriented businesses in Grant County.

Settlement patterns are changing, as long-time ranches are bought by wealthier urbanites, who often purchase for recreation purposes, and who are seen by other residents as improving environmental conditions but not adding much to community life. Residents report that new settlement is from the “Bend spillover,” from California, and from the coast. A short supply of housing reported by residents is seen to be leading to higher housing prices.

Natural Resource Management:

Although throughout the region there is a sense that government cannot be trusted, personal relationships between BLM personnel and residents tend to be very good, particularly with BLM's "traditional publics" of ranchers, farmers, and the timber industry.

Communication between BLM and the "average" citizen is generally perceived to be low. Most people simply do not know what BLM is doing and many expressed appreciation of BLM's outreach effort through James Kent Associates.

Awareness of BLM lands tends to be high among the traditional sectors and elected officials, but low among the general public. Related to this is a general, widespread confusion of people about whose land one might be on at any given moment. The desire for accurate maps and better information was one of the most widespread citizen issues in the John Day River Basin.

The most widespread citizen issue was the loss of access to public lands. People want the new plan to anticipate the locations of future access loss and work with them to preserve access in the future, or to re-acquire access to areas recently lost. High interest was expressed in partnering with local counties to undertake joint transportation planning and working together to foster greater access to public lands in the future.

The process by which individual BLM parcels are purchased or Recreation and Public Purpose leases are obtained is not well understood and is of key interest. There is a strong perception of agency inaction on this issue.

Residents want to be part of the management planning process for the newly acquired lands on the North Fork of the John Day River. They are interested in fishing and hunting, fire and forest management, fencing, access, roads, gates, noxious weeds, "wild and scenic" designations, business development, and maps, and generally favor multiple uses.

Although people remain skeptical that a recreation economy can ever replace a ranching and timber economy, new recreation-related businesses and their promotion are of central interest. Shooting ranges, OHV riding areas, winter recreation, and managing hunting effects are some of the interests.

Residents in Sherman and Gilliam Counties are most interested in the recreation management of the John Day River, specifically the management of floaters, optimizing the economic benefits of river recreation, stewardship contracting for management of recreation opportunities, as well as promoting continued access to BLM lands near the river.

Other specific issues related to public land management that were less widespread and more relegated to particular publics include grazing, the timber programs, fire suppression programs (Sherman and Gilliam Counties), and support for youth.

Residents believe there is a trend toward hunting only for the rich. They respect the right of ranchers to diversify their income sources through fee hunting, but lament the loss of hunting opportunities through lack of traditional access to private lands. Observers expect the demand for hunting on public lands to increase.

Citizen Interests:

Access. Although many residents couched their concerns about access as if it was BLM's responsibility, many indicated a willingness to contribute to solutions and felt that a community-based planning process could widen the resources available to address the problem and accomplish more than if BLM addressed the issue only "in house."

Little Canyon Mountain. The success of the Little Canyon Mountain clean up generated ample "social capital" with which to undertake the next step in management planning for this area that could accommodate multiple uses. The nearby communities in this area appear to have capacity to contribute in positive ways to the ongoing management of this area.

John Day River Management. Many people believe that requiring permits for floatng the John Day River is inevitable in order to manage the impacts, and want to participate to minimize necessary regulation and optimize community benefits.

Economic Development. The role of BLM lands and their management in fostering needed economic development has been appreciated by residents and many advised that an even more concerted focus on this topic in the new land use plan is warranted, particularly related to the promotion of paleontological resources and recreation-oriented business, including the provision of BLM maps and information that would help in orienting visitors to the attractions of the area.

Economic Profile Workshops

In cooperation with Wheeler County and the cities of John Day and Canyon City, the BLM co-hosted two Economic Profile Workshops – one in Fossil, Oregon and another in John Day, Oregon. Both of these workshops were well attended by a wide variety of local officials, business owners, and residents.

Each workshop began by identifying objectives from the participants. The Sonoran Institute facilitated the discussions – a major component of each workshop related to identifying current trends and discussing how BLM fits into those trends. The following is a short description of some of these trends and opportunities that were identified in each workshop.

Fossil Workshop:

The new availability of limited medical facilities has had a noticeable effect on the stability and is a huge asset to the community.

Painted Hills Beef does a great job of marketing via internet and they are doing very well.

Ranches are being sold and limiting access to BLM property.

It's been difficult to convince the older residents that we have to plan for growth.

There is something about this area that draws people in and keeps them coming back. Wheeler & Gilliam counties have an opportunity to shape the growth towards how they want to look in the future.

The education system has drastically changed because we have no students. We have a declining enrollment from 218 in '92 to 120 now. That is happening in every school.

We need to throw out some old thinking and create some new thinking. We can't wait for the growth to happen-we need to change some of the zoning rules. We need to have mixed use zoning in the downtown district in these towns.

There's been a real increase in popularity in the river. The Park Service has always been a draw; there's lot of opportunities for the BLM to play a part in the public lands setting/ draw to the area.

When we have festivals, we don't have any place to park, house or feed visitors. I'm hoping we could get some assistance via State or BLM properties.

John Day Workshop:

The largest number of firms in Grant County are in construction and there seems to be a trend for that to increase. If you want a new house built in Grant County, there is a waiting list for up to two years.

There are two major trends in the Monument area; one is the purchase of large tracts of trophy hunting lands by absentee landowners and there is the dying of the schools associated with young families leaving because they cannot find employment or the services are too marginal. The retirees are temporary, they last about 5 years when they realize how far it is to a hospital and they leave.

Recreation opportunities are deteriorating as the forests deteriorate, due to the lack of management.

Since 1990, one-third of the employment base has disappeared; school & county population has dropped off; this directly correlates to drop off in timber sales with FS.

Finding dependable employees within the community is really hard. Problem of small business is the lack of employees that are willing to work and can pass a drug test. People quit good paying jobs because they can't guarantee having time off for hunting season. People don't necessarily want to work 9-5 work weeks.

The lumber industry is going down. It was the traditional industry-that is no longer true. In the mining industry, the dredges used to work here and now there is no mining. We need tourism but we need some mainstay employment and medium paying jobs. Mills are down to one shift. At the height of the lumber industry, there were 1,500 people employed-that's gone.

Grant County has one of the only active sawmills that exist in Eastern Oregon.

Driving force is retirees, people with money from elsewhere, social programs, spending money on recreation properties, retiree's investment.

The timber thinning that people have been talking about is an ecological service that is important. I think there are other opportunities for ecological services that could be generated in the future. The BLM should look at that-such as native plant materials, ecological monitoring, planning and mapping services, weed control.

Public Response via BLM Meetings, Letters and Comments

In February 2005 a Notice of Intent to complete a Resource Management Plan was published in the Federal Register. This initiated a 30 day public comment period during which the BLM directly contacted over 2500 individuals that have expressed interest in public lands management in the planning area. The BLM also published numerous announcements across Oregon through various news media. In response the BLM received numerous letters, e-mails, phone calls and other comments and hosted several public meetings. The intent of the scoping and public comment period is to invite and solicit information from groups or individuals interested in management of the public lands in the planning area.

During this timeframe the BLM received over 270 individual responses in the form of letters, e-mails, phone calls and public meetings. These responses contained over 1200 distinct and substantive comments that have been identified. Most of the letters received originated in the John Day area with a significant number of responses coming from the Portland/Hillsboro/Forest Grove area.

The BLM also hosted five public meetings in: Fossil, John Day, Pendleton, Bend and Forest Grove. These meetings were relatively well attended ranging from 10 attendees in Pendleton to 51 attendees in John Day.

Many responses were made on behalf of an organization. Table 18 displays the organization type as noted in the responses received.

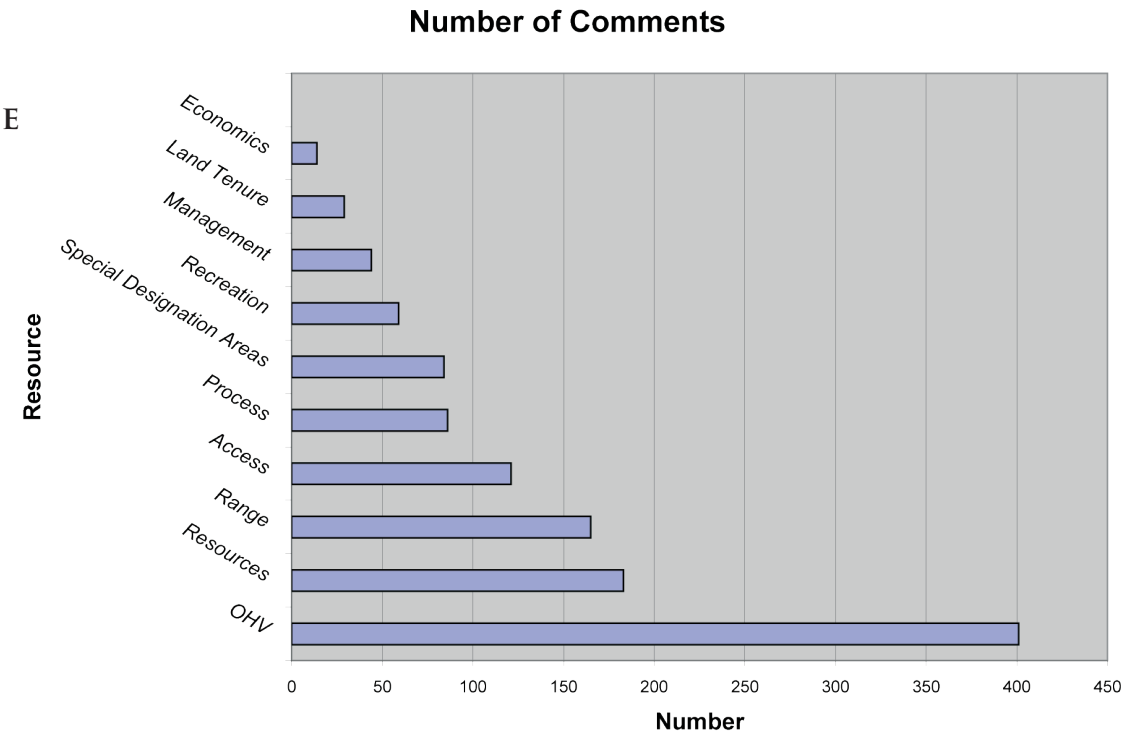
Comments received during this process were received either via responses mailed, phoned, faxed or e-mailed, or responses given at a public meeting.

Each comment was reviewed to determine the public land resource, process or topic to which it referred. Figure 40 displays the total number of comments received in particular resource categories. Most groupings are self explanatory – however Management refers to general public land management and Resources includes comments regarding most public land resources from soils to fish and wildlife and vegetation.

Table 18: Number of Comments Received by Organization Identification

Organization Type	Number of Comments
Individual (none identified)	455
Preservation/Conservation	338
Federal Agency	32
Wood Products Industry	13
Recreational	6
Public Meetings (comment source not identified)	345

Figure 40: Number of Comments by Resource Category



The BLM received more comments regarding off-highway vehicle use than any other grouping and nearly as many as all the other groupings put together. While these OHV concerns spanned the entire planning area most were directed at the Little Canyon Mountain area just outside of Canyon City. The attention given this particular area prompted the BLM to hold a separate public meeting to fully explore the nature of concerns that are involved in the management of this area.

Other concerns include management of the North Fork John Day area for all public land resources including vegetation, recreation, forest management, range management, off-highway vehicle use, wildland and prescribed fire management, access and recreation, and special designation areas such as Wild and Scenic Rivers, Wilderness and Areas of Critical Environmental Concern.

Range management as well as special designation areas were identified as areas of concern throughout other areas within the planning boundary. General public lands management, the land use planning process and land tenure adjustments also received some attention in the public comments.

Preliminary Issues

Based on the Key Findings of the Analysis of the Management Situation and input from the public, other governments and tribes we have identified several Planning Issues. The Planning Issues may be revised or refined as a result of comments received about the AMS. Planning Issues are problems that require changes in RMP direction to resolve.

An "issue" is defined as a topic of controversy, dispute or concern over resource management activities or land uses within the planning area boundary. In order to be considered "significant" by the agency, an issue must be well defined, relevant to the proposed action(s) in question, and within the authority and ability of the agency to address in the development of a reasonable range of alternatives or mitigation measures. The agency must consider the issue in the environmental analysis of the various alternatives.

The following Planning Issues will be utilized to develop management guidance alternatives for the planning area. These alternatives, along with a description of the environmental consequences implementation of these alternatives would have on the public lands will be described in the Draft Environmental Impact Statement.

Water Resources

The public expressed concerns over the management of riparian areas:
- Management of riparian areas should be consistent according to resources

Cooperative Management Efforts
- Water quality efforts should be supported in the RMP

Forest Health

The public expressed concern regarding the management of timber resources
- Management guidance should allow for a range of resource management objectives

Fire and Fuels Management

Much of the planning area has missed at least one disturbance event or fire
- Current RMP guidance is unclear with respect to management in wildland urban interface areas

Public Land Access and Travel Management

BLM policy requires resource management plans to delineate travel management areas.
- The need to identify roads and access to BLM and private lands has been anticipated by the BLM as the result of changes in land status and accessibility
- Public concerns include recent reduction in access as the result of closure of routes on BLM lands and adjacent private lands

Off Highway Vehicle Use Designations

Designations are required by BLM policy: either open, limited or closed
- The situation has changed since last plans.
- The public expressed concern about OHV use in the Little Canyon Mountain Area
  - Two viewpoints expressed:
    - Close BLM lands to protect resources
    - Designate large areas for OHV use to provide recreational opportunities

Land Tenure Zoning Designations

Under 43 CFR 2400 the BLM is required to identify lands that should be retained, disposed, or acquired to serve the national interest.

- Though the John Day, Baker, and Two Rivers RMPs did this the subsequent Oregon Land Exchange Act of 2000 significantly modified land ownership in the John Day Basin creating a need to review and possibly change some land tenure designations. Public concerns include BLM acquisition or disposal of lands in the Rudio Mountain area.

Special Management Areas

Wild and Scenic River (WSR) suitability recommendations

- Suitability recommendations are required by BLM policy
- Public concerns have a wide range:
  - Include wild and scenic rivers wherever possible to protect resource values
  - Exclude wild and scenic rivers because they restrict public use

Consider designations to protect specific resource values such as paleontological values

Areas with Wilderness characteristics

- Policy concerning wilderness review undergoing revision
- Public Concerns have a wide Range:
  - Protect lands with wilderness characteristics
  - Do not protect land with wilderness characteristics because it limits multiple use management

Management of Acquired Lands in the North Fork of the John Day Area

The Oregon Land Exchange Act of 2000 requires a development of a management plan for acquired lands before multiple uses can be considered.

- Guidance for all resources must be provided
- Visual Resource Inventory and Designations (Scenic Quality, etc.)
  - Designations are required by BLM policy

Public concerns include a broad range

- All issues described above plus:
  - Grazing (comments for both pro and con)

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Glossary

Abiotic - pertaining to the non-living parts of an ecosystem, such as soil, rock, air, and water.

Access - the ability of public land visitors to reach the areas they wish to visit.

Access Statement - a legal right to cross the land granted to the public by a landowner.

Acre - a unit of area used in land measurement, equal to 43,560 square feet. There are 640 acres in one square mile.

Advisory Council on Historic Preservation - established by the National Historic Preservation Act of 1966 to play a key role in the evaluation, nomination, and treatment of National Register properties.

Allotment - a specific portion of public land allocated for livestock grazing, typically with identifiable or fenced boundaries and permitted for a specified number of livestock.

Allotment Management Plan (AMP) - a BLM document that directs the management of livestock grazing on a specific area of public land.

Allowable Sale Quantity (ASQ) - the quantity of timber that may be sold from an area covered by a forest management plan during a time period specified by the plan. ASQ is usually expressed as an average annual quantity.

Analysis of the Management Situation (AMS) - Step 4 of the BLM's land use planning project; a comprehensive documentation of the present conditions of the resources, current management guidance, and opportunities for change.

Andesite - volcanic rock with a silicon dioxide (SiO2) composition between 52 and 63 percent by weight. Its color is gray to black and it erupts at temperatures between 900 and 1100 C.

Animal Unit Month (AUM) - the amount of forage required to sustain one cow and calf for one month.

Appropriate (Fire) Management Response - specific actions taken in response to a wildland fire to implement protection and fire use objectives.

Area of Critical Environmental Concern (ACEC) - a type of special land use designation specified within the Federal Land Policy and Management Act (FLPMA) used to protect areas with important resource values in need of special management.

Area of Traditional Cultural Significance - for the purposes of this plan, those locations used by Indian people to maintain their values, beliefs, and cultural identity, including, but not limited to, traditional plant collecting areas, fishing stations, or places for practicing traditional religious beliefs.

Ash - volcanic material consisting of rock, volcanic glass, and mineral fragments less than 2 mm in diameter.

Basalt - a dark-colored volcanic rock with less than 52% silicon dioxide by weight. Its temperature when erupting ranges from 1100 to 1250oC. Basalt is less viscous (more fluid) than andesite and rhyolite and is capable of flowing several tens of kilometers.

Best Management Practices (BMPs) - a set of practices which, when applied during implementation of management actions, ensures that negative impacts to natural resources are minimized. BMPs are applied based on site-specific evaluations and represent the most effective and practical means to achieve management goals for a given site.

Biodiversity (Biological Diversity) – the variety and variability among living organisms and the ecological complexes in which they occur (ICBEMP, 2000).

Biological Control Agent – The use of nonnative agents, including invertebrate parasites and predators (usually insects, mites, and nematodes) and plant pathogens, to reduce populations of nonnative, invasive plants.

Biomass - dry weight of organic matter in plants and animals in an ecosystem, both above and below ground.

Biotic - living.

Board Foot - the amount of wood contained in an unfinished board one inch thick, 12 inches long, and 12 inches wide, commonly abbreviated BF; MBF = one thousand board feet; MMBF = one million board feet.

Broadcast Burning - burning natural fuels as they are, with no piling or windrowing.

Broad Scale - a large, regional area, such as a river basin, and typically a multi-state area.

Bureau Assessment Species (AS) - Plant and vertebrate species, which are not presently eligible for official federal or state status but are of concern in Oregon or Washington and may at a minimum, need protection or mitigation in BLM activities. These species will be considered as a level of special status species separate from Bureau sensitive species. Clearances will be done for all assessment species subject to limitations in funding or positions. Impacts to the population and to the species as a whole will be determined and recommendations for the species will be considered on a case-by-case basis through the environmental analysis process in balance with other resource considerations. These species may not necessarily affect all proposed actions, but where possible, steps should be taken to protect the species.

Bureau of Land Management (BLM) - government agency with the mandate to manage Federal lands under its jurisdiction for multiple uses.

Bureau Sensitive Species - species eligible as federally listed or candidate status, state listed or candidate (plant) status, or on List 1 in the Oregon Natural Heritage Database, or otherwise approved for this category by the State Director.

Bureau Tracking Species (TS) - Species for which more information is needed to determine status within the state, or which no longer need active management. Districts are encouraged to collect occurrence data to enable an early warning for species which may become threatened or endangered in the future. Until status of such species

changes to federal or state listed, candidate or assessment species, “tracking species” will not be considered as special status species for management purposes.

Candidate Species - any species included in the Federal Register Notice of Review that are being considered for listing as threatened or endangered by the U.S. Fish and Wildlife Service.

Cell - unique ecosystem type used by the Oregon Natural Heritage Plan to inventory, classify, and evaluate natural areas. Cells contain one or more ecosystem elements, which are assemblages of integrated organisms plus the environment supporting them.

Cinder - a frothy form of basalt formed by expanding gases during an eruption.

Cinder Cone - a cone-shaped volcano created by the accumulation of cinders around a vent, formed as an individual volcano or in groups on the flanks of larger volcanoes.

Cinnabar - mercury sulfide, an ore of mercury.

Climax - the culminating stage of plant succession for a given environment; the vegetation conceived as having reached a highly stable condition.

Closed: under 43 CFR 8340 a closed area means an area where off-road vehicle use is prohibited. Use of off-road vehicles in closed areas may be allowed for certain reasons; however, such use shall be made only with the approval of the authorized officer.

Collaboration - a formalized process of identifying and involving interactive participants in different parts of the analysis process. Collaboration is expected to result in some level of informed consent by all participants concerning the issues and range of alternatives. For the purposes of this plan, that is intended to include members both exempt from and subject to the Federal Advisory Committee Act.

Common use area – a generally broad geographic area from which BLM can make disposals of mineral materials to many persons, with only negligible surface disturbance. The use is dispersed throughout the area.

Communication Site - (1) a hilltop or favorable signal receiving and transmitting location where a collection of facilities are sited; (2) a facility consisting of a small building and tower, used for transmission or reception of radio, television, telephone or other electronic signals.

Community Pit – a relatively small, defined area from which BLM can make disposals of mineral materials to many persons. The surface disturbance is usually extensive in the confined area.

Conglomerate - a clastic sedimentary rock composed of rounded to sub-angular stones (larger than 2 mm in diameter) cemented in a matrix of sand or silt.

Connectivity (of habitats) - the linkage of similar but spatially separated vegetative stands (such as mature forests) by patches, corridors, or “stepping stones” of like vegetation across the landscape; also, the degree to which similar landscapes are so linked (PNW GTR-328, 1994).

Consultation - formal and informal consultation as defined by laws such as the National Historic Preservation and Endangered Species Acts. Also, any input formally requested for analysis purposes from any internal or external source.

Cooperators – tribal, local, state, or federal agencies with special expertise related to plan issues or that have legal jurisdiction within the planning area.

Critical Habitat -BLM Manual 6840 defines Critical Habitat (CH) as an area designated as such and listed in 50 CFR Parts 17 and 226 and is any air, land, or water area (exclusive of those existing manmade structures or settlements which are not necessary to the survival an recovery of a listed species) and constituent elements thereof, the loss of which would appreciably decrease the likelihood of the survival and recovery of a listed species or a distinct segment of its population. The constituent elements of Critical Habitat include, but are not limited to: physical structure and topography, biota, climate, human activity, and the quality and chemical content of land, water, and air. Critical Habitat may represent any portion of the present habitat of a listed species and may include additional areas for reasonable population expansion. The federal definition of critical habitat is: (i) the specific areas within the geographic area occupied by the species, at the time it is listed ...on which are found those physical and biological features (a) essential to the conservation of the species and (b) which may require special management considerations or protections; (ii) specific areas outside of the geographical area occupied by the species, at the time it is listed ... upon a determination of the Secretary that such areas are essential for the conservation of the species; and (iii) Except in those circumstances determined by the Secretary, critical habitat shall not include the entire geographical area which can be occupied by the threatened or endangered species (ESA Section 3).

Cultural Resource - material or non-material aspects of human culture which are significant to living cultures, including groups maintaining and preserving their traditions, and academic researchers such as anthropologists and historians.

Disturbance - any event which alters the structure, composition, or function of terrestrial or aquatic habitats (PNW GTR-328, 1994).

Ecological Integrity - in general, refers to the degree to which all ecological components and their interactions are represented and functioning; the quality of being complete; a sense of wholeness. Areas of high integrity would represent areas where ecological function and processes are better represented and functioning than areas rated as low integrity (ICBEMP, 2000).

Ecological Site Inventory (ESI) - the basic inventory of present and potential vegetation of BLM rangelands. Ecological sites are differentiated on the basis of soil type and kind, proportion, or amount of plant species.

Ecology - the science of the inter-relationships between organisms and their environment; from the Greek Oikos meaning “house” or “place to live.”

Ecosystem - a spatially explicit, relatively homogeneous unit of the earth that includes all interacting organisms and components of the abiotic environment within its boundaries. An ecosystem can be of any size; e.g., a log, pond, field, forest, or the earth’s biosphere.

Ecosystem Health - a condition where the parts and functions of an ecosystem are sustained over time. The system's capacity for self-repair is maintained such that goals for uses, values, and services of the ecosystem are met. Also includes forest health, rangeland health, and aquatic system health.

Ecosystem Management - the use of a "whole-landscape" approach to achieve multiple use management of public lands by blending the needs of people and environmental values in such a way that these lands represent diverse, healthy, productive, and sustainable ecosystems.

Ecotone - a boundary or zone of transition between adjacent communities or environments, such as the boundary between a forest and a meadow or the boundary of a clear cut next to a mature forest stand. Species present in an ecotone are intermixed subsets of the adjacent communities.

Eligibility - Qualification of a river for inclusion into the NWSRS through determination that it is free-flowing and with its adjacent land area possesses at least one river-related value considered to be outstandingly remarkable.

Endangered Species - any species defined under the Endangered Species Act as being in danger of extinction throughout all or a significant portion of its range. Listings are published in the Federal Register.

Endemic Species - plants or animals that occur naturally in a certain region and whose distribution is relatively limited to a particular locality (ICBEMP, 2000).

Environmental Assessment (EA) - one type of document prepared by Federal agencies in compliance with the National Environmental Policy Act (NEPA) that portrays the environmental consequences of proposed Federal actions that are not expected to have significant impacts on the human environment.

Environmental Impact Statement (EIS) - one type of document prepared by Federal agencies in compliance with the National Environmental Policy Act (NEPA) that portrays the environmental consequences of proposed major Federal actions that are expected to have significant impacts on the human environment (see EA, above).

Ephemeral Stream - a stream, or reach of a stream, that flows only in direct response to precipitation. It receives no continuous supply from melting snow or other source, and its channel is above the water table at all times.

Erosion (Accelerated) - erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, e.g., fire that exposes the surface.

Existing Management Situation (EMS) - a component of the Analysis of the Management Situation; a description of the existing management direction governing resource management programs of a planning area.

Extirpated - having become extinct in a specific area while the species as a whole continues to exist elsewhere.

Federal Land Policy and Management Act of 1976 (FLPMA) - a law mandating that the Bureau of Land Management manage lands under its jurisdiction for multiple uses.
FMP (Fire Management Plan) - a strategic plan that defines a program to manage

wildland and prescribed fires and documents the Fire Management Program in the approved land use plan. The plan is supplemented by operational procedures such as preparedness plans, preplanned dispatch plans, prescribed fire plans and prevention plans.

Fine Scale - a single landscape, such as a watershed or sub watershed.

Fire Cycle - the average time between fires in a given area or a given plant community.

Fire Frequency - the return interval of fire.

Fire Preparedness - activities that lead to a safe, efficient, and cost effective fire management program in support of land and resource management objectives through appropriate planning and coordination.

Fire Regime - the frequency, predictability, intensity, seasonality, and extent characteristics of fires in an ecosystem.

Flood Plain - A relatively fl at area that borders a stream that is composed of deposited materials from the stream and is subject to periodic flooding unless protected artificially.

Forestland - land stocked with at least 10 percent live trees or land formerly having such tree cover and not currently developed for non-forest use.

Flow - The volume of water in a river passing a given point in a given period of time, usually expressed in terms of cubic feet per second or cubic meters per second.

Functional-At-Risk - riparian-wetland areas that are in functional condition, but an existing soil, water, or vegetation attribute makes them susceptible to degradation.

Game Species - wildlife species hunted for sport.

Ground Water - water filling all the unblocked pores of the material below the water table.

Habitat Fragmentation - the splitting or isolating of patches of similar habitat, typically forest cover (but could also apply to grass fields, shrub patches, and other habitats). Habitat can be fragmented from natural conditions, such as thin or variable soils, or from management activities or development such as clear-cut logging, agriculture, or residential development.

Historic Condition - as used in this text, the condition of lands and ecosystems prior to European settlement. In central Oregon, European settlement occurred during the period from approximately 1850s to 1900. An approximation of these conditions is drawn from written and photographic accounts from the period and is used to determine the range of variability for plant and animal species across a landscape (Ochoco NF Viable ecosystems Management Guide, 1994).

Historic Range of Variability (HRV) - the typical fluctuations of processes or functions, and the typical proportions of ecosystem elements in an area over a period of time when the ecosystem was not significantly affected by European settlement and management. HRV is the amplitude or minimum-maximum ranges of “natural” conditions.

Ignimbrite - a volcanic rock formed by the welding together of tuff material from an explosive volcanic eruption.

Impoundment - A body of water formed by any manmade structure.

Information Sharing - a process designed to keep everyone informed about what is happening in the planning effort. This includes but is not limited to published material on a variety of media, and management and public briefings and/or presentations.

Initial (Fire) Attack - an aggressive fire suppression action consistent with fire fighter and public safety and values to be protected.

Interdisciplinary - involving more than one discipline or resource management program.
Intermittent Stream - a stream, or reach of a stream, that flows for prolonged periods only when it receives groundwater discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Interior Columbia Basin Ecosystem Management Project (ICBEMP) - a project conducted during the 1990s and early 2000s examining the effects (on a large, regional scale) of past and present land use activities on the Interior Columbia River Basin ecosystem and a small part of the Great Basin ecosystem.

Intermittent Stream - Any nonpermanent flowing drainage feature having a definable channel and evidence of scour or deposition. This includes what are sometimes referred to as ephemeral streams if they meet these two criteria

Issue - an opportunity, conflict, or problem about use or management of public land resources. The resolution of issues is the basis for preparing the resource management plan.

Landscape - all the natural features which distinguish one part of the land from another. A spatially heterogeneous area with repeating patterns, similar climate, and landform, and the associated disturbance regimes.

Lava tube - a cave formed by the draining of molten lava from a channel covered by a surficial crust.

Leasable Minerals – minerals that may be leased to private interests by the Federal government and includes oil, gas, geothermal, coal, and sodium compounds.

Leave Tree – a tree left standing in an area where thinning or harvest has occurred.

Lek – an area used by sage grouse for courtship and mating.

Limited Area: under 43 CFR 8340 a limited area means an area restricted at certain times, in certain areas, and/or to certain vehicular use. These restrictions may be of any type, but can generally be accommodated within the following type of categories: Numbers of vehicles; types of vehicles; time or season of vehicle use; permitted or licensed use only; use on existing roads and trails; use on designated roads and trails; and other restrictions.

Litter - the dead remains of plants, usually lying on the soil surface.

Loam - a soil textural class composed of roughly equal amounts of sand, silt, and clay.

Locatable Minerals - minerals subject to exploration, development, and disposal by staking mining claims as authorized by the Mining Law of 1872, as amended. This

includes deposits of gold, silver, and other uncommon minerals not subject to lease or sale.

Management Concern - procedures or land-use allocations that do not constitute issues but, through the RMP/EIS preparation process, are recognized as needing to be modified or needing decisions made regarding management direction.

Management Framework Plan (MFP) – an older generation of land use plans developed by the Bureau of Land Management. This generation of planning has been replaced by the Resource Management Plan (RMP).

Management Opportunities - a component of the analysis of the management situation; actions or management directions that could be taken to resolve issues or management concerns.

Mesic - pertaining to sites or habitats characterized by intermediate moisture conditions, i.e., neither decidedly wet nor dry.

Microbiotic Crusts - lichens, mosses, green algae, fungi, cyanobacteria, and bacteria growing on or just below the surface of soils.

Mineral Estate - refers to the ownership of minerals at or beneath the surface of the land.
Minor Wildlife Emphasis - designated areas where wildlife typically receives a lower level of consideration to most other resource management programs. Generally, guidelines are tied to minimum legal requirements identified in the sections on “common” guidance (Standards for Rangeland Health, BLM Special Status Species Policy (6840)), and the Threatened and Endangered Species Act.

Mitigating Measures - modifications of actions that (a) avoid impacts by not taking a certain action or parts of an action, (b) minimize impacts by limiting the degree or magnitude of the action and its implementation, (c) rectify impacts by repairing, rehabilitating, or restoring the affected environment, (d) reduce or eliminate impacts over time by preservation and maintenance operations during the life of the action, or (e) compensate for impacts by replacing or providing substitute resources or environments.

Monitoring and Evaluation - the collection and analysis of data to evaluate the progress and effectiveness of on-the-ground actions in meeting resource management goals and objectives.

Multiple Use – the management of public land and its resources to best meet various present and future needs of the American people. This means coordinated management of resources and uses.

National Environmental Policy Act of 1969 (NEPA) - a law requiring all Federal agencies to evaluate the impacts of proposed major Federal actions with respect to their significance on the human environment.

National Register of Historic Places (NRHP) - established by Congress with the passage of the National Historic Preservation Act of 1966, an ever increasing, formal list of sites that are culturally significant according to specific criteria.

National Wildlife Refuge (NWR) - an area administered by the U.S. Fish and Wildlife Service for the purpose of managing certain fish or wildlife species.

Non-functional - riparian-wetland areas that clearly are not providing adequate vegetation, landform, or large woody debris to dissipate stream energy associated with high flows, and thus are not reducing erosion, improving water quality, etc.

Non-game Species - wildlife species which are not hunted for sport.

Noxious Weed - a plant specified by law as being especially undesirable, troublesome, and difficult to control.

Obsidian - a volcanic glass with a bulk composition equivalent to that of rhyolite except that obsidian has lower water content.

Occupancy - The taking, maintaining, or holding possession of a camp or residence on public land either by personal presence or leaving property at the location.

Off-Highway Vehicle (OHV) - unless otherwise stated, this generally refers to Class I all-terrain vehicles, Class II full width four-wheel drive vehicles, and Class III motorcycles.

Old-growth - old forest often containing several canopy layers, variety in tree sizes and species, decadent old trees, standing and down dead woody material (PNW GTR-328, 1994).

Open Area: under 43 CFR 8340 an open area means an area where all types of vehicle use is permitted at all times, anywhere in the area subject to the operating regulations and vehicle standards (CFR 8341 and 8342).

Overstory - the upper canopy layer; the plants below comprise the understory.

Patch - an area of vegetation with homogeneous composition and structure.

Perennial Stream -a stream that flows continuously. Perennial streams are generally associated with a water table in the localities through which they flow.

Perlite - a volcanic glass with an equivalent composition to that of rhyolite, but with a higher water content than obsidian.

Planning Area – the area containing all BLM-administered lands that would be managed under the UDRMP.

Plant Association - the distinctive combination of trees, shrubs, grasses, and herbs occurring in a theoretical terminal or climax community or a series of communities (PNW GTR-328, 1994).

Potential Natural Vegetation - an historical term originally defined by A.W. Kuchler as the stable vegetation community which could occupy a site under current climatic conditions without further influence by humans. Often used interchangeably with Potential Natural Community.

Potential Plant Community - one of several plant communities that may become established on an ecological site under the present environmental conditions, either with or without interference by humans.

Preferred Alternative or Plan - the alternative plan in the Draft EIS that the agency has initially selected that best fulfills the agency's statutory mission and responsibilities and

offers the most acceptable resolution of the planning issues and management concerns. Prescribed Fire - the introduction of fire to an area under regulated conditions for specific management purposes (usually vegetation manipulation).

Prescribed Natural Fire – a fire caused by lightning for which minimal to no suppression action is taken if it is under pre-determined conditions and within acceptable parameters. Prescribed natural fire is used to accomplish certain resource objectives.

Pressure Ridge - a ridge formed during inflation of a basalt flow, often having one or more prominent tension cracks along the ridge axis.

Primary Wildlife Emphasis - designates that wildlife is one of the most important management considerations for an area. Areas allocated to primary emphasis are intended to benefit wildlife and retain high wildlife use by applying specific guidelines (see Chapter 2).

Primitive Road: a linear route managed for use by four-wheel drive or high clearance vehicles. These routes do not normally meet any BLM road design standards.

Proper Functioning Condition (PFC) - adequate vegetation, land form, or large woody debris present to dissipate stream or wave energy, filter sediment and capture bedload, improve flood water retention, develop root masses that stabilize stream banks, islands and shorelines, develop channel characteristics to provide habitat for aquatic species, support greater biodiversity, reduce erosion, and improve water quality.

Public Land - any land or interest in land owned by the United States and administered by the Secretary of the Interior through the Bureau of Land Management.

Public Participation - a process designed to inform and involve all people and organizations not otherwise involved in the planning effort through Consultation, Cooperation, or Collaboration. Involvement includes opportunities to comment on preliminary and draft published materials, general public information or comment meetings, and periodic receipt of update material.

Pumice - a frothy, lightweight form of volcanic glass formed from expanding gasses in a rhyolite magma.

Recreation and Public Purposes Act (R&PP ACT) - an act passed by Congress which allows state and local governments and nonprofit organizations to lease and eventually acquire title to public lands for recreational or community expansion and other public purposes. The act was passed in recognition of the strong public need for a nationwide system of parks and historic preservation areas along with lands for other public purposes such as schools, fire houses, law enforcement facilities, municipal facilities, land fills, hospitals, and fairgrounds.

Research Natural Area (RNA) - an area of significant scientific interest that is designated to protect its resource values for scientific research and study. Under current BLM policy, these areas must meet the relevance and importance criteria of ACECs and are designated as ACECs.

Resilience – 1) the ability of a system to respond to disturbances. Resiliency is one of the properties that enable the system to persist in many different states or successional

stages; 2) in human communities, refers to the ability of a community to respond to externally induced changes such as larger economic forces.

Resource Area - the “on-the-ground” management unit of the Bureau of Land Management comprised of BLM-administered land within a specific geographic area.
Restoration - as used in this text, vegetative treatments used to modify an ecosystem and designed to return plant and animal communities toward a condition and level of functioning that existed prior to human disturbance or influence.

Resource Area Profile (RAP) - a component of the analysis of the management situations; a description of the current condition, amount, location, use and demands of the natural resources in a planning area.

Resource Management Plan (RMP) - current generation of land use plans developed by the BLM under the Federal Land Policy and Management Act. It replaces the older generation Management Framework Plans. Provides long-term (up to 20 years) direction for the management of a particular area of land, usually corresponding to a BLM resource area, and its resources.

Rhyolite - a light colored volcanic rock with a silicon dioxide composition greater than 68% by weight. It commonly exhibits flow banding and its temperature when erupting ranges from 700 and 850oC.

Right-of-Way - a grant that authorizes the use of public lands for specified purposes, such as pipelines, roads, telephone lines, electric lines, and reservoirs.

Riparian - a form of wetland transition between permanently saturated wetlands and upland areas. These areas exhibit vegetation or physical characteristics reflective of permanent surface or subsurface water influence. Lands along, adjacent to, or contiguous with perennially and intermittently fl owing rivers and streams, glacial potholes, and the shores of lakes and reservoirs with stable water levels are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil.”

Road: a linear route declared a road by the owner, managed for use by low-clearance vehicles having four or more wheels, and maintained for regular and continuous use.

Sacred site - means any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site (Executive Order 13007, 1996:1).

Salable Minerals - high volume, low value mineral resources including common varieties of rock, clay, decorative stone, sand, gravel, and cinder.

Savanna - In this FEIS/RMP, non-forest (usually shrub-steppe) land where juniper occurs as widely scattered trees at less than 10% crown cover.

Scenic Corridor - an area of special aesthetic values, including scenic vistas, unusual geologic or vegetative features, or other natural elements.

Scenic River - a river or section of a river that is free of impoundments and whose shorelines are largely undeveloped but accessible in places by roads.

Scoping - the process of identifying the range of consideration, issues, management concerns, preliminary alternatives, and other components of an environmental impact statement or land-use planning document. It involves both internal and external or public involvement.

Secondary Wildlife Emphasis – a designation where wildlife is one of several resource management programs that are of focus in an area, and typically receive a slightly lower, but still significant, level of management consideration. Areas allocated to a secondary emphasis are intended to support wildlife and maintain a moderate amount of use, as outlined in Chapter 2.

Seral Stage - the rated departure of a plant community from a described potential natural community (PNC) for a specific ecological site. Low-seral stage is an existing plant community which is defined as 0-25% comparability to the defined PNC; Mid-seral stage is an existing plant community which has 26-50% comparability to the PNC; Late seral stage is 51-75% comparable to the PNC; PNC is an existing plant community with 76-100% comparability to the defined PNC.

Shield Volcano - a gentle-sloped volcano built primarily by successive low-viscosity basalt flows. Has a shield-shaped profile.

Silviculture - the practice of manipulating the establishment, composition, structure, growth, and rate of succession of forests to accomplish specific objectives.

Site Condition - the level of condition, or degree of function, used to express the current condition of a site in contrast to site potential.

Site Potential - a measure of resource availability based on interactions among soils, climate, hydrology, and vegetation. Site potential represents the highest ecological status an area can attain given no political, social, or economic constraints. It defines the capability of an area, its potential, and how it functions (ICBEMP, 2000).

Snag - a standing dead tree, usually larger than five feet tall and six inches in diameter at breast height. Snags are important as habitat for a variety of wildlife species and their prey.

Special Status Species – a plant or animal species falling into any one of the following categories: Federally listed threatened or endangered species, species proposed for Federal listing as threatened or endangered, candidate species for Federal listing, State listed species, Bureau sensitive species, Bureau assessment species (see separate definition for each).

Species Diversity - the number, different kinds of, and relative abundances of species present in a given area.

Stand - a contiguous group of similar plants. For forest use, a contiguous group of trees sufficiently uniform in age-class distribution, composition, and structure, and growing on a site of sufficiently uniform quality, to be a distinguishable unit.

State Listed Species - any plant or animal species listed by the State of Oregon as threatened or endangered within the state under ORS 496.004, ORS 498.026, or ORS 564.040.

Structure - the physical organization and arrangement of vegetation; the size and arrangement (both vertical and horizontal) of vegetation.

Sub-basin Review - an interagency, collaborative consideration of resources, resource management issues, and management recommendations for one or more sub-basins or watershed drainages approximately 800,000 to 1,000,000 acres in size.

Succession - the gradual supplanting of one community of plants by another. The sequence of communities is called a sere, or seral stage. A process of changes in structure and composition of plant and animal communities over time. Conditions of the prior plant community or successional stage create conditions that are favorable for establishment of the next stage. The different stages in succession are often referred to as seral stages.

Sustainability – 1) meeting the needs of the present without compromising the abilities of future generations to meet their needs; emphasizing and maintaining the underlying ecological processes that ensure long-term productivity of goods, services, and values without impairing productivity of the land; 2) in commodity production, refers to the yield of a natural resource that can be produced continually at a given intensity of management (ICBEMP, 2000).

Sustained Yield - maintenance of an annual or regular periodic out put of a renewable resource from public land consistent with the principles of multiple use. Also: The yield that a forest can produce continuously at a given intensity of management. Sustained yield management implies continuous production, so planned as to achieve, at the earliest practical time, a balance between increment and cutting.

Tephra - a descriptive term for materials ejected from volcanoes including ash, pumice, cinders, and volcanic bombs.

Terrestrial - pertaining to the land.

The Nature Conservancy (TNC) - a private national organization dedicated to the preservation of biological diversity.

Thermal Cover - cover used by animals to protect them against the weather.

Threatened Species - any plant or animal species defined under the Endangered Species Act as likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Listings are published in the Federal Register.

Timberland - forestland capable of continuously producing 20 cubic feet or more per acre of industrial wood.

Trail: a linear route managed for human-powered, stock, or off-highway vehicle forms of transportation or for historical or heritage values. Trails are not generally managed for use by four-wheel drive or high-clearance vehicles.

Tuff - a volcanic rock formed by the welding together of ash and rock fragments from an explosive volcanic eruption.

Underburn - burning by a surface fire, usually under a tree canopy.

Understory - collectively, those plants that are beneath the overstory. See overstory.

Upland - the portion of the landscape above the valley floor or stream.

U.S. Department of Interior (USDI) - government department which oversees the Bureau of Land Management and many other agencies.

U.S. Fish and Wildlife Service (USFWS) - government agency responsible for managing fish and wildlife and their habitats.

Vegetative Composition - the plant species present in a plant community.

Vent -an opening at the Earth's surface through which volcanic materials are erupted.

Viability - in general, the ability of a population of a plant or animal species to persist for some specified time into the future. For planning purposes, a viable population is one that has the estimated numbers and distribution of reproductive individuals to ensure that its continued existence will be well distributed in the planning area (ICBEMP, 2000).

Visual Resources - the aesthetic qualities of the landscape. This is determined by assessing the scenic quality of a site, the sensitivity of people to changes in the landscape, and the visibility of the landscape from major viewing routes and key observation points.

Watershed - the region draining into a river, river system, or body of water. A fifth-field hydrologic unit code of the U.S. Geologic Survey (USGS) comprising 50,000 to 100,000 acres.

Weed - a plant considered undesirable, unattractive, or troublesome, usually introduced and growing without intentional cultivation. See also Noxious Weed.

Wilderness - an area that is essentially natural in character that has been designated by Congressional action in order to preserve that naturalness.

Wilderness Study Area (WSA) - public land under the jurisdiction of the Bureau of Land Management which has been studied for wilderness character and is currently in an interim management status awaiting official wilderness designation or release from WSA status by Congress.

Wildfire - any unwanted wildland fire.

Wildland Fire - any non-structure fire, other than prescribed fire, that occurs in the wildland.

Wildland Fire Situation Analysis (WFSA) - a decision-making process that evaluates alternative management strategies against selected safety, environmental, social, economical, political, and resource management objectives as selection criteria.

Wild River - a river or section of a river that is free of impoundments and generally inaccessible except by trail, with watersheds and shorelines essentially primitive and waters unpolluted.

Woodland - a plant community in which, in contrast to a typical forest, the trees are often small or short-boled relative to their crown width or height. Collectively, the trees form an open canopy with the intervening area occupied by lower vegetation, commonly grass or shrub.

Xeric - pertaining to sites or habitats characterized by decidedly dry conditions.

Zones - BLM-administered lands are classified into four categories that establish guidance about their suitability for long-term ownership as follows:

- Zone 1 – lands with national or statewide significance (for wildlife, recreation, scenic or other values). Zone 1 lands are identified for retention in public ownership and are areas where management emphasis is being placed on increasing public land holdings through donations, exchange or sale.
- Zone 2 – lands with high resource values. Zone 2 lands are identified for retention or possible exchange for lands with higher resource values or transfer through the Recreation and Public Purposes Act.
- Zone 3 – lands that generally do not provide substantial resource, public, or tribal benefits; that many not be cost effective for BLM to manage; or that would represent a greater public benefit in other ownership. Zone 3 lands are potentially suitable for transfer, sale or other disposal, including lands identified as having potential land use benefits for local community expansion.
- Community Expansion (CE). Lands zoned CE are retained in public ownership until needed for specific community purposes.

Appendix A: Special Status Plants Documented or Suspected on BLM Lands in the John Day Basin Planning Area

Species	Common Name	Occurrence	No. BLM Sites	STATUS (see text for explanation) BLM	Federal	State	ONHIC
Achnatherum hendersonii	Henderson's ricegrass	Suspected		BSO		CA	1
Achnatherum wallowaensis	Wallowa rice grass	Suspected		BSO			1
Astragalus collinus var. *laurentii*	Laurence's milkvetch	Suspected		STO	SOC	ST	1
Astragalus diaphanus var. *diurnus*	South Fork John Day milkvetch	Documented	22	STO	SOC	ST	1
Astragalus tegetarioides	bastard kentrophyta	Suspected		BSO	SOC	CA	1
Botrychium ascendens	triangle-lobe moonwort	Suspected		BSO	SOC	CA	1
Botrychium crenulatum	scalloped moonwort	Suspected		BSO	SOC	CA	1
Botrychium montanum	mountain moonwort	Suspected		BAO			2
Calochortus longebarbatus var. *peckii 1/*	Peck's mariposa lily	Suspected		BSO	SOC	CA	1
Camissonia pygmaea	dwarf evening-primrose	Documented	1	BS		CA	1
Carex eleocharis	narrow-leaved sedge	Suspected		BA			2
Carex hystericina	porcupine sedge	Documented	12	BA			2
Carex idahoa	Parry's sedge	Suspected		BSO			1
Coryphantha vivipara var. *vivipara*	cushion coryphantha	Suspected		BAO			2
Cymopterus nivalis	Hayden's cymopterus	Suspected		BAO			2
Cypripedium fasciculatum 2/	clustered lady's slipper	Suspected		BSO	SOC	CA	2
Heliotropium curassavicum	seaside helitrope	Suspected		BAO			2
Lomatium ravenii	Raven's lomatium	Suspected		BAO			2
Luina serpentina	colonial luina	Suspected		BSO	SOC		1
Mimulus evanescens	disappearing monkeyflower	Suspected		BSO		CA	1
Mimulus jungermannioides	hepatic monkeyflower	Documented	24	BSO	SOC	CA	1
Myosurus sessilis	sessile mousetail	Suspected		BSO	SOC	CA	1
Phacelia minutissima	dwarf scorpion-weed	Suspected		BSO	SOC	CA	1
Rorippa columbiae	columbia cress	Suspected		BS	SOC	CA	1
Thelypodium eucosmum	arrow-leaf thelypody	Documented	45	STO	SOC	ST	1
Thelypodium howellii ssp. *howellii*	Howell's thelypody	Suspected		BAO			2

1/ Conservation strategy in preparation
2/ Conservation assessment prepared (related to Western Oregon Survey and Manage)

Appendix A also indicates various status designations for each species. Following is an explanation of each:
BLM: BA – Bureau Assessment; BS – Bureau Sensitive; STO – State Endangered, Oregon; STO – State Threatened, Oregon
Federal: SOC – Species of Concern
State: CA – Candidate; SE – Endangered; ST – Threatened
ONHIC (Oregon Natural Heritage Information Center): 1 – Threatened with extinction or presumed to be extinct throughout their entire range; 2 – Threatened with extirpation or presumed to be extirpated from the state of Oregon

Appendix B: Special Status Wildlife

Species	*Scientific Name*	*Listing Status*	*District / Planning Area Occurance.*	*General Habitat Description (Csuti – 1997)*	*Province*
Federally Listed Species					
Northern Bald Eagle (T)	*Haliaeetus leucocephalus*		Documented	Rivers, lakes, & marshes with nearby tall trees or cliffs for nesting. Nests are usually 1 mile apart. May travel 10 miles from roost to forage. Nest in large tall tree within ½ m. of water.	All
Canada Lynx (T)	*Lynx canadensis*		Suspected	Dense boreal forests that have openings such as meadows, bogs, or rock outcroppings. 14 sq. mile home range. Den under logs, hollow trees, under thick bursh.	EC, BM, HP, CB
Federal Candidate Species					
Oregon Spotted Frog	*Rana pretiosa*	State – Critical	Documented	Ponds, springs, marshes, & slow flowing streams & prefers water with a bottom layer of dead and decaying veg. Surrounding could be grasslands to forest. Cool, permanent, quiet water	EC
Yellow-billed Cuckoo 9/10/01	*Coccyzus americanus*	BLM - Sensitive, State – Critical	Unknown	Thick closed-canopy riparian forest with an understory of dense brush. Willow, black cottonwoods along rivers of E. OR Patches must be > 37 ac. in size with >7 ac. of closed canopy. Feed primarily amount cottonwoods.	EC, BM, HP
Washington Ground Squirrel	*Spermophilus washingtoni*	BLM – Assessment, State – Critical	Unknown	Arid deserts & grasslands, most freq. in sagebrush or grasslands associated w/ river banks, hillsides, or ravines.	CB
Bureau Sensitive Species					
Mammals					
Townsend's Big-eared Bat	*Corynorhinus townsendii*	Federal – Former Candidate , State – Critical	Documented	Pacific coast east to Great Plains including arid eastern OR. The presence of suitable roost sites is more important than veg. Roosts in buildings, caves, mines, and bridges. Feed on moths.	EC, BM
Fisher	*Martes pennanti*	Federal – Former Candidate , State – Critical	Suspected	Mature closed canopy coniferous forests w/ some deciduous component. May travel 50 miles in 3 days. Den in hollow logs, brush piles, or rocks.	EC, BM
Birds					
Greater Sage Grouse 6/6/01	*Centrocercus urophasianus*	Federal – Former Candidate, State – Vulnerable	Documented	Areas dominated by big sagebrush with cover 15 to 50%. Males use open areas as leks.	EC, BM, CB
Northern Goshawk	*Accipiter gentilis*	Federal – Former Candidate, State – Critical	Documented	Prefer late successional forests with large trees and considerable canopy closure, but in Blue Mountains are found in more open situations including aspen and juniper. Prefer N aspects near some water. Territory >400 ac.	EC, BM, HP
Upland Sandpiper	*Bartramia longicauda*	State – Critical	Suspected	Nests in partially flooded meadows and grasslands, usually with a fringe of trees, and often in the middle of high-elevation sagebrush. Meadows are little grazed and have forbs. Perches in trees/snags surrounding the nest site.	EC, BM
Ferruginous Hawk	*Buteo regalis*	Federal – Former Candidate, State – Critical	Documented	Soars over grassland, desert steppe, juniper woodlands. Requires ledges, cliffs, isolated trees, or riparian woodland for nesting. Home range of 3 miles for males.	BM, HP, CB
Yellow Rail	*Coturnicops novebroacensis*	State – Critical	Documented	Freshwater marshes & wet meadows w/ sedges, usually surrounded by willow, standing water up to 1' during breeding.	EC

Species	*Scientific Name*	*Listing Status*	*District / Planning Area Occurance.*	*General Habitat Description (Csuti – 1997)*	*Province*
American Peregrine Falcon	*Falco peregrinus anatum*	State - Endangered	Documented	Suitable nest is most critical: cliffs, overlooking fairly open areas with ample food. Usually nest near where waterbirds are plentiful. Home range – 25 to 100 sq. miles.	EC, BM, CB, HP
Harleguin Duck (breeding pop.) 6/01	*Histrionicus histrionicus*	Federal – Former Candidate	Unknown	Relatively low-gradient slower-flowing reaches of mountain streams in forested areas. Needs remote streams w/ limited disturbance. During nonbreeding: swift waters and rapids. White River	White River
Northern Pygmy Owl	*Glaucidium gnoma*	State – Critical	Suspected	Coniferous and mixed Con.-deciduous forests. Moist forests, riparian woodlands, and drier p pine wlands. Hunts in open areas within the forest matrix. Uses abandoned woodpecker holes.	BM
Lewis Woodpecker	*Melanerpes lewis*	State – Critical	Documented	Open forests at lower elevation, white oak-pine, p pine, and cottonwood riparian woodlands in river valleys. 15 ac. territory. Eat berries and nuts in fall. Uses other WP holes.	EC, CB
Flammulated Owl	*Otus flammeolus*	State – Critical	Documented	Open forest with p pine association. Requires large trees, forages in grasslands or meadows and along the ecotones, nest in abandoned woodpecker holes. Mainly an insectivor.	EC, BM, BR
White-headed Woodpecker	*Picoides albolarvatus*	State – Critical	Documented	Closely associated with P pine & mixed conifer with p pine. Requires large trees >20”dbh, 250 – 500 ac. home range. Nest on edge of a clearing.	EC, BM, HP
Black-backed Woodpecker	*Picoides arcticus*	State – Critical	Documented	Lower elevation lodgepole or p pine can be mixed with western larch, true firs, and spruce, nest trees < 20”dbh, Nest on edge of a clearing. 100ac. territory.	EC, BM
Three-toed Woodpecker	*Picoides tridactylus*	State – Critical	Documented	Above 4500 feet lodgepole pine can be mixed with other species. Nest in >11”dbh. 100 – 700 ac. territory.	EC, BM
Purple Martin	*Progne subis*	State – Critical	Unknown	Requires holes in trees close to open areas to forage. Use open forests or woodlands, would use scrub-land if there are trees near for nesting. Uses nest boxes and will be near cities.	EC
Pygmy Nuthatch	*Sitta pygmaea*	State – Critical	Documented	Open coniferous woodlands primarily p pine with less than 70% canopy cover. 2 to 4 ac. territory.	EC, HP
Burrowing owl	*Speotyto (=Athene) cunicularia*	Federal – Former Candidate State – Critical	Documented	Open deserts, grasslands, fields, and pastures. Will use roadsides and airports. Most common in sagebrush steppe in OR. Nest in modified burrows made by ground squirrels or badgers.	HP, CB, BM
Amphibians & Reptiles					
Northern Leopard Frog	*Rana pipiens*	State – Critical	Unknown	Marshes, wet meadows, vegetated irrigation canals, ponds, & reservoirs. Quiet or slowly flowing water, needs cover. May forage in wet meadows far from water.	BM, CB
Painted Turtle	*Chrysemys picta*	State – Critical	Unknown	Shallow quiet waters with a muddy or sandy substrate. Lakes, marshes, ponds, and small streams. Variety of surrounding habitats – need cover and basking sites.	BM, HP, CB
Western Pond Turtle	*Chrysemys marmorata*	Federal – Former Candidate State – Critical	Unknown	Quiet water in small lakes, marshes, and sluggish streams, & rivers. Muddy or rocky bottoms. Requires basking sites. Nest can be several hundred meters from water in a variety of veg. types. Can hibernate up to 1,600 feet from water.	EC

Species	Scientific Name	Listing Status	District / Planning Area Occurance.	General Habitat Description (Csuti – 1997)	Province
Bureau Assessment Species					
Mammals					
Pygmy Rabbit	*Bachylagus idahoensis*	Federal – Former Candidate State – Vulnerable	Documented	Tall dense clumps of Great Basin sagebrush or greasewood. Deep friable soils to burrow.	EC, BM, HP, CB
Spotted Bat	*Euderma maculatum*	Federal – Former Candidate	Documented	Variety of habitats from p pine to desert water holes. Crevices in cliffs used for reproduction are more important than veg. type. Eats moths.	BR, HP
Brazilian Free-tailed Bat	*Tadarida brasiliensis*		Documented	Northern limit is southwest OR. Caves, hollow trees, and buildings. Low elev., diet of moths above forest, meadows, grasslands, or pastures. Travel 30 miles to forage.	EC
Birds					
Tricolored Blackbird (breeding pop.)	*Agelaius tricolor*	Federal – Former Candidate	Documented	Breeds in freshwater marshes with cattails or thickets of willows or shrubs. High elevation habitat use is unlikely.	EC, BR, HP, CB
Bufflehead (breeding pop.)	*Bucephala albeola*		Documented	Nests near mountain lakes surrounded by open woodlands containing snags. Preferred nest trees: aspen, p pine, and doug fir. After breeding season found on open water or major rivers and that coast.	EC
Amphibians & Reptiles					
Cope's Giant Salamander	*Dicamptondon copei*		Documented	Moist forests in clear cold streams (w/ water temp. between 8-14 deg. C), brooks, & ponds with gravel bottoms and boulders. Under rocks, slabs of bark, or other cover in streams	
Bureau Tracking Species				*(Species are not considered as special status species for management purposes)*	
Mammals					
Pallid Bat	*Antrozous pallidus*	State - Vulnerable	Suspected	Arid regions or open forests with p pine or oak. Uses desert vegetation (sagebrush, juniper, salt desert shrub). Cliff-faces, caves, mines or buildings. Forages on ground – crickets, beetles, grasshoppers, scorpions, mice, and lizards.	EC, BM, BR, HP, CB
Silver-haired Bat	*Lasionycteris noctivagans*		Suspected	Older Douglas fir/western hemlock and p pine forests. Forages over ponds, streams in woods, and roosts under loose bark. Moths, termites, and flies	All
White-tailed Jackrabbit	*Lepus townsendii*		Suspected	Open regions such as sagebrush deserts and grasslands, but also open coniferous forests, even alpine meadows. Feeds on grasses and forbs. In areas shared w/ black-tailed jackrabbits, found more in open grasslands than sagebrush com.	EC, BM, BR, HP, CB
Western Small-footed Myotis	*Myotis ciliolabrum*	Federal – Former Candidate	Suspected	Cliffs and rocky canyons in arid grasslands and desert scrub, some mixed conifer and pine use. Rocks, boulders, bark, caves and mines. Small insects.	EC, BM, BR, HP, CB
Long-eared Myotis	*Myotis evotis*	Federal – Former Candidate	Suspected	Forested habitats and edges (juniper, p pine, Doug fir, spruce, true fir, subalpine fir, riparian hardwoods. Eats moths primarily.	All
Long-legged Myotis	*Myotis volans*	Federal – Former Candidate	Suspected	Doug fir, true fir, spruce, lodge pole and ponderosa pine, & oak woodlands. Uses riparian in arid areas. Cliffs, buildings, caves and mines. Eats moths – small bugs.	All

Species	Scientific Name	Listing Status	District / Planning Area Occurance.	General Habitat Description (Csuti – 1997)	Province
Yuma Myotis	*Myotis yumanensis*	Federal – Former Candidate	Suspected	Wide variety of habitat- desert scrub, moist woodland, open forest, and riparian. Associated with water. Colonies in buildings, mines, caves, or bridges.	All
California Bighorn Sheep	*Ovis Canadensis californiana*	Federal – Former Candidate	Documented	Steep rocky, high mountain meadows and steep canyons. 20 – 40 sq. kilometer home ranges.	BR, HP, CB, BM
Western Gray Squirrel	*Sciurus griseus*		Suspected	Deciduous or broadleaf evergreen woodlands dominated by oak, sometimes mixed with pine. Riparian areas and in mixed forests of tanoak, maple, madrone, doug fir, p pine, white fir, sugar pine, & jef. Pine. Primarily low elevation.	EC
Preble's Shrew	*Sorex preblei*	Federal – Former Candidate	Suspected	Permanent or intermittent streams in arid to semi-arid shrub/ grass association and dense high elevation coniferous forests. Sagebrush thickets and willow or aspen.	BM, BR, HP
Birds					
Grasshopper Sparrow	*Ammodramus savannarum*	State - Vulnerable	Suspected	Short grasslands with occasional shrubs < 35% CC. Prefer native bunch grasses on north slopes of hills with scattered shrubs. Use cultivated grasslands and pastures. 1-4 ac. territory.	CB
Sage Sparrow	*Amphispiza belli*	State – Critical	Suspected	Sagebrush covered valleys, desert shrub communities. Reduced breeding potential in grasslands w/ sagebrush or other shrubs that are to scattered or where junipers are too frequent. Nest about 1' off ground. 4-8 ac. territory.	CB
Black-throated Sparrow	*Amphispiza bilineata*		Documented	Nest at interface of valleys and hills with scattered desert shrubs and grass understory, often near rock piles. Less frequent in open flat valleys with sage, juniper, or salt-desert shrubs. Plants usually are >1/2 meter high. 1-4 ac. territory.	BR
Swainson's Hawk	*Buteo swainsoni*		Documented	Grasslands, sagebrush flats, juniper woodlands, larger meadows, and grasslands w/in forests. Nests in tree – often willow or juniper. 1-3 mile territory. Fire suppression, grassland conversion, and encroachment of JUCO have neg. impact.	BM, BR, HP, CB
Pileated Woodpecker	*Cryocopus pileatus*	State - Vulnerable	Documented	Old-growth doug fir and p pine mixed conifer forest with large trees, snags, & logs – forest over 70 yrs. old. 1000 ac. territory.	BM, HP
Willow Flycatcher	*Empidonax traillii brewsteri*	Federal – Former Candidate State - Vulnerable	Documented	Willows at edge of streams flowing through meadows & marshes. Thickets along edges of forest clearings. Tall brushy veg. near water, inc. spgs & seeps in desert areas. 1-3 ac. terr.	EC, BM, BR, HP, CB
Pinyon Jay	*Gymnorhinus cyanocephalus*		Documented	Juniper & P pine woodlands of SC OR. Nest 6-20' up. Good supply of conifer seeds to nest.	EC, BM, BR, HP
Loggerhead Shrike	*Lanius ludocicianus*	State - Vulnerable	Documented	Almost any fairly open veg. where there are occasional tall shrubs or trees for perching and nesting. Sagebrush, bitterbrush, greasewood, desert com., juniper, very open pine or oak, and mountain shrub communities. 20-40 ac. territory.	HP, CB
Long-billed Curlew	*Numenius americanus*	State - Vulnerable	Documented	Open grasslands, prairies, and meadows, often near scattered shrubs usually near water or wet meadows, but also in dry situations. Travel up to 6 m. to forage.	CB
Mountain Quail	*Oreortyx pictus*		Documented	Prefers open forest and woodlands with ample undergrowth of brushy veg. Chaparral thickets riparian woodland, meadow edges in forests, & brushy regrowth after timber harvest. Winters at lower edges of forests. Nest usually w/in ½ m. of water. 5-50 ac. territory.	BM, EC, HP,

Species	Scientific Name	Listing Status	District / Planning Area Occurance.	General Habitat Description (Csuti – 1997)	Province
Pine Grosbeak	*Pinicola enuclea-tor*		Unknown	High-elev. forest com. lodgepole, all firs, spruce, & mixed conifer types. Usually associated w/ wet meadows, lakes or streams. Open forests. Don't use lower P pine. 26 ac. territory.	BM
White-faced Ibis (breeding pop.)	*Plegadis chihi*	Federal – Former Candidate	Documented	Interior freshwater marshes, emergent hardstem bulrush. Feeds in marshes, meadows, edges of ponds, pastures, & irrigated alfalfa fields.	EC, BR
Blue-gray Gnatcatcher	*Polioptila caerulea*		Unknown	Variety of woodlands, in OR buckbrush chaparral & mt. ma-hogany of S.E. OR. 2-7 ac. terr.	EC, BR
Bank Swallow	*Riparia riparia*		Documented	Nest tunnels in dirt embankments. Open habitat (desert scrub, grasslands, ag., & pastures) near nesting area. May nest up to ½ mile from water.	EC, BM, BR, HP, CB
Broad-tailed Hummingbird	*Selasphorus platycercus*		Suspected	Not listed in Csuti.	EC, BM, BR
Pygmy nuthatch	*Sitta pygmaea*	State - Critical	Documented	Open coniferous woodlands, primarily mature p pine w/ <70% CC. 2 – 4 ac. territ.	EC, HP
Williamson's Sapsucker	*Sphyrapicus throideus*		Documented	Mature high elevation coniferous forests. Prefers open p pine but uses lodgepole, red fir, grand fir, doug fir, spruce, & aspen. 10 – 20 ac. territory.	EC, BM, BR
Forester's Tern	*Sterna forsteri*		Suspected	Breeds on lakes & marshes in floating nests, sometimes on mud or sand flats near water. Primarily in alkaline marshes of SE OR.	EC, BR, CB
Great Gray Owl	*Strix nebulosa*	State - Vulnerable	Documented	Nest: snags in old growth forest/N. aspects. Forage: open areas on small mammals.	EC, BM, HP
Amphibians & Reptiles					
Blotched Tiger Salamander	*Ambystoma tigrinum mela-nostictum*		Undetermined	Breed in a wide range of envir. From clear mountain ponds to temporary turbid pools in the lowlands – free of fish. Wide variety of habitats.	BR
Cascade Frog	*Rana cascadae*		Undetermined	Closely assoc. w/ water: lakes, ponds, & small streams that run through meadows. Rarely below 2,600', occurs up to timber-line. Feeds on muddy or silty substrate in shallow H2o.	EC
Mojave Black-collared Lizard	*Crotaphytus bicin-vtores*	State - Vulnerable	Undetermined	Variety of desert shrub veg., needs rock outcrops, boulders, or talus slopes. SE OR is N. edge of range.	BR
Long-nose Leopard Lizard	*Gambelia wisli-zenii*		Undetermined	Open desert shrublands particularly where islands of sand have accumulated around shrubs. Absent where dense grass inhibits their ability to run	BR
Desert Horned Lizard	*Phrynosoma platyrhinos*	State - Vulnerable	Undetermined	Flat or gently rolling deserts covered with sagebrush or salt desert shrub. Scattered bushes and loose, sandy soil, but will use rocky areas or hardpan.	BR, BM
Northern Sagebrush Lizard	*Sceloporus gra-ciosus graciosus*	Federal – Former Candidate, State - Vulnerable	Determined	Sagebrush or chaparral, juniper woodlands, or coniferous forests. Require well-illuminated open ground near cover.	EC, BM, BR,HP, CB
Woodhouses Toad	*Bufo woodhousei*		Undetermined	Permanent waters of ponds, streams, rivers, reservoirs, & irrigation canals. Can breed in shallow temporary ponds. Agri-cultural and semi-desert habitat.	CB
Western Toad	*Bufo boreas*	State - Vulnerable	Documented	Wide variety of habitats: deserts, chaparral, grasslands, wood-lands, and forests: sea level to timberline. Need a source of water for breeding	EC, BM, BR, HP, CB

APPENDIX C (ALLOTMENTS – SUMMARY INFO., MANAGEMENT CATEGORIES, & S&G STATUS)

ALLOTMENT NAME	#	MIC	BLM acres	AUMS ACTiVE	AMP / CRMP	Resource Plan	S&G FY done	S&G's met?	Livestock Cause	Standards not met	Action taken?
POTAMUS	???	I	4138	0		John Day					
MORRIS	???	C	1097	0		John Day					
BROSNAN RANCH	???	I	2138	0		John Day					
FRANK ANDERSON	2500	C	80	10		TWO RIVERS					
HERBERT ASHER	2501	I	1999	101		TWO RIVERS	2005	NO	NO	2	NO
ASHER, HUBERT	2503	I	360	17		TWO RIVERS					
BARKER	2504	C	160	18		TWO RIVERS	2003	YES	N/A	N/A	N/A
BARNETT	2505	C	400	55		TWO RIVERS	2003	YES	N/A	N/A	N/A
MAXINE BARNETT	2506	C	200	19		TWO RIVERS	2004	NO	YES	1,2,3,4,5	NO
BROOKS	2507	C	40	3		TWO RIVERS					
BEAR CREEK	2508	M	842	45		TWO RIVERS					
BELSHE	2509	I	1610	62		TWO RIVERS	2003	YES	N/A	N/A	N/A
HAYSTACK	2511	C	109	11							
BIG MUDDY	2512	I	14890	615		TWO RIVERS	2002	NO	NO	1,2,3,4,5	YES
BIG SKY	2513	M	660	26		TWO RIVERS	2002	YES	N/A	N/A	N/A
BLACK ROCK ASSOC.	2514	M	3325	224	AMP	TWO RIVERS	2003	NO		1,2,3,4,5	N/A
BANTAM	2515	C	40	6		TWO RIVERS					
GABLE CREEK	2516	I	5025	210	CAP	TWO RIVERS	2003	NO	NO	2,3,4,5	YES
BORSCHOWA	2517	C	80	4		TWO RIVERS					
PINE CREEK	2518	I	5418	346		TWO RIVERS					
SMITH POINT	2520	I	2596	93		TWO RIVERS	2002	NO	NO	2,4,5	N/A
HORSESHOE BEND	2521	I	777	43		TWO RIVERS	2003	YES	N/A	N/A	N/A
JAMES BROWN	2522	I	2687	68		TWO RIVERS	2003	YES	N/A	N/A	N/A
BUCK HOLLOW	2524	C	441	10		TWO RIVERS					
ROCK CREEK	2525	M	2074	231		TWO RIVERS	2004	YES	N/A	N/A	N/A
PETER CAMPBELL	2526	C	760	60		TWO RIVERS	2004	YES	N/A	N/A	N/A
SENTINEL PEAK	2528	C	1240	44		TWO RIVERS					
F.C. CHERRY	2529	C	823	88		TWO RIVERS					
CIMMIYOTTI	2530	C	712	118		TWO RIVERS					
CIRCLE BAR	2531	I	19708	637	AMP	TWO RIVERS	2003	NO	NO	3,4,5	YES
T. COLE	2532	C	540	19		TWO RIVERS	2002	NO	NO	2,4,5	YES
SUTTON MOUNTAIN	2533	I	25315	489	AMP	TWO RIVERS	2003	NO	NO	2,4,5	YES
RICHMOND	2534	C	240	10		TWO RIVERS					
HAYFIELD	2535	C	345	81		TWO RIVERS	2002	NO	NO	2,4,5	YES
SPRING BASIN	2536	I	5363	146		TWO RIVERS	2002	YES		N/A	N/A
DEAD DOG CANYON	2537	I	3906	243	AMP	TWO RIVERS	2003	NO	NO	2,4,5	YES
DECKER	2538	I	2999	206		TWO RIVERS	2003	YES	N/A	N/A	N/A
BIGGS JUNCTION	2539	C	109	14		TWO RIVERS					
PERSIMMON WOODS	2540	C	40	5		TWO RIVERS	2002	YES	N/A	N/A	N/A
EAKIN	2541	I	1760	12		TWO RIVERS					
ELLSWORTH	2543	C	583	32		TWO RIVERS					
CIRCLE S RANCH	2544	I	598	16		TWO RIVERS	2002	NO	NO	2,4,5	YES
CHERRY CREEK	2545	I	11095	438		TWO RIVERS					
FREEWAY	2546	C	40	2		TWO RIVERS					

SIXMILE	2547	I	2397	245	CAP	TWO RIVERS	2004	NO	YES		2	YES
HOGAN CREEK	2548	C	40	3		TWO RIVERS						
HARDIE	2549	M	1002	84		TWO RIVERS						
CLINTON O. HARRIS	2551	I	1646	98		TWO RIVERS						
WILLOW SPRING	2553	I	1127	20		TWO RIVERS	2003	YES	N/A	N/A		N/A
CHARLES H. HILL	2554	I	1835	86		TWO RIVERS						
HOAG	2555	C	380	10			2002	YES	N/A	N/A		N/A
MURRAY HOWARD	2556	I	846	33		TWO RIVERS	2004	NO	NO		4	YES
HULDEN	2557	C	160	17		TWO RIVERS						
SQUAW CREEK	2558	I	5086	301		TWO RIVERS	2004	NO	YES			YES
FOPIANO	2559	C	160	17		TWO RIVERS						
BASE LINE	2560	M	559	27		TWO RIVERS	2002	NO	NO	1,2,3,4,5		N/A
GIRDS CREEK	2561	I	1607	61	AMP	TWO RIVERS	2003	NO	NO	2,4,5		YES
J BAR S	2562	I	750	34		TWO RIVERS	2004	YES	N/A	N/A		N/A
HORSESHOE CREEK	2563	M	1667	100		TWO RIVERS						
CACTUS RIDGE	2564	C	325	20		TWO RIVERS	2004	NO	YES	1,3		NO
LEROY A. BRITT	2565	C	431	33		TWO RIVERS						
JUSTESON	2566	C	113	3		TWO RIVERS						
KASER BROTHERS	2567	I	1509	59		TWO RIVERS						
KEEGAN	2568	C	618	29		TWO RIVERS						
ZACK T. KEYS	2569	I	1921	64		TWO RIVERS	2004	NO	NO		4	YES
ZACK T. KEYS	2570	I	1607	58		TWO RIVERS	2004	NO	NO		4	YES
HORN BUTTE	2571	I	5023	836		TWO RIVERS	2004	NO	YES	2,4,5		NO
LAFOON AND CARLSON	2572	I	3520	83		TWO RIVERS	2003	YES	N/A	N/A		N/A
L.B. RANCH	2573	C	23	2		TWO RIVERS						
LEAR	2574	C	200	13		TWO RIVERS						
ANDREW F. LECKIE, JR.	2575	I	55	1		TWO RIVERS						
LEFT HAND CANYON	2576	C	120	3		TWO RIVERS	2004	YES		N/A		N/A
BYRDS POINT	2577	M	1455	94		TWO RIVERS	2002	NO	NO	2,4,5		YES
LOGAN	2578	C	2194	111		TWO RIVERS						
EUGENE LOGAN, JR.	2579	M	840	42		TWO RIVERS	2004	YES	N/A	N/A		N/A
ELSIE MARTIN	2581	M	920	22		TWO RIVERS						
MULKEY	2583	M	200	15		TWO RIVERS	2004	YES	N/A	N/A		N/A
CATHERINE MAURER	2584	I	13967	789		TWO RIVERS						
SEEK PEAK	2585	C	320	11		TWO RIVERS						
TOM MCDONALD	2586	I	576	27		TWO RIVERS	2005	YES	N/A	N/A		N/A
CORRAL CANYON	2587	I	2101	78		TWO RIVERS	2002	NO	NO	1,2,3,4,5		YES
SPUD	2588	M	608	40		TWO RIVERS	2002	NO	NO	2,4,5		YES
MCQUINN	2589	C	40	1		TWO RIVERS						
CARROLL RIM	2590	I	2572	101	AMP	TWO RIVERS	2003	NO	NO	3,5		YES
MILLER	2591	I	1896	47		TWO RIVERS	2003	YES	N/A	N/A		N/A
MARY MISENER	2592	I	595	51	AMP	TWO RIVERS	2003	NO	NO	1,3,5		YES
VERNE A. MOBLEY	2593	M	1240	133	CAP	TWO RIVERS						
MOREHOUSE AND ELLIOT	2594	M	65	3		TWO RIVERS	2002	YES	N/A	N/A		N/A
WINDY RIVER	2595	I	833	53		TWO RIVERS	2002	NO	NO	1,3,4,5		N/A
HOWARD MORTI-MORE	2596	C	40	6		TWO RIVERS						
JOHN T. MURTHA	2597	I	8668	283		TWO RIVERS						
HAY CREEK	2598	I	1518	1226		TWO RIVERS	2002	YES	N/A	N/A		N/A
KENNETH MYERS	2599	C	160	10		TWO RIVERS						
J. NARTZ	2600	C	935	48		TWO RIVERS						
VICTOR B. NASH	2601	C	160	14		TWO RIVERS						

LEE H PETTYJOHN	2603	M	360	14		TWO RIVERS						
PHILIPPI	2604	M	1022	64		TWO RIVERS	2004	NO	NO	1,3,4,5		N/A
E. GLENN POTTER	2605	C	78	3		TWO RIVERS						
WILLIAM W. POTTER	2606	C	80	4		TWO RIVERS						
PRYOR FARMS	2607	M	800	50		TWO RIVERS	2005	NO	YES	2,4,5		NO
RATTRAY	2608	I	10615	403		TWO RIVERS	2004	YES	N/A	N/A		N/A
CROWN ROCK	2609	I	4241	105	AMP	TWO RIVERS	2003	NO	NO	2,3,4,5		YES
VAN RIETMANN	2611	M	680	25		TWO RIVERS						
ARTHUR N. ROBISON	2612	C	40	1	AMP	TWO RIVERS						
FRANK R. ROBISON	2613	C	80	2		TWO RIVERS						
CLARNO HOME-STEAD	2614	I	1893	63		TWO RIVERS	2003	YES	N/A	N/A		N/A
ORVILLE RUGGLES	2616	C	162	11		TWO RIVERS	2003	YES	N/A	N/A		N/A
EMIGRANT CANYON	2617	M	502	20		TWO RIVERS	2002	NO	NO	1,3,4,5		N/A
SID SEALE	2619	I	13676	733	AMP	TWO RIVERS	2003	NO		2,4,5		N/A
EVELYN E. SEE	2620	C	177	3		TWO RIVERS						
EARL A. SMITH	2621	C	232	35		TWO RIVERS	2003	YES	N/A	N/A		N/A
ALTA M. SPAULDING	2622	C	121	7		TWO RIVERS						
BUTTE CREEK	2623	M	4376	230	AMP	TWO RIVERS	2003	YES	N/A	N/A		N/A
BURNT RANCH	2624	C	288	5		TWO RIVERS	2002	NO	NO	1,2,3,4,5		YES
DAVID M. STIREWALT	2625	I	1340	65		TWO RIVERS						
HARPER MOUNTAIN	2626	I	760	25		TWO RIVERS						
ROBERT W. STRAUB	2627	C	1480	69		TWO RIVERS						
FOURMILE CANYON	2628	I	840	152		TWO RIVERS	2004	NO	YES		1	NO
TATUM	2629	I	2889	113		TWO RIVERS	2003	YES	N/A	N/A		N/A
TRIPP	2630	I	80	7		TWO RIVERS	2002	NO	NO	2,4,5		YES
DIPPING VAT	2631	M	1160	25		TWO RIVERS						
LARSON	2632	C	80	5		TWO RIVERS						
AMINE PEAK	2633	I	4349	294		TWO RIVERS	2002	NO	NO	2,4,5		YES
CORRAL HOLLOW	2634	C	160	32		TWO RIVERS						
RICHARD FOSTER	2635	C	289	20		TWO RIVERS						
WEEDMAN RANCHES	2636	C	343	6		TWO RIVERS						
V.O. WEST	2637	M	223	15		TWO RIVERS	2002	NO	NO	1,3,4,5		N/A
TUBB CREEK	2639	C	429	50		TWO RIVERS						
NORTH EIGHTY	2641	C	78	3		TWO RIVERS	2004	YES		N/A		N/A
MASCALL-CANT	2642	I	4308	265		TWO RIVERS	2004	NO	YES			YES
HI MEADOWS	2644	M	640	98		TWO RIVERS	2003	YES	N/A	N/A		N/A
CLARK	2645	I	4047	158		TWO RIVERS						
LONEROCK	2646	C	147	27		TWO RIVERS	2003	YES	N/A	N/A		N/A
HARTUNG	2648	I	700	22		TWO RIVERS	2002	YES	N/A	N/A		N/A
RIM	2649	C	301	3		TWO RIVERS	2002	NO	NO	1,3		YES
BULL CANYON	2651	C	280	3		TWO RIVERS						
BROOKS LEASE	2653	C	38	2		TWO RIVERS						
NORTON RANCH	2655	C	356	21		TWO RIVERS						
DRY KNOB	2656	C	275	7		TWO RIVERS	2002	NO	NO	2,4,5		YES
BRIDGE CREEK	2657	C	51	2		TWO RIVERS						
PACKSADDLE MTN	2659	M	330	20	AMP	TWO RIVERS	2003	YES		N/A		N/A
RATTLESNAKE CREEK	2660	C	280	11		TWO RIVERS						
PEBBLE SPRINGS	2661	C	320	53		TWO RIVERS						
JOHNSON CREEK	2662	I	7698	436		TWO RIVERS						
SMITH HOLLOW	2663	C	680	51		TWO RIVERS						
SPECKLE CANYON	2664	C	80	2		TWO RIVERS	2004	YES		N/A		N/A
WORKMAN	2665	C	39	3								

GOOSEBERRY	2667	I	1224	43		TWO RIVERS					
KIOSK	2669	C	160	16			2004	NO	YES	1,3,5	NO
ROWE CREEK	2670	C	320	16		TWO RIVERS					
RED ROCK	2671	C	1259	40		TWO RIVERS	2002	NO	NO	2,4,5	YES
TABLE MOUNTAIN	2672	C	120	11		JOHN DAY					
JOHNNY CREEK /DICK CREEK	4001	C	2158	423		JOHN DAY	2005	NO	NO	2,3,5	NO
SLICKEAR MTN.	4003	I	3274	537		JOHN DAY					
WINDY POINT	4007	I	2514	407		JOHN DAY	2005	NO	NO	2,3,5	NO
BIRCH CREEK	4009	C	3009	350		JOHN DAY	2005	NO	NO	2,3,5	NO
RIVER	4012	C	135	13		JOHN DAY					
JOHN DAY	4013	C	40	5		JOHN DAY					
MIDDLE FORK	4014	C	200	16		JOHN DAY					
MUD SPRINGS	4015	C	586	30		JOHN DAY					
DIXIE	4016	I	1900	236		JOHN DAY					
MURDERER'S CREEK	4020	M	17315	860	CAP	JOHN DAY					
SIDEHILL	4026	C	40	6							
NEAL BUTTE	4028	C	712	119		JOHN DAY					
NORTH FORK	4029	I	2250	316		JOHN DAY					
RIM	4035	C	654	41		JOHN DAY					
STONEHILL	4036	I	520	80		JOHN DAY					
DAYVILLE	4038	C	1640	141		JOHN DAY					
ALDRICH MTN.	4039	C	40	5		JOHN DAY					
MERRELL	4040	C	40	9							
FRANKS CREEK	4041	I	2297	196		JOHN DAY	2005	NO	YES	1,2,3,5	YES
JOHNNY CAKE MTN.	4042	C	280	30		JOHN DAY					
MAHOGANY	4043	C	320	64		JOHN DAY					
SODA CREEK	4044	C	2023	405	AMP	JOHN DAY	2003	NO	YES	1,2,3,4,5	
BATTLE CREEK	4049	I	4958	830	AMP	JOHN DAY	2004	YES		N/A	N/A
JINKS CREEK	4050	C	80	16		JOHN DAY					
BIG BALDY	4052	I	10712	1743	AMP	JOHN DAY	2004	YES		N/A	N/A
POINTER	4056	I	94	12							
SUGARLOAF	4058	C	160	45		JOHN DAY					
COLD SPRINGS	4059	C	240	30		JOHN DAY					
SCOTT CREEK	4061	C	947	119		JOHN DAY	2005	NO	NO	1,3,5	NO
ANTELOPE	4064	C	20	2		JOHN DAY					
EAST FRANKS CREEK	4065	C	644	81		JOHN DAY	2005	NO	NO	1,3,5	NO
KIDD CREEK	4066	C	723	91		JOHN DAY	2005	NO	NO	1,3,5	NO
SHEEP CR. BUTTE	4067	C	850	153		JOHN DAY					
SHEEP GULCH	4068	I	3499	250		JOHN DAY	2005	NO	NO	3,5	NO
TAMARACK CREEK	4072	C	960	64							
MCCARTY CREEK	4074	C	200	20		JOHN DAY	2005	NO	YES	2	YES
ECHO	4075	C	32	5		JOHN DAY	2004	NO			YES
COTTONWOOD CREEK	4076	I	3113	204		JOHN DAY	2004	NO	YES		YES
GIBSON HILL	4078	C	40	8		JOHN DAY					
SOUTH STONEHILL	4080	C	320	63							
JACK OF CLUBS	4082	C	80	8		JOHN DAY					
19 20	4083	I	160	26		JOHN DAY					
RUDIO MTN.	4086	I	3757	590		JOHN DAY	2005	NO	NO	2,3,5	NO
BLUE BASIN	4087	C	1812	305		JOHN DAY	2005	NO	NO	2,4	NO
WEST BOLOGNA CREEK	4093	C	80	12		JOHN DAY					
FIELDS CREEK	4095	C	1092	214		JOHN DAY					

INDIAN	4099	C	40	5		JOHN DAY						
ROCKPILE	4103	I	4918	928	AMP	JOHN DAY	2004	YES		N/A		N/A
SOUTH FORK	4104	C	240	47		JOHN DAY						
IZEE	4106	C	200	41		JOHN DAY						
CANYON TERRACE	4107	C	158	20		JOHN DAY						
LITTLE WALL CREEK	4108	C	320	53		JOHN DAY						
BIG CANYON CREEK	4109	C	146	20		JOHN DAY						
CANYON MTN.	4115	C	41	5		JOHN DAY						
BLACK CANYON	4119	C	944	188		JOHN DAY	2004	YES		N/A		N/A
FERRIS CREEK	4120	I	3135	277		JOHN DAY	2005	NO	NO	1,2,3,5		NO
BIG BEND	4122	C	280	25		JOHN DAY						
SMOKEY CREEK	4124	I	2213	307		JOHN DAY	2002	YES		N/A		N/A
UMATILLA	4125	C	1834	113		JOHN DAY						
KIMBERLY	4127	C	240	40		JOHN DAY						
DAY CREEK	4131	C	1583	160		JOHN DAY						
GIBSON CREEK	4135	C	40	7		JOHN DAY						
BONE YARD	4139	C	20452	92		JOHN DAY						
SHIRT TAIL CREEK	4140	C	40	8		JOHN DAY						
TWO COUNTY	4145	I	13796	1105		JOHN DAY	2005	NO	NO		4	NO
KINZUA	4151	I	8292	539		JOHN DAY	2005	NO	NO	2,3,5		NO
MORGAN CREEK	4154	C	1447	290		JOHN DAY						
BLACKHORSE DRAW	4155	C	120	29	AMP	JOHN DAY						
RUDIO CREEK	4156	I	2328	369		JOHN DAY	2005	YES	N/A			N/A
MILLER MOUNTAIN	4159	C	40	5		JOHN DAY						
BOLOGNA CREEK	4160	C	440	37		JOHN DAY						
CREEK	4163	I	706	51		JOHN DAY						
PASS CREEK	4184	C	80	10		JOHN DAY						
BIG FLATS	4186	C	825	100		JOHN DAY						
JACK RHODDEN	4191	C	200	26		JOHN DAY						
WILLIAM HEALY	4192	I	3701	360		John Day						
DOHERTY P.JOE SHEEP	4193	I	4378	360		John Day						
COW CREEK	4352	C	360	10		JOHN DAY						
HEALY	6549	C	3701	360		John Day						

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Prineville District Office
3050 N.E. 3rd Street
Prineville, Oregon 97754

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

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Permit No. G-76

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

BUREAU OF LAND MANAGEMENT

PRINEVILLE DISTRICT OFFICE

BLM/OR/WA/PL-07/008-1792