



U.S. Department of the Interior
Bureau of Land Management

Prineville District Office
3050 NE 3rd Street
Prineville, Oregon 97754

June 2000



John Day River Proposed Management Plan, Two Rivers and John Day Resource Management Plan Amendments and Final Environmental Impact Statement

Volume 1
Executive Summary
and Chapters 1-5

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interest of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

BLM/OR/WA/PT-00/048+1792

**JOHN DAY RIVER PROPOSED MANAGEMENT PLAN,
TWO RIVERS AND JOHN DAY RESOURCE MANAGEMENT PLAN
AMENDMENTS AND
FINAL ENVIRONMENTAL IMPACT STATEMENT**

DATE: 6-23-00

Dear Friend of the John Day River,

We are pleased to release this document. Its preparation has been long and difficult and has required substantial involvement from a large number of people in agencies, advisory groups, and the public.

This document was prepared with the cooperation of five planning partners which are the BLM, Bureau of Indian Affairs, John Day River Coalition of Counties, Confederated Tribes of Warm Springs, and the State of Oregon. Each of these partners were represented on a Core Team which guided the content of this plan. The scope of this project was great. (Over 550 miles of river in the John Day River system). And the number of issues to be resolved was even greater. Many of these issues are among the most controversial land use issues being discussed today, including grazing on public lands, water use, motorized boating, boating limits and more. The Core Team, supported by many advisors and assistance, was able to achieve consensus on most proposed decisions for the issues before them. However, total consensus was not achieved on every issue. For issues that are within BLM's authority and where consensus was not reached, BLM has brought forward their position as the proposed decision

We want to thank the Core Team for their remarkable cooperation, the planning team for their hard work and long hours, the John Day / Snake Resource Advisory Council, and the hundreds of people who provided thoughtful comments on the scoping and draft of this plan. We are confident that their endeavors will launch a new era of protection and enhancement of the outstandingly remarkable river values on one of the most important rivers in our region.

Sincerely,

A handwritten signature in cursive script that reads "Danny L. Tippy".

Danny L. Tippy
Acting CORA Field Manager

PROTEST PROCEDURES

The planning process includes an opportunity for an administrative review of the plan amendment. If you believe approval of any provision of this proposed planning amendment would be in error (See CFR 1610.52, available at the Prineville District Office), you may submit a plan protest to the Bureau of Land Management (BLM) Director. Careful adherence to these guidelines will assist in preparing a protest that will assure the greatest consideration to your point of view.

Only those persons or organizations that participated in the planning process leading to this plan amendment may protest. If our records indicate that you had no involvement in any stage in the preparation of this document, your protest will be dismissed without further review. Further, a protesting party may raise only those issues that he or she submitted for the record during the planning process.

A Notice of Availability of the proposed John Day River Plan, Two Rivers and John Day Resource Management Plan Amendments and Final Environmental Impact Statement will be published in the Federal Register and in the following newspapers; The Bend Bulletin, The Central Oregonian, The Redmond Spokesman, the Blue Mountain Eagle, Times Journal and The Oregonian. The protest period extends for 30 days from July 14, 2000, or publication in the Federal Register, whichever date is later. There is no provision for any extension of time. To be considered timely, your protest must be postmarked no later than the last day of the protest period. Also, although not a requirement, we suggest that you send your protest by certified mail, return receipt requested,

Protests must be filed in writing to:

Director, (WO-210)
Bureau of Land Management, US Department of Interior
Attn: Brenda Williams
1849 C Street, NW
Washington, D.C. 20240

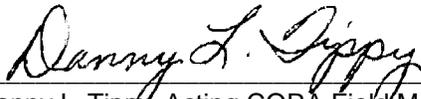
To be considered complete, your protest must contain, at a minimum, the following information:

- * Name, mailing address, telephone number, and the affected interest of person filing the protests.
- * A statement of the issue or issues being protested.
- * A statement of the part or parts of the planning amendment being protested. To the extent possible, reference specific pages, paragraphs. And sections of the document.
- * A copy of all documents addressing the issue or issues that you submitted during the planning process or a reference to the date the issue or issues were discussed with BLM for the record.
- * A concise statement explaining why the proposed decision is believed to be incorrect. This is a critical part of your protest. Document all relevant facts. As much as possible, reference or cite the planning and environmental analysis documents. A protest that merely expresses disagreement with the State Director's proposed decision, without any data will not provide us with the benefit of your information and insight. In this case, the Director's review will be based on the existing analysis and supporting data.

JOHN DAY RIVER PROPOSED MANAGEMENT PLAN, TWO RIVERS AND JOHN DAY RESOURCE MANAGEMENT PLAN AMENDMENTS AND FINAL ENVIRONMENTAL IMPACT STATEMENT

Central Oregon Resource Area Field Manager Recommendation

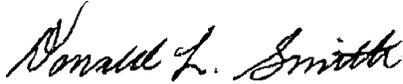
I recommend the proposed John Day River Plan and associated amendments to the Two Rivers and John Day Resource Management Plans, as described in the proposed decisions in this final environmental impact statement. The proposed river plan addresses all issues raised that are relevant for resolution by the Bureau of Land Management and State of Oregon and meets the requirements of BLM Manual 8351 for Wild and Scenic Rivers. The proposed RMP amendments were prepared in accordance with 43 CFR 1610.5-5 and would provide land use allocations and management direction for Bureau administered lands and resources that would protect or enhance river values throughout the John Day River basin.



Danny L. Tippy, Acting CORA Field Manager

Prineville District Manager Concurrence

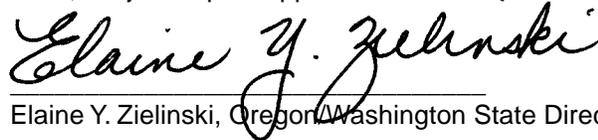
I approve the proposed John Day River Plan and recommend, for State Director approval, the associated amendments to the Two Rivers and John Day Resource Management Plans, as described in the proposed action alternative in this final environmental impact statement.



Donald L. Smith, Acting Prineville District Manager

Oregon/Washington State Director Approval

I concur with the proposed decisions in the John Day River Plan and approve the associated amendments to the Two Rivers and John Day Resource Management Plans, as described in the in this final environmental impact statement. This document meets the requirement for agency analysis and decisionmaking as provided in 40 CFR 1500, subject to plan approval and administrative review procedures in 43 CFR 1610.5-2.



Elaine Y. Zielinski, Oregon/Washington State Director

The Bureau acknowledges the contributions of the partners in this effort. Specific decisions by the Confederated Tribes of the Warm Springs Reservation of Oregon, John Day River Coalition of Counties, Oregon Parks and Recreation Department, Oregon State Marine Board, Oregon Department of Fish and Wildlife and USDI, Bureau of Indian Affairs will be made through their authorities and procedures.

PROPOSED JOHN DAY RIVER PLAN AND ENVIRONMENTAL IMPACT STATEMENT

1. Responsible Agency: United States Department of the Interior, Bureau of Land Management

2. Draft () **Final (X)**

3. Administrative Action (X) Legislative Action ()

4. Abstract: The proposed John Day River Management Plan and Final Environmental Impact Statement considered at least five alternatives for managing various resources and programs along over 200 river bank miles of the John Day River System. The John Day River is one of the longest free flowing river systems in the continental United States. The John Day watershed is located in northeastern Oregon and encompasses all or portions of eleven counties, six of which would be directly affected by the proposed plan. This document has divided the John Day River system into 11 different segments for management purposes. Congress designated six of these segments (totaling 248.6 miles) as Wild and Scenic in 1988. This legislation also mandated a management plan be written in cooperation with the State of Oregon and affected Native American Tribes. Consequently, this plan was written as a cooperative effort between the following agencies and groups, collectively known as the "partners": BLM, State of Oregon, Confederated Tribes of Warm Springs Reservation of Oregon, USDI Bureau of Indian Affairs and John Day River Coalition of Counties (Gilliam, Grant, Jefferson, Sherman, Wasco, and Wheeler Counties).

A draft of this document was released for a 90 day public review and comment period on December 3, 1999. Comments received helped the partners develop the proposed decisions in this plan. Major issues addressed by this plan include livestock grazing, boating use levels, commercial services, motorized boating, and public agricultural lands and related water use. Many other issues are also addressed by this plan and proposed decisions are made for each issue. They are displayed with alternatives considered. Alternative A describes the existing management situation for each resource of use (no action). The other alternatives were designed to protect and enhance the outstanding remarkable values which Congress identified for the designated Wild and Scenic segments and to protect and enhance similar river values for certain non-designated segments. Chapter IV of this document presents rulemaking by the State of Oregon for the State Scenic Waterway segments of the John Day River, most of which overlaps with designated Wild and Scenic segments.

This proposed plan describes certain restrictions on each livestock grazing allotment along the segments designated Wild and Scenic and certain segments not so designated where they are situated in a way that directly affects the designated segments. Boating use levels and motorized boating restrictions, which vary by river segment, are proposed. Short and long-term strategies for management of commercial outfitter and guide permits are proposed for the river. Several small tracts of BLM administered irrigated agricultural lands are to be converted from commercial use to provide wildlife habitat and native vegetation. Any decisions which reallocate land uses or change major resource allocations would also amend or revise the BLM's Two Rivers and John Day Resource Management Plans under 43 *Code of Federal Regulations* 1610.5-5 or 5-6. Release of this proposed plan and EIS, begins a 30day protest period.

5. Date protests and comments must be received: August 14, 2000

6. Date Proposed Plan and Final Environmental Impact Statement made available to Environmental Protection Agency and public: July 14, 2000.

7. For further information contact:

Dan Wood
Bureau of Land Management
PO Box 550
Prineville, Oregon 97754
Telephone: (541) 416-6700

JOHN DAY RIVER PROPOSED MANAGEMENT PLAN, TWO RIVERS AND JOHN DAY RESOURCE MANAGEMENT PLAN AMENDMENTS AND FINAL ENVIRONMENTAL IMPACT STATEMENT

EXECUTIVE SUMMARY

INTRODUCTION

This Proposed John Day River Plan and Environmental Impact Statement has been developed by five partners who have authorities of responsibilities for management of the John Day River System. These partners are the Bureau of Land Management, State of Oregon, Confederated Tribes of the Warm Springs Reservation of Oregon, Bureau of Indian Affairs and the John Day River Coalition of Counties.

This plan includes proposed decisions for management of federally designated Wild and Scenic River Segments and State of Oregon designated State Scenic Waterways. Proposed decisions are also offered for segments that are not so designated, especially where they affect adjacent designated segments. Some proposed decisions are Resource Management Plan (RMP) Amendments for the Two Rivers RMP and the John Day RMP.

ISSUES, ALTERNATIVES AND IMPACTS

The partners in this plan have identified several issues to be resolved by this planning effort, along with alternative ways of resolving these issues. This proposed plan has not proposed the same alternative to resolve each issue. The proposed decision was selected for each issue by a core team made of representatives of the partners. The BLM has also received advice from the John Day/Snake Resource Advisory Council throughout the planning process, including selection of proposed decisions. Proposed decisions were based on planning analysis using information derived from resource inventories, monitoring studies and interdisciplinary evaluations conducted over the past several years.

MAJOR ISSUES

There are numerous issues of interest and importance addressed by this plan. Those of most public interest include grazing, water use, boating use limits and motorized boating. The effects that grazing has on river values has generated the most interest.

KEY FINDINGS

Outstandingly remarkable values on the John Day River are most directly influenced by natural events and the existing and future environmental health of the John Day River watershed ecosystem. The free flowing nature of the John Day River with its natural wide range in water levels, influences vegetative potential and limits some recreation opportunities. Land management practices in the headwaters and uplands of the watershed determine water quantity and quality long before the water reaches the designated Wild and Scenic segments of the river.

There are many private land owners, various agencies, tribes and other entities who have some type of management authority within the watershed. Cooperation and coordination with all of these people is and will be necessary for successfully protecting and enhancing the river values.

Final John Day River Plan and EIS

The partners in this plan, including BLM, have little direct influence over the health of the watershed due to the small amount of land they administer. (This plan affects about 2% of the land in the basin. The majority of the watershed, 62%, is privately owned.) In addition, much of the BLM land is in smaller tracts surrounded by private land, making management of the private lands even more of an influence on BLM lands. The partners in this plan not only recognize their important role in managing their own lands to protect and enhance river values, but also recognize the opportunity and responsibility to provide leadership and assistance to other land owners in the watershed to also protect and enhance river values.

Other key findings include:

The effects that management actions have on riparian vegetation is a foundation for protection and enhancement of river values. Monitoring shows that riparian vegetation is increasing in density, diversity and function on grazing allotments where riparian enhancing grazing management practices have been implemented.

Closing the corridor or riparian areas to grazing would require additional visual and economic impacts associated with construction of new facilities (eg. fences, water facilities, etc.).

There are a broad range of recreational opportunities within the watershed, some of which can conflict with other river values.

Water quality and quantity is an important component of protection and enhancement of fisheries, recreation and other outstandingly remarkable values in the river corridor. Water quality is improving.

The existing amount of boating use may be contributing to environmental impacts to some popular recreation sites. A study is underway to determine appropriate boating use levels.

Methods for limiting boating and the number of guides and outfitters are numerous and highly controversial. Some of the methods considered are relatively new concepts and are being tested on the neighboring Deschutes River. Management of the John Day River will be influenced by the outcomes of these new efforts on the Deschutes River.

CHANGES FROM THE DRAFT TO FINAL EIS

Key changes from the draft to final EIS are that the affected environment description has been updated, the cumulative impacts discussion has been explained and expanded, inconsistencies in the draft have been resolved, and the State of Oregon has issued final rules for the John Day River State Scenic Waterway in Chapter 4. Also some preferred alternatives were changed or modified. These changes and modifications were based upon public comment, new information, and additional analysis. Preferred alternatives were changed for BLM agricultural lands and motorized boating. Preferred alternatives were modified for grazing, boating use allocation and commercial outfitters and guides. Preferred alternatives are now referred to as "Proposed Decisions."

Table S-1. Proposed Decisions for Issues with Multiple Alternatives

Issue	Key Elements				
	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E
Scenery	X				
Management consistent with RMP classifications, except change classifications to VRM I in WSAs, and Class III on the North Fork and at sites of existing and proposed recreation development.					
Vegetation					
Forestland	X				
Apply existing John Day RMP guidelines for management of riparian areas to all public land in Segments 7 and 10. Timber removal only to reduce risk of catastrophic timber losses due to insect infestation, disease or wildfire.					
Grazing	X				
Utilizes variety of management strategies to protect and enhance ORVs including use restrictions, rest, and riparian exclusion.					
Agricultural Lands		X			
Identifies 25.6 acres of public land for disposal in exchange for more suitable lands within river corridor. Commits 359 acres of public lands with associated water rights to non-commodity uses, including food and cover crops or restoration of natural vegetation. Ten-year phased implementation.					
Recreation					
Boating Use Levels		X			
Base future decisions on LAC. Seg. 1, No overall launch targets. Segments 2 and 3, overall launch target equal 70% of public land campsites within 15 miles of major launch points.					
Allocation			X		
Common pool; first come first served, if similar system established on Deschutes River.					
Motorized Boating	Seg. 1		Seg. 2	Seg. 3	
Segment 1 - Closed May 1 through Sept. 30. Segment 2 - Closed all year. Segment 3 - Closed May 1 through September 30.					
Dispersed Recreation		X			
Future decisions based on LAC. Segment 1: No action. Segment 2&3: Create user map of campsites that can best sustain human use. Designate dispersed camping area on west bank near Clarno. Segments 10 and 11: Identify preferred dispersed camping areas, install signs and parking barriers.					
Developed Recreation	Seg. 11	Seg. 1,2, and-3	Seg. 10		
Segment 1: Add boat ramp and boater registration station at Rock Creek and provide picnic tables at Cottonwood. Provide parking for Oregon Trail Monument. Segment 2: Add launch lane and pay phone at Clarno. Segment 3: Install toilet at Priest Hole, add primitive launch at Lower Burnt Ranch, and develop public launch site at Twickenham. Segment 10: In approximately 10 years, from ROD, develop campground near Ellingson Mill. Segment 11: No action. Segment 1: Clarify status of access to Oregon Trail Monument. Segment 2: Improve BLM road on west bank of river from Clarno to Clarno Homestead; close area past Clarno Homestead to vehicles during first 10 days of pheasant hunting season. Segment 3: Provide public access to river near Twickenham; eliminate motorized access to existing Burnt Ranch site, while improving access to Lower Burnt Ranch site. Segments 10 and 11: Improve ditches and culverts, and gravel the surface of South Fork Road.					
Public Access		X			
No limit on # of outfitter guide permits. After initial moratorium, issue new permits and transfers at discretion of Authorized Officer, based on needs assessment. Transfers according to BLM policy. Increase permit requirements, minimum use requirements, and application fees. Conduct independent random audits of permit records.					
Commercial Use		X			
Mining activity must meet screening regulations prescribed in Chapter 4 (State Scenic Waterway Regulations). No surface occupancy for leasable minerals; stipulations to protect river values, no new sites for production of salable minerals on BLM lands. Developed facilities closed to leasing and salable minerals and withdrawn from entry for locatable minerals.					
Minerals		X			
Existing guidance continue, plus pursue additional potential acquisitions to enhance ORVs (all acquisitions would require a willing seller). Amend land use authorization of newly acquired WSA lands in Segments 2 and 3 to WSA status.					
Land Ownership, Classifications, and Use Authorizations		X			

Table S-2. Issues Addressed by Multiple Action Alternatives (Proposed Decision in Bold)

Issue	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Scenery	<p>Manage scenery consistent with VRM classifications in current RMPs; Class II within all WSR segments, most non-designated segments, and portions of some tributaries.</p>	<p>Allow continued use, maintenance and expansion of existing BLM recreational facilities within river corridor, including boat ramps and parking lots. Designate and manage such facilities as VRM Class III islands within river corridor VRM Class II designation. New recreation sites within corridor would be designated and managed consistent with VRM Class III.</p>			
Vegetation		<p>VRM classifications in John Day RMP for portions of Segment 7, on North Fork John Day River, would be reclassified from VRM IV to VRM III to provide greater VRM protection. This would apply to current BLM lands, as well as any acquired lands until John Day RMP is amended or revised.</p>			
Special Status plants	<p>Continue existing management to protect and enhance ORVs.</p>				<p>Same as Alternative A, except change classification in WSAs to VRM I to be consistent with updated BLM guidance.</p>
Weeds	<p>Continue existing management to protect and enhance ORVs.</p>				
Fire	<p>Continue existing management to protect and enhance ORVs.</p>				
Forestlands	<p>Continue existing management.</p>				<p>Same as Alternative A, plus substitute John Day RMP guidelines for management of riparian areas for existing management guidelines for upland areas within the planning area in Segments 7 and 10.</p>

Table S-2. Issues Addressed by Multiple Action Alternatives (Proposed Decision in Bold)

Issue	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
<p>Grazing</p>	<p>Continue existing management by applying varying management practices that emphasize riparian oriented management that protects and enhances river values. Some allotments do not meet this goal (see Table 3-E.)</p>	<p>Manage grazing to protect and enhance ORVs. 105 Bank miles managed grazing. Season not to exceed 2 months, primarily late winter early spring. In pastures with riparian areas within designated corridor that are currently grazed in spring, grazing authorized only when flows exceed 2,000 cfs to aid in protection of riparian vegetation. For such pastures that are currently winter grazed, the 2000 cfs restriction is an interim measure (see Monitoring in Chapter 3). Establish compliance, utilization and trend standards for continued grazing. If grazed riparian areas within designated corridor are not improving at same rate as similar ungrazed areas within 10-15 years, exclude grazing permanently. 72 Bank miles riparian exclusion (fence or natural barriers) 18 Bank miles rest at least 3 years.</p>	<p>Restrict grazing to outside of riparian areas to protect and enhance ORV's 194 bank miles of riparian enclosure.</p>	<p>Restrict grazing to outside of Wild and Scenic River Boundary to protect and enhance ORVs 193 bank miles of riparian enclosure. 65,845 acres of upland and riparian area excluded from grazing.</p>	<p>No Alternative E</p>

Table S-2. Issues Addressed by Multiple Action Alternatives (Proposed Decision in Bold)

Issue	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Agricultural Lands	Continue Existing Management	Modify existing management as necessary to protect and enhance river values. Commercial agriculture permitted on BLM land.	Manage land with emphasis on protecting and enhancing terrestrial wildlife values and restoring perennial vegetation. Phase out commercial agriculture on BLM lands.	Manage land to protect and enhance instream values and restore native vegetation. Phase out irrigation of BLM managed lands.	No alternative
Acres Irrigated for Commodity Use	221 to 385	195	0 in 10 years	0 in 20 years	
Potential Acres Irrigated for Non-Commodity Use	0-164± (Not all acres would be irrigated every year.)	164± (Not all acres would be irrigated every year.)	359±.* Acres irrigated as needed to establish perennial vegetation. Number of acres irrigated would be reduced by stage of restoration and need for hardwood stock or wildlife food and cover.	0 in 20 years	
Acres Restored to Perennial Vegetation	0-164	0-164	Approx. 300- 359 acres (long term goal). Approx. 60 acres of total agriculture lands would be kept in wildlife food and cover crops.	359± (All acres would be restored to native vegetation under this alternative.)	
Acres disposed	0	26± (assumed to be used for irrigated Agriculture)			
Recreation					
Boating Use Levels					
Interim	No restrictions on number of launches, encourage launches during off-peak periods	Segment 1: Same as A Segments 2 and 3: Target Launches at 1998 levels.	Segment 1: Same as A Segments 2 and 3: Target launches equal 70% of campsites within 15 miles of launch points.	Segment 1: Same as A Segments 2 and 3: Target launches equal historical average of peak period daily launches.	Launch target same as C except: Segments 1 and 2: March: Target of 1 motorized boat launched per day. April: Target of 2 motorized boats launched per day.
Long Term	No restrictions planned	Future decisions based on LAC study, mandatory launch limits may		be imposed.	
Allocation System	Allocation not needed	Historical Proportions	Annual common pool lottery system	Common Pool, first-come first served, if similar system established on Deschutes River.	

Table S-2. Issues Addressed by Multiple Action Alternatives (Proposed Decision in Bold)

Issue	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Motorized Boating	Continue existing LAC monitoring to inform future decision making; continue existing closure to personal watercraft use (jet skis). Segments 10 and 11: Open	Segments 10 and 11 (South Fork of the John Day Wild and Scenic River) Closed to Motorized Boating			
	Segment 1 - Closed to motorized use May 1 to October 1. Segment 2: Closed to motorized use May 1 to October 1.	Segment 1: Closed March 1 to December 1 Segment 2: Closed March 1 to December 1. Closed year round if WSAs are designated Wilderness.	Segment 1: Closed April 1 to December 1 Segment 2: Closed April 1 to Oct 1 between Clarno and Clarno Rapids (electric motors ≤ 40 lb. thrust permitted) Closed year round below Clarno Rapids	Segments 1 and 3: Motorized boating not permitted. Segment 2: Motorized boating not permitted.	Segments 1 and 2 : Motorized boating permitted only December 1 to end of April. Segment 2: Close year round below Clarno rapids if WSAs are designated Wilderness. Segment 3: Closed May 1 to October 1. (The dates for this segment have been modified since the draft.)
Dispersed Recreation	Encourage dispersed use in areas that can best sustain impacts of camping. Future Management decisions would be based on LAC study.	Decisions made on case by case basis	Segment 1- No actions. Segments 2 & 3: Create user map identifying campsites that best sustain impacts of camping. Segment 2: Create a designated area on west bank near Clarno Creek for dispersed camping. Segments 10-11: Identify preferred camping areas and install signs and parking barriers to protect vegetation.	Improve or upgrade existing facilities when needed to protect resources	
Developed Recreation	Segment 1 Maintain Cottonwood and Rock Creek facilities. No scheduled maintenance for Oregon Trail interpretive site (west side). Segment 2 Maintain Clarno	Same as Alt. A, except add boat ramp and boater registration station at Rock Creek and provide picnic tables at Cottonwood. Provide parking and maintain Oregon Trail interpretive site (west side). Expand launch capability, add pay phone at Clarno, and provide water for dump station	Same as Alt. B	Same as Alt. A, except close existing facilities at Rock Creek.	Maintain Clarno.

Table S-2. Issues Addressed by Multiple Action Alternatives (Proposed Decision in Bold)

Issue	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Developed Recreation (continued)					
Segment 3	Maintain Service Creek and Priest Hole facilities.	Same as Alt. A, except install toilet at Priest Hole. Also replace existing Burnt Ranch & private Twickenham sites with primitive launch at Lower Burnt Ranch and developed site at Twickenham.	Same as Alt. B plus make improvements to Clarno East, develop Lower Burnt Ranch into camping area with signs, information board, parking barriers, and toilet.	Same as Alt. A, except discourage use at Clarno East and close the existing Burnt Ranch site to vehicles.	
Segment 10	No developed sites	Same as Alt. A.	In approx. 10 years from ROD, develop campground near Ellingson Mill with toilet, tables, information board, signs, and parking barriers.	No actions proposed	
Segment 11	No developed sites				
Public Access					

Table S-2. Issues Addressed by Multiple Action Alternatives (Proposed Decision in Bold)

Issue	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Commercial Use	Continue existing Management. Case by case review. No limit on number of permits and permits are transferable.	<p>Decisions concerning commercial services would fully consider type of service, consistency with management goals and objectives, the ability of applicants to provide service, opportunity to make a profit, public safety, and BLM workload. Determinations made through a needs assessment process. Moratorium on new permits and transfers until launch numbers are finalized in approximately 3 years. Increase minimum use requirements.</p> <ol style="list-style-type: none"> Increase permit requirements for training in river rescue, Leave No Trace, and Interpretation. Charge a non-refundable application fee to verify that application requirements are met. Conduct independent random audits of permit records. No Administrative limit on number of permits. After initial moratorium, permits transferable according to BLM policy. 	Permit numbers adjusted on basis of needs assessment. Permit transfers allowed to applicants meeting needs-assessment criteria.	Limit number of permits to 34. Permits not transferable. Available permits granted based on needs assessment and competitive prospectus. Concession permits based on needs assessment may be issued and would be in addition to 34 permits	
Minerals	Continue Existing Management	Same as Alt. A, except the following would provide additional protection of river values: <ol style="list-style-type: none"> No surface occupancy restriction for leasable minerals in Grant County within plan area. Adopts State Scenic Waterway rules (Ch. 4). Where permitted, mining would be subject to stipulations to protect river values. On BLM lands, new sites for production of salable minerals would not be permitted within State Scenic Waterways or Wild and Scenic Rivers. Facilities, such as established campgrounds and launches, would be closed to leasing and salable minerals and withdrawn from entry under the Mining Law of 1872 for locatable minerals. 	Same as Alt. A, except the following would provide additional protection of river values: <ol style="list-style-type: none"> No surface occupancy restriction for leasable minerals in Grant County within plan area. Adopts State Scenic Waterway rules (Ch. 4). Where permitted, mining would be subject to stipulations to protect river values. On BLM lands, new sites for production of salable minerals would not be permitted within State Scenic Waterways or Wild and Scenic Rivers. Facilities, such as established campgrounds and launches, would be closed to leasing and salable minerals and withdrawn from entry under the Mining Law of 1872 for locatable minerals. 	Close BLM-managed lands in Wild and Scenic River Segments and State Scenic Waterway segments to leasing and salable mineral activity and withdraw locatable minerals from entry under the Mining Law of 1872 to eliminate possibility that mining within Wild and Scenic River boundary could adversely impact river values.	
Land Ownership, Classifications, and Use Authorizations	Continue Existing Management	Same as Alt. A and identify parcels suitable for acquisition to protect and enhance river values and to facilitate administration. Amend land use authorization of newly acquired WSA lands in Segments 2 and 3 to WSA status.	Same as Alternatives B and C, plus seek to acquire additional lands to facilitate Alternative D for grazing.	Same as Alternatives B and C, plus seek to acquire additional lands to facilitate Alternative D for grazing.	

Table S-3. Summary of Direct Impacts (Proposed Decisions in Bold)

Issue	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Scenery					
VRM Classification	Management consistent with existing RMPs.	Provide greater VRM protection for portions of Segment 7, the North Fork. Allow recreation facilities to be maintained and developed. Scenery management in WSAs would be consistent with current BLM policy.			
Vegetation					
Special Status plants	Maintain or increase populations of special status plants				
Weeds	Reduce populations of non-native species that compete with native species.				
Fire	Continue existing management				
Forestlands	100 mbf over 20 years.	20 mbf over 20 years.			

Table S-3. Summary of Direct Impacts (Proposed Decisions in Bold)

Issue	Alternative A		Alternative B		Alternative C		Alternative D		Alternative E	
	1986 Public	1986 Private	Present Pub.	Present Private	Public	Private	Public	Private		
Management in WSR Segments (1,2,3,10,11)	6.1	1.5	64	55	71.6	54.6	193.8	157.9	192.8	126.1
Grazing Excluded (miles of riverbank)	9.2	10.5	24.7	12.4	18.2	13.6	4.0	7.3	4.0	7.3
Non-use Riparian Oriented Mgmt. (miles of riverbank)	182.5	151.9	121.2	68.7	105.4	78.9	0	1	0	1.4
No Riparian Oriented Mgmt. (miles of riverbank)	0	35.7	10.2	30.2	2.6¹	16.9	0		1 ²	
Prvt. Land Mgmt. not tied to BLM Allotments (miles of riverbank)	n.a.		0	37.4	0	35.6	0	33.4	64.8	
Miles of New Fence	n.a.		3.5	0	23.3	0	112.7	96.5	99	52.3
# New Water Developments	n.a.		4	0	24	0	113	96	99	52
Acres Closed to Grazing	unknown		387	331	393	321	881	807	65,845	15,118
AUMs cancelled	n.a.		0	0	0	0	9		2,725	

¹Resolved with land exchange or development of allotment management plan

²Small isolated tracts

Table S-3. Summary of Direct Impacts (Proposed Decisions in Bold)

Issue	Alternative A		Alternative B		Alternative C		Alternative D		Alternative E
	1986 Pub.	Present Priv.	Public	Private	Public	Private	Public	Private	
Management in Non-Designated Segments (4,5,6,7,9)	N.A.	12	15	30	43	79	43	79	
Grazing Excluded (miles of riverbank)	not avail.	24	27	49	0	0	0	0	
Riparian Oriented Mgmt. (miles of riverbank)	N.A.	6.9	1.2	10	0	15	0	0	
No Riparian Oriented Mgmt. (miles of riverbank)	N.A.	0	0	392	0	388	0	402	
Private Land Mgmt (miles of riverbank)	N.A.	0	0	0	33.0	65.4	52.2	74.3	
Miles of New Fence	N.A.	0	0	0	33	65	52	74	
# New Water Dvlpmnts	not avail.	71	89	179	569	1,265	4,732	7,656	
Acres Closed to Grazing	N.A.	0	0	0	19		414		
AUMs cancelled									
Agricultural Lands									
Acres Irrigated for Commodity Use	221-385±		195±		0 in 10 years		0 in 20 years		
Acres Potentially Irrigated for Non-Commodity Use	0-164± *Not all acres will be irrigated every year		164± *Not all acres will be irrigated every year		359 Acres subject to irrigation. Not all acres will be irrigated every year.		0 in 20 years		
Acres Restored to Native Vegetation	0-164		0-164		Approximately 300-359 (long term goal). Approximately 60 acres of agricultural lands would be kept in wildlife food and cover crops.		359± *All acres would be restored to native vegetation under this Alternative		
Acres disposed	0		26± (assumed to be used for irrigated Agriculture)						

Table S-3. Summary of Direct Impacts (Proposed Decisions in Bold)

Issue	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Recreation					
Boating Use Levels for Segments 1-3					
Interim Number of Launches per day	No Restrictions	Segment 1: No restriction. Segment 2: 16 Segment 3: 19	Segment 1: No restriction Segment 2: 8 Segment 3: 10	Segment 1: No Restriction Segment 2: 8 Segment 3: 6	Same as C
Potential # of People (assumes max. party size of 16)	No Limit	maximum of 560 people launching per day	maximum of 288 people launching per day	maximum 224 people launching per day	maximum of 288 people launching per day
Motorized boats	No restriction under boating use levels.	Cannot exceed launch limits.	Cannot exceed launch limits.	Cannot exceed launch limits.	Segments 1 and 2: March: Max. of 1 launch per day. April: Max. of 2 launches per day. Segment 3: Cannot exceed launch limits.
Effects on User	No Change	Advance planning required for peak season weekend use.	Competition for peak season weekend use.	Increased competition for peak season weekend use.	Competition for peak season weekend use.
Long Term	Increased use	Future use levels would depend on decisions based on LAC study, mandatory launch limits possible.			
Allocation System					
Principles of system	Open Access	Limited access, 80% private, 20% guided	Application window, random drawing. Requires advanced planning. Private/commercial compete for same pool of permits	First come first served; a proportion of permits available at intervals. Both long- and short-range planners have opportunity to seek permits. Private/commercial compete for same pool of permits.	n.a.
Motorized Boating					
# of days river open to motorized use	Segment 1 = 211 Segment 2 = 211 Segment 3 = 365 Segments 10 & 11 = 0	Segment 1 = 151 Segment 2 = 151 Segment 3 = 151 Segments 10 & 11 = 0	Segments 1 = 120 Segment 2 = 0/181 Segment 3 = 181 Segments 10 & 11 = 0	Segment 1: 0 Segment 2: 0 Segment 3: 0 Segments: 10 & 11: 0	Segments 1, 2: 151 Segments 3: 151 Segments 10 & 11: Same as B.

Table S-3. Summary of Direct Impacts (Proposed Decisions in Bold)

Issue	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Dispersed Recreation					
Changes in Dispersed Camping Opportunities	No change	Segment 1-3: No Change Segments 10-11: Fewer opportunities.			
Developed Recreation					
Changes in condition/ # of sites					
Segment 1	No change.	3 sites improved (Rock Creek, Cottonwood, & Oregon Trail)	3 sites improved (same as Alt. B.)	1 site closed (Rock Creek)	
Segment 2	No change.	1 site improved (Clarno)	1 site improved (Clarno)	No change.	
Segment 3	No change.	2 sites improved (Priest Hole & Lower Burnt Ranch) 1 site added (Twickenham).	3 sites improved (Priest Hole, Lower Burnt Ranch, & Clarno East). Additional improvements at Lower Burnt Ranch. 1 site added (Twickenham).	1 site closed (Burnt Ranch.)	
Segment 10	No sites.	No sites.	1 site added (Ellingson Mill)	No sites.	
Segment 11	No sites.	No sites.	No sites.	No sites.	
Total		6 sites improved, 1 site added.	7 sites improved; 2 sites added.	2 sites closed	
Public Access					
Changes in Access					
Segment 1	No Change	No Change	Add 2 (Tumwater Falls & Hay Creek)	Close 1 (Rock Creek)	
Segment 2	No Change	Improve 1 (Clarno Road)	Improve 1 (Clarno Road) Add 2 (Butte Creek & East Bank Clarno Rapid)	Close 1 (portion of Clarno Road)	
Segment 3	Add 1 (Twickenham)	Improve 1 (Lower Burnt Ranch) Add 1 (Twickenham) Close 1 (Burnt Ranch)	Improve 1 (Lower Burnt Ranch) Add 1 (Twickenham) Close 1 (Burnt Ranch)	Add 1 (Twickenham) Close 1 (Burnt Ranch)	

Table S-3. Summary of Direct Impacts (Proposed Decisions in Bold)

Issue	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Segments 10 and 11	Improve 1 (South Fork Road)	Improve 1 (South Fork Road)	Improve 1 (South Fork Road)	Improve 1 (South Fork Road)	
Total	Improve: 1 Add: 1	Improve: 3 Add: 1 Close: 1	Improve: 3 Add: 5 Close: 1	Improve: 1 Add: 1 Close: 3	
Commercial Use					
# of outfitter guide permits	No limit	No limit; BLM determined need.	No limit; BLM determined need	Limited to 34.	
Permit Transferability	Yes	Yes	Yes, based on needs assessment.	No	
Minerals					
Production Potential	No change	Limits opportunity for exploration and development			None
Land Ownership, Classifications, and Use Authorizations					
Potential Acquisition Acreage	Not identified	4,036 acres		4,036 acres, plus land needed to implement Grazing Alternative D	

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Acronyms and Abbreviations

ACEC	Area of Critical Environmental Concern
AFS	American Fisheries Society
af	acre-feet
AMP	Allotment Management Plan
APE	Area of Potential Effect
ARPA	Archeological Resources Protection Act
ASCS	Agricultural Stabilization and Conservation Service
AUM	Animal Unit Month
BA	Biological Assessment
BLM	Bureau of Land Management
BMP	Best Management Practices
BOR	Bureau of Reclamation
BPA	Bonneville Power Administration
BRD	Biological Research Division
CAA	Clean Air Act
CBFWA	Columbia Basin Fish and Wildlife Authority
cfs	cubic feet per second
CFR	Code of Federal Regulations
COE	Corps of Engineers
CRBC	Columbia River Basin Commission
CRIFC	Columbia River Intertribal Fish Commission
CRITFC	Columbia River Anadromous Fish Restoration Plan
CRMP	Coordinated Resource Management Plan
CTUIR	Confederated Tribes of the Umatilla Indian Reservation
CTWSRO	Confederated Tribes of the Warm Springs Indian Reservation of Oregon
CWA	Clean Water Act
CWR	Critical Deer Winter Range
DEIS	Draft Environmental Impact Statement
DEQ	Department of Environmental Quality
DEIS	Draft Environmental Impact Statement
DLCD	Department of Land Conservation and Development
DR	Decision Record
DRMP	Draft Resource Management Plan
EA	Environmental Assessment
EAWS	Ecosystem Analysis in the Watershed Scale
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESI	Ecological Site Inventory
ESA	Endangered Species Act
FCRPA	Federal Cave Resources Protection Act
FEIS	Final Environmental Impact Statement
FEMAT	Forest Ecosystem Management Assessment Team
FERC	Federal Energy Regulatory Commission
FLPMA	Federal Land Policy and Management Act of 1976
FmHA	Farmers Home Administration
FONSI	Finding of No Significant Impact
FR	Federal Register
FSA	Farm Service Agency
FY	Fiscal Year
GIS	Geographic Information System
GF	Grazing Farm
GWEB	Governor's Watershed Enhancement Board
HCA	Habitat Conservation Areas
HCP	Habitat Conservation Plan

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HMP	Habitat Management Pla
IWSRCC	Interagency Wild and Scenic River Coordinating Council
IBLA	Interior Board of Land Appeals
ICBEMP	Interior Columbia Basin Ecosystem Management Project
IDT	Interdisciplinary Team
IMP	Interim Management Policy
IWM	Integrated Weed Management Program
JDBC	John Day Basin Council
LAC	Limits of Acceptable Change
LCDC	Land Conservation and Development Commission
mmbf	million board feet
MOU	Memorandum of Understanding
MUR	Multiple Use Range
NBS	National Biological Survey
NA	Not Available
NCA	National Conservation Area
NEPA	National Environmental Policy Act of 1969
NF	National Fores
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOALE	Northeast Oregon Assembled Land Exchange
NPPC	Northwest Power Planning Council
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NRPA	National Rangelands Policy Act of 1976
NRS	Natural Resource Specialist
NSO	No Surface Occupancy
OAR	Oregon Administrative Rules
ODA	Oregon Department of Agriculture
ODF	Oregon Department of Forestry
ODFW	Oregon Department of Fish and Wildlife
ODOT	Oregon Department of Transportation
ODSL	Oregon Division of State Lands
OEDD	Oregon Economic Development Department
OEDC	Oregon Economic Development Commission
OHV	Off-Highway Vehicle
OMB	Oregon State marine Board
ONHP	Oregon Natural Heritage Program
ONRC	Oregon Natural Resources Council
OPRD	Oregon State Parks and Recreation Department
ORV	Outstandingly Remarkable Values
ORS	Oregon Revised Statutes
OSLB	Oregon State Land Board
OSO	Oregon State Office of the Bureau of Land Management
OSP	Oregon State Police
OSU	Oregon State University
OWQI	Oregon Water Quality Index
OWRC	Oregon Water Resources Commission
OWRD	Oregon Water Resources Department
PACFISH	Pacific Anadromous Fish Strategy
PFC	Proper Functioning Condition
PILT	Payment in Lieu of Tax
PNC	Potential Natural Communities
PNW	Pacific Northwest Research Station
PPM	Parts Per Million

PRIA	Public Rangelands Improvement Act of 1978
RA	Resource Area
RAC	Resource Advisory Council
RCA	Resource Conservation Area
RM	River Mile
RMP	Resource Management Plan, Recreation Management Plan
RNA	Research Natural Area
ROD	Record of Decision
RPA	Resource Planning Act
RUP	Recreation Use Permit
RUSLE	Revised Universal Soil Loss Equation
RV	Recreation Vehicle
RVD	Recreation Visitor Day
S&Gs	Standards & Guidelines
SCS	Soil Conservation Service
SF	Standard Form
SHPO	State Historical Preservation Office
SR	State Route
SRM	Society for Range Management
SSW	State Scenic Waterway
SVIM	Soil-Vegetation Inventory Method
SWCD	Soil and Water Conservation District
T&E	Threatened and Endangered (species)
TGA	Taylor Grazing Act of 1934
TMDL	Total Maximum Daily Load
TNC	The Nature Conservancy
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
VRM	Visual Resource Management
WARS	Water Availability Resource System
WSR	Wild and Scenic River
WRCC	Western Region Climate Center
WSA	Wilderness Study Areas
WSRA	Wild and Scenic Rivers Act

Chapter 1- Introduction

Introduction

This document is the *John Day River Proposed Management Plan, Two Rivers and John Day Resource Management Plan (RMP) Amendments* and *Final Environmental Impact Statement* for lands managed by the Bureau of Land Management (BLM), Prineville District, along the John Day River system in Oregon. The lands are along the mainstem John Day River and its North, Middle and South Forks. This document provides proposed decisions for managing certain lands. The *John Day River Proposed Management Plan* and RMP Amendment portion of this document is the collective total of the proposed decisions described in Chapter 3. The *Final Environmental Impact Statement* (EIS), which is the remainder of this document, identifies issues to be resolved, alternative management plans for resolving issues, and analysis of impacts of the alternative management plans.

Location

The John Day River system includes the mainstem and its North, Middle and South Forks. This system has more than 500 river miles and is one of the longest free-flowing river systems in the continental United States. The system drains a large portion of northeast Oregon (Map 1-A).



OREGON

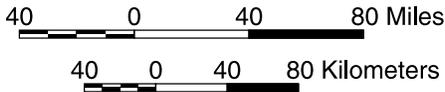
LEGEND

- BLM State Office
- BLM District Office
- BLM Resource Area Office
- BLM District Boundary
- BLM Resource Area Boundary

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Prineville District

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Map 1-A: General Location

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The mainstem and North and Middle Forks flow from the Blue Mountains, and the South Fork flows from the Ochoco Mountains. The mainstem begins high in the Malheur National Forest and flows west through the town of John Day to Dayville where it is joined by the South Fork. Downstream from Dayville, the river turns sharply north, flowing to Kimberly, where it is joined by the North Fork. From Kimberly, the river again turns west for another 40 miles before making its final turn north to the Columbia River. The Middle Fork flows into the North Fork above Monument, about 20 miles upstream from the North Fork's confluence with the mainstem.

Purpose and Need

The purpose of this planning effort is twofold. One purpose is to implement the direction of the Omnibus Oregon Wild and Scenic Rivers Act of 1988 for the John Day River. This Act requires the Bureau of Land Management (BLM), in partnership with the State of Oregon and affected Native American Tribes, to develop a management plan that will protect and enhance the identified outstandingly remarkable and significant values for federal lands within the designated Wild and Scenic segments of the John Day River. The second purpose is to amend and implement the BLM's John Day and Two Rivers Resource Management Plans (RMPs), which also call for developing a management plan for all of the John Day River system, not just segments designated as Wild and Scenic.

Proposed Action

The proposed action is to develop and adopt a management plan for lands along the John Day River system that will protect and enhance the "outstandingly remarkable and significant values" and "special attributes" identified for those portions of the John Day River system designated by federal and state legislation. The proposed action is also to resolve certain issues in segments not so designated when they have an effect on river values in the designated segments. The proposed action will strive on public lands to:

- Increase water quantity, improve water quality, and maintain instream water flows in amounts needed to protect and enhance river values, including anadromous and resident fisheries, and to support recreational uses.
- Protect water quality by mitigating, diminishing, or eliminating sources of water pollution originating on public lands to meet state water quality requirements.
- Protect and enhance riparian and upland vegetation.
- Manage recreation at use levels that protect and enhance river values.

The management plan includes an Environmental Impact Statement (EIS), which describes the site-specific and cumulative effects of the management plan, as well as alternative management plans considered. This is in accordance with requirements of the National Environmental Policy Act of 1969. To the extent that approval of the final plan requires amendments to the Prineville districts Two Rivers and John Day RMPs, this analysis also meets the Bureau's land use planning requirements (43 CFR 1610.5-5 and associated manuals).

Plan Scope

This plan and EIS is developed to provide management direction to public lands on the federally designated Wild and Scenic River (WSR) segments and public and private lands on the state designated Oregon State Scenic Waterway segments of the John Day River system. This plan also includes decisions considered for public lands on non-designated segments for certain issues, including grazing, minerals and energy resources, BLM agricultural lands, and recreation.

The partners in this plan recognize their extremely limited ability to affect measurable change in John Day River resource conditions, such as water quality and quantity, and vegetative composition. This is because this plan directly affects about 2% of land in the basin. This means that about 98% of land in the basin is managed by people and agencies that are not bound by the decisions in this plan. Decisions in this plan apply to about 10% of river and stream mileage in the basin, and the partners in this plan manage about 20% of land adjacent to the river within the planning area. The partners, however, will aggressively pursue improvement and enhancement of

river values by improving and enhancing lands that they manage and will encourage and support management actions outside of the planning area that would support desired instream conditions within the planning area.

This plan is a framework for improving coordinated management on all John Day River segments. Segments include those designated Federal Wild and Scenic and/or State Scenic Waterway; segments with special status (such as a State Wildlife Refuge and BLM Wilderness Study Areas); segments with existing planning that will not change with this plan (such as the upper North Fork managed by the U.S. Forest Service); segments included on the ODEQ list of 303(d) water quality limited streams; and segments without special designation or status.

The partners in this plan each have unique authorities and mandates for managing their lands and programs on the John Day River. For example, BLM is responsible for multiple use decisions on BLM-administered lands; Oregon Department of Fish and Wildlife (ODFW) is responsible for decisions regarding fish and wildlife populations on all Oregon lands; and Oregon Parks and Recreation Department (OPRD) is responsible for decisions on rules for lands along State Scenic Waterways. Although the plan is a cooperative effort by the partners, it does not affect or change existing authorities. In addition, some river segments are discussed in this plan for which no decisions are made. Examples include the upper mainstem (which is almost exclusively private land) and the upper North Fork managed by the USFS. A plan for the upper North Fork segment has been completed by the USFS and is available from the Umatilla National Forest Supervisor Office in Pendleton, Oregon.

Decisions made in this plan are designed to resolve the issues described later in this chapter. These issues resulted from an extensive public scoping period. Emphasis has been given to developing decisions for the federally designated Wild and Scenic and State Scenic Waterway segments of the river system.

Plan Organization

This Proposed Management Plan and EIS is divided into five chapters:

Chapter 1 explains why the plan is being written, the purpose of the plan, who is involved, where the plan is applicable, and issues to be resolved.

Chapter 2 describes the existing river system environment, including resource values and uses.

Chapter 3 describes proposed decisions and alternative ways considered for managing the river corridor to resolve issues identified in Chapter 1.

Chapter 4 presents the State of Oregon rules for managing the State Scenic Waterways on the John Day River.

Chapter 5 describes direct, indirect and cumulative impacts of the alternatives and proposals presented in Chapters 3 and 4

Planning Partners, Public Involvement, and Process

Partners

Many governmental agencies, Native American tribes, and numerous private landowners manage various aspects of the John Day River system. These agencies, tribes and landowners have long recognized the need to coordinate river management activities. This coordination has occurred in the past, and they have also expressed a desire to continuously strive to improve coordination of management actions for the river.

The principal partners in this plan and EIS are:

- USDI Bureau of Land Management, Prineville District
- State of Oregon, by and through Oregon Parks and Recreation Department (OPRD), Oregon Department of Fish and Wildlife (ODFW), and Oregon State Marine Board (OSMB)

- Confederated Tribes of the Warm Springs Reservation of Oregon (CTWSRO)
- John Day River Coalition of Counties (including the counties of Gilliam, Grant, Jefferson, Sherman, Wasco, and Wheeler)
- USDI Bureau of Indian Affairs, Warm Springs Agency

Native American Planning Role

Certain Treaties, Federal laws, and Executive Orders give special and unique standing in this planning process to Native American Tribes. Tribes most affected by this plan include the Confederated Tribes of the Warm Springs Reservation of Oregon (CTWSRO) and the Confederated Tribes of the Umatilla Indian Reservation (CTUIR). The Klamath Tribe and the Burns Paiute Tribe also have interest in portions of this same area. All of these tribes have recognized traditional uses established on and/or near the John Day River. The CTWSRO is an active partner in developing this plan. Direct consultation has occurred, and will continue to occur, with all these tribes as this plan develops and is implemented.

Public Involvement

Public review of the Draft John Day River Management Plan and EIS occurred during a 90-day public comment period that ended on March 3, 2000. Six public meetings were held and were attended by 173 people. In addition, 503 public responses (letters, email, and telephone calls) were received during the comment period (see Volume III). These public comments were analyzed and carefully considered by the partners in developing the final decisions in this plan.

Protests and Appeals

The partners in this plan each have their own legally mandated decision process, as well as process for handling and resolving public objections to decisions. People who wish to formally object to a decision or decisions in the plan would be best served by initially contacting the BLM Prineville office. Together, a determination will be made as to which decisions are involved and, therefore, which agency process will be used. Deadlines for filing objections may vary by agency, so it is important for those interested in the protest and appeal process to contact the BLM Prineville office as soon as possible after release of the final proposed plan and EIS. Procedures applicable to BLM proposed decisions are described in this EIS in the front of this document, immediately after the signature page.

Process and Schedule

The partners in this plan assembled and agreed to work together to produce a single management plan for their respective areas of jurisdiction on the John Day River. Staff representatives from the partners formed a "Core Team" to guide and direct development of the plan. Members of this Core Team are listed in Appendix A.

During this process, the BLM was advised by the John Day/Snake Resource Advisory Council (RAC), which is a citizens group appointed by the Secretary of the Interior to advise BLM on land management issues. The RAC appointed a subgroup to focus on developing this plan. Members of this RAC subgroup are also listed in Appendix A.

Development of the management plan is a multi-stage process ultimately leading to the publication of a final management plan and environmental impact statement for the John Day River. The progress of this process is marked by the production of the following documents:

1. *A Draft John Day River Plan and EIS* was developed by BLM and the State of Oregon and released for public review and comment in October 1993. The Draft Plan and EIS proposed important decisions that primarily affected recreational use of federal land on the river and all lands on the portion of the river designated as a State Scenic Waterway. Certain issues and circumstances prevented the final plan from being released.

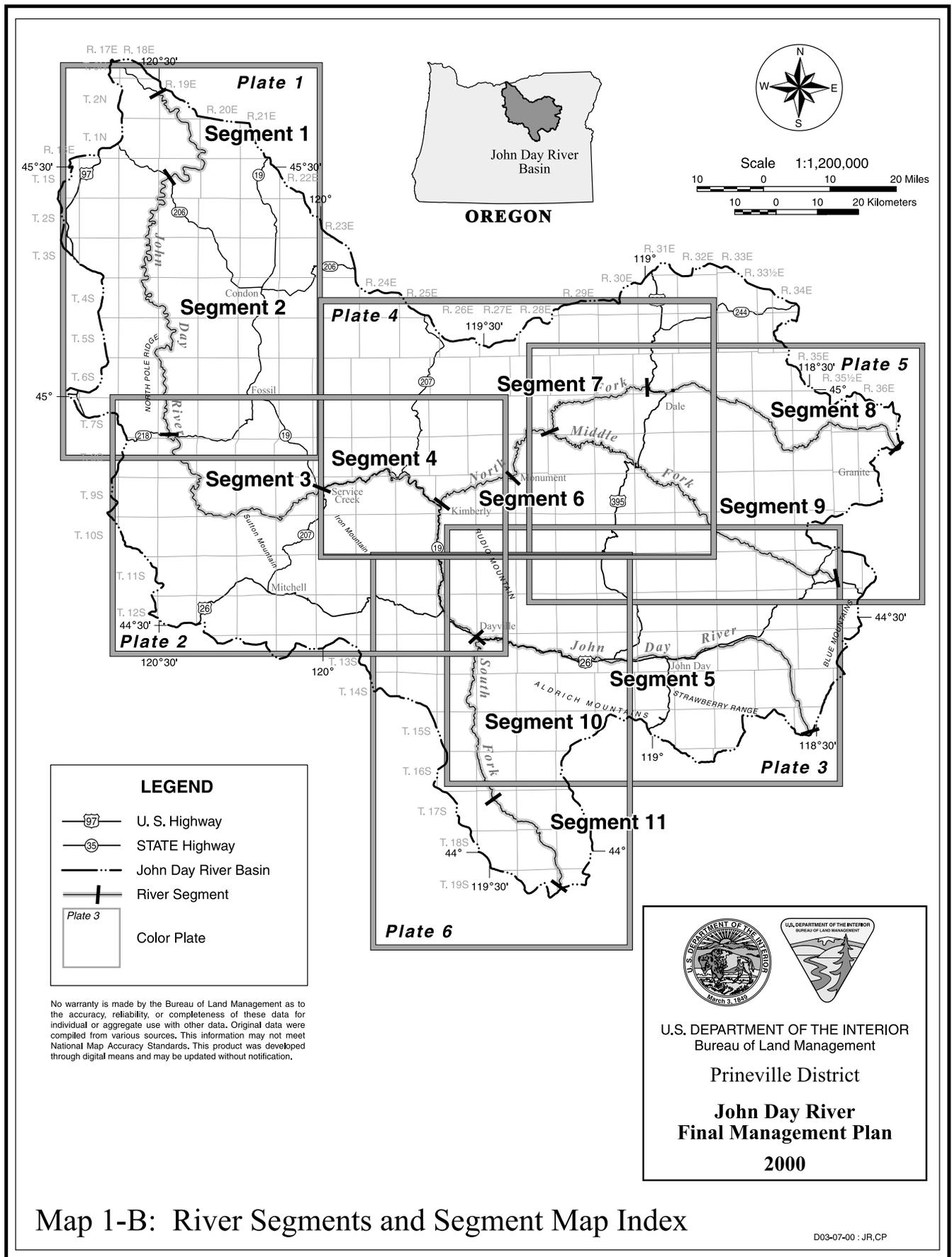
Final John Day River Plan and EIS

2. The second revised *Draft Management Plan and EIS* was the draft of this document. It was developed by the planning partners and presented for a 90-day public review and comment period.
3. *This Proposed Plan and Final EIS* is developed to direct management of the river on public lands where decisions are made. Any land use or resource allocation decisions for BLM- managed lands will be incorporated into the Two Rivers and John Day RMP amendments following resolution of any protests or Governor's concerns on plan consistencies and State Director approval.

River Segments, Designations, and Values

Segments

This plan divides the John Day River system into 11 segments, based on logical divisions of the river system by land uses, ownership, access, and other factors (Map 1-B and Chapter 2).



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Map 1-B: River Segments and Segment Map Index

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Designations

Following is an overview of the more important federal and state designations. Also see Tables 1-A, 1-B, 1-C, and 1-D.

Table 1-A. Designations on Mainstem John Day River (Segments 1-5)	
Designation	Location
Segment 1 - Tumwater Falls (RM 10) to Cottonwood Bridge (RM 40)	
Federal Wild and Scenic	Tumwater Falls to Cottonwood Bridge
State Scenic Waterway	Tumwater Falls to Cottonwood Bridge
John Day River State Wildlife Refuge	Tumwater Falls to Cottonwood Bridge
Segment 2 - Cottonwood Bridge (RM 40) to Clarno (RM 109)	
Federal Wild and Scenic	Cottonwood Bridge to Clarno
State Scenic Waterway	Cottonwood Bridge to Clarno
Thirtymile/Lower John Day Wilderness Study	RM 46 to RM 83
North Pole Ridge Wilderness Study Area	RM 85 to RM 95
John Day River State Wildlife Refuge	Cottonwood Bridge to Thirtymile Creek (RM 84)
Segment 3 - Clarno (RM 109) to Service Creek (RM 157)	
Federal Wild and Scenic	Clarno to Service Creek
State Scenic Waterway	Clarno to Service Creek
Spring Basin Wilderness Study Area	RM 113 to RM 119
Segment 4 - Service Creek (RM 157) to Dayville (RM 213)	
State Scenic Waterway	Service Creek to Parrish Creek (RM 170)
National Monument	John Day Fossil Beds National Monument (RM 195, 206)
Segment 5 - Dayville (RM 213) to Headwaters (RM 284)	
No Designations	

Table 1-B. Designations on North Fork John Day River (Segments 6, 7 and 8)

Designation	Location
Segment 6 - Kimberly (RM 0) to Monument (RM 16)	
No Designations	
Segment 7 - Monument (RM 16) to Camas Creek (RM 57)	
State Scenic Waterway	RM 20 to Camas Creek
Public Access Easement	Potamus Creek (RM 40) to Camas Creek (RM 57)
Segment 8 - Camas Creek (RM 57) to Headwaters	
Federal Wild and Scenic ¹	Camas Creek to headwaters
State Scenic Waterway	Camas Creek to North Fork John Day Wilderness Boundary
¹ This segment administered by USDA Forest Service; not addressed in this EIS.	

Table 1-C. Designations on Middle Fork John Day River (Segment 9)

Designation	Location
Segment 9	
State Scenic Waterway	Confluence of North Fork (RM 0) to RM 71

Table 1-D. Designations on South Fork John Day River (Segments 10 and 11)

Designation	Location
Segment 10 - Mainstem Confluence (Rm 0) to County Road 63 (Rm 35)	
Federal Wild and Scenic	Smokey Creek (RM 6) to County Road 63 (Post-Paulina Rd)
State Scenic Waterway	North Boundary of Phillip W. Schneider (Murderer's Creek) Wildlife Area
Phillip W. Schneider Wildlife	RM 5 to RM 28
National Backcountry Byway	Dayville (RM 0) to County Road 63
Wilderness Study Area	Aldrich WSA (RM 6 to RM 12)
Wilderness	Black Canyon Wilderness (RM 14)
Segment 11 - County Road 63 (Rm 35) to Headwaters (Rm 59)	
Federal Wild and Scenic	County Road 63 to Malheur National Forest Boundary (RM 52)

Federal Wild and Scenic River

The National Wild and Scenic Rivers System was created by Congress in 1968 with the passage of the Wild and Scenic Rivers Act (PL 90-542). Its purpose is to preserve certain rivers with outstanding natural, cultural or recreational features in a free-flowing condition for the enjoyment of present and future generations. As of August 1996, the system included 151 rivers or sections of rivers in 35 states.

The Omnibus Oregon Wild and Scenic Rivers Act of 1988 (Public Law 100-558) designated several segments of Oregon rivers as Wild and Scenic, including three segments of the John Day River. Each of these segments has one of three sub-classifications assigned to it by Congress. These sub-classifications are:

Wild - Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

Scenic - Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

Recreational - Those rivers or sections of rivers that are readily accessible by road or railroad that may have some development along their shorelines and that may have undergone some impoundment or diversion in the past.

The three John Day River segments designated as Wild and Scenic are:

- Lower John Day River mainstem (Tumwater Falls upstream to Service Creek), classified as *Recreational*.
- North Fork John Day River (Camas Creek upstream to the headwaters). One portion of this segment is classified as *Wild*; two portions are classified as *Scenic*; and two are classified as *Recreational*. (This Wild and Scenic segment is managed by the USFS, which has a completed management plan for it.)
- South Fork John Day River (Smokey Creek upstream to the Malheur National Forest boundary), classified as *Recreational*.

The Bureau of Land Management policy encourages public use of, and access to, designated Wild and Scenic Rivers classified "Recreational" to the extent consistent with protecting outstandingly remarkable river values. Public use and access may be regulated and distributed where necessary to protect and enhance recreation river values, to protect users, or to meet recreation management objectives (USDI-BLM 1992c).

State Scenic Waterway

The Oregon Scenic Waterways System was created by ballot initiative in 1970, and segments of certain rivers were designated as "State Scenic Waterways." A second ballot initiative expanded the system in 1988. A total of approximately 317 miles of the John Day River is included in this system.

State Scenic Waterways (SSW) are administered by the Oregon Parks and Recreation Commission, with rules that provide generic standards to all scenic waterways. Specific rules are also developed for each river during the management planning process. (This plan displays these rules for the SSW on the John Day River in Chapter 4.) These rules are designed to manage development and uses within the Scenic Waterway corridor to maintain the natural beauty of the river. Rules vary depending on the special attributes of each river segment. This is done through the use of river classifications. Scenic Waterways are classified by segment into one of six classifications, according to the character of the landscape and the amount and type of development present within the corridor at the time of designation. The rules established for each classification do not affect development existing at the time of Scenic Waterway designation. None of the classifications are designed as prohibitions of new development. Although some types of improvements require notification, review and approval, others do not.

The State Scenic Waterway segments are located on:

- Mainstem, from Tumwater Falls to Parrish Creek.
- North Fork, from near Monument upstream to the North Fork John Day Wilderness boundary.
- Middle Fork John Day River, from its confluence with the North Fork John Day River upstream to the Crawford Creek Bridge.
- South Fork, from the north boundary of Phillip W. Schneider Wildlife Management Area (formerly Murderer's Creek Wildlife Management Area) to County Road 63.

State Scenic Waterway segments that overlap with the National Wild and Scenic River designations are:

- Mainstem, from Tumwater Falls to Service Creek.

- North Fork from Camas Creek to the North Fork John Day Wilderness Area boundary.
- South Fork from north boundary of Phillip W. Schneider Wildlife Area to County Road 63.

Other Designations

Other important designations also exist along the river, including: Wilderness Areas, Wilderness Study Areas, State Wildlife Refuges, and the John Day Fossil Beds National Monument.

Wilderness Areas are federal lands designated by the U.S. Congress to be part of the National Wilderness Preservation System. They have special management rules, including a prohibition of motorized use and rules regulating “no surface” disturbance. There are two Wilderness Areas along the John Day River system, both managed by the USFS. The North Fork John Day Wilderness is located on the upper North Fork John Day River, and the Black Canyon Wilderness is on the South Fork.

Wilderness Study Areas (WSAs) are being studied for possible Wilderness designation by Congress. They may allow motorized use, but must be managed in a way that preserves the possibility of future Wilderness designation. Normally, this means that no surface-disturbing activities are allowed.

The State of Oregon established the John Day Wildlife Refuge in 1921 along the lower mainstem of the John Day River for the primary purpose of protecting the wintering and nesting waterfowl. This refuge includes all land within 1/4 mile of the John Day River mean high water line, from the Columbia River upstream to Thirtymile Creek. The area is open to hunting of deer and upland game birds during authorized seasons only between September 1 and October 31, but is closed to all waterfowl hunting. Hunting on private lands within this refuge requires landowner permission.

The Phillip W. Schneider Wildlife Area, formerly the Murderer's Creek Wildlife Management Area, is located in Segment 10, along the South Fork John Day. This area was acquired in 1972 by the ODFW, primarily to protect and enhance a major wintering range for mule deer, but also to control wildlife damage and protect riparian zones.

River Values

The Federal Wild and Scenic Rivers Act requires WSRs be managed to “protect and enhance” the “outstandingly remarkable and significant values” that Congress lists. Congress also encourages managing agencies to assess the designated river segment to identify any additional outstandingly remarkable and/or significant values the segment may contain.

Similarly, Oregon State law requires State Scenic Waterways to be managed to protect the “Special Attributes” identified for those segments. However, since the John Day River was designated a State Scenic Waterway through the initiative process, the special attributes were never formally identified.

Outstandingly Remarkable and Significant Values

When designating the mainstem from Tumwater Falls to Service Creek a Wild and Scenic River, Congress noted in the Federal Register::

The outstandingly remarkable qualities (values) include scenic, recreation, and fish.

The majority of the land adjacent to the John Day River is primitive and undeveloped. The river flows through gentle farmland that is privately owned, as well as through rugged 1,000 foot deep basalt canyons that are predominantly public land. In the Dayville to Kimberly segment, it flows through the John Day Fossil Beds National Monument. In the area between Butte Creek and Cottonwood Bridge, the river flows through Three Wilderness Study Areas that possess outstanding natural values. The river and the unconfined primitive recreation opportunities of the John Day Canyon in these areas are a major attraction for whitewater boaters and other recreationists. Besides the outstanding scenery, the area also offers outstanding bass and steelhead fishing, as well as excellent hunting, archaeological, paleontological, geological and historic values. The river offers 1 to 5 day whitewater boating opportunities during the spring months of April, May, and June.

In the resource assessment for the John Day Wild and Scenic River (see Appendix F), the BLM found wildlife, geological, paleontological, and archaeological and historical values to be outstanding; and botanical and ecological values as significant (Table 1-E).

Table 1-E. Outstandingly Remarkable and Significant Values for Lower Mainstem John Day River

River Value	Congressional Values	Additional or Upgraded Values Identified by BLM
Scenery	Outstandingly Remarkable	
Recreational Opportunities	Outstandingly Remarkable	
Fish	Outstandingly Remarkable	
Wildlife		Outstandingly Remarkable
Geological	Significant	Outstandingly Remarkable
Paleontological	Significant	Outstandingly Remarkable
Archeological	Significant	Outstandingly Remarkable
Historical	Significant	Outstandingly Remarkable
Botanical		Significant
Ecological		Significant

When designating the South Fork a Wild and Scenic River, Congress noted in the Federal Register,

This 47 mile river segment has unique and outstanding scenic value with large basalt outcrops and a wide diversity of vegetation which includes grasses, willows, juniper, and ponderosa pine with some Douglas fir on the moist north and east slopes. In the upper reaches, the river flows through relatively level agricultural land before entering the more rugged canyon. This area has high value for sightseeing, camping, fishing, and other forms of dispersed recreation. There are 6 small ranches and a well-maintained public road that parallels the river throughout the 48 mile length. Except for the road and ranches, the study area is natural in character. There are numerous small rapids, and the larger Izee falls area where the river drops 55 vertical feet in a short distance. Aldrich Mountain Wilderness Study Area provides a back drop for a portion of the canyon. The Murderer's Creek State Wildlife Management Area is also adjacent to a portion of the river.

The BLM subsequently found fish, wildlife, and botanical values to be outstanding; and geological and prehistoric/traditional use to be significant values (Table 1-F).

While Congress gives outstandingly remarkable values a higher status than significant values, there is little management distinction between them on the river. Both are to be protected and enhanced.

Table 1-F. Outstandingly Remarkable and Significant Values for South Fork John Day River

River Value	Congressional Values	Additional or Upgraded Values Identified by BLM
Scenery	Outstandingly Remarkable	
Recreational Opportunities	Outstandingly Remarkable	
Fish		Outstandingly Remarkable
Wildlife		Outstandingly Remarkable
Botanical		Outstandingly Remarkable
Geological		Significant
Prehistoric and Traditional Uses		Significant

Issues To Be Resolved

This section describes the significant environmental issues used to develop the alternatives in Chapter 3. An “issue” is a situation, problem, or area of concern to be resolved by the alternatives and final decisions of the plan.

1. What management actions are needed to protect and enhance vegetation-related values?

The soil-vegetation complex has been manipulated by management practices associated with agriculture, fire, forestry, grazing, irrigation, mining, noxious weed control, recreation, roads, stream bank erosion, and wildlife populations. Management of vegetation affects botanical, hydrological, ecological, wildlife, fisheries, scenery, and recreation values within the John Day Wild and Scenic River.

Some lands have been exposed to disturbances in excess of the threshold of tolerance that the soil-vegetation complex could endure intact. Such disturbances have led to erosion and often opened lands to invasion by non-native species, further altering the ecology of the site. In these cases, nutrient cycling, energy capture, and watershed function have been disrupted, and some special status plant species may have disappeared.

The John Day Wild and Scenic River contains several special status plant species. Special status plants are those that are officially listed as endangered or threatened by either the Federal or State government, plants proposed for listing as such, or plants that are otherwise designated by the State Director as “sensitive.” This latter designation includes plants that may not be listed or proposed for listing, but which are considered by the Oregon Natural Heritage Data Base to be either endangered or threatened throughout their range or in Oregon, as well as other plants that may need protection on a district-by-district basis.

Plant communities within the John Day Wild and Scenic River vary from high-desert grasslands to mixed-conifer forests to agricultural fields. Disturbance regimes vary from almost untouched, to areas that been impacted by almost every disturbing force in the watershed. The resource assessments (USDI-BLM 1991a,b) state that vegetative conditions in existence following designation provided outstanding botanical, ecological, aesthetic and wildlife values.

The biggest challenges for vegetation management are associated with riparian areas and non-native weedy species (see Weeds issue below). While the complete recovery of the river system is likely to take centuries, some of the benefits of improved riparian vegetation can be realized almost immediately. There has been an increased awareness among landowners and land managers of the unique value and benefits of healthy watersheds and riparian areas. Changes in land management that specifically target watershed functioning have led to improved conditions on the uplands and tributaries and to the recent expansion in riparian vegetation along the banks of the John Day River.

Issue 1a - How should grazing be managed to protect and enhance river values?

Improper or unregulated grazing, overgrazing, and heavy grazing have been identified as primary causes of declines in scenic, wildlife, botanical and fisheries values (Kauffman and Krueger, 1984; ODFW 1990; USDI-BLM 1991a,b). Applying proper grazing strategies has contributed to recovery of desirable conditions along portions of the John Day River (USDI-BLM 1996; National Wildlife Federation v. Cosgriffe, 21 F. Supp.2d 1211, 1222 [D. Or. 1998]).

Grazing is most likely to influence Congressionally designated values of scenery, recreation opportunities, fisheries and wildlife, primarily through the alteration of riparian areas. Improper grazing can suppress riparian vegetation and compromise many of the associated physical and biological processes (Kauffman and Krueger 1984). Carefully managed grazing can allow riparian areas to recover and function unimpeded (Elmore, personal communication, 1999; Ehrhart and Hansen 1997).

The BLM grazing allotments on the John Day River contain mostly private land over which BLM has no authority. The BLM can and does make rules for grazing BLM-administered land. Successful management of a grazing

allotment containing primarily private land, however, requires cooperation of the landowner.

The BLM administers 196.4 river bank miles (64 active grazing allotments) in the WSR segments of the John Day River system. This represents 47% of the total river bank miles in the WSR segments. In addition, the BLM administers 56 active grazing allotments in non-designated segments. The BLM has been in the process of evaluating, updating and revising grazing management on these allotments for the past several years. This effort was given emphasis by recent programs to promote salmon recovery, including "Salmon Summit" (Collette and Harrison 1992a,b), PACFISH (USDA FS and USDI-BLM 1995), and Standards for Rangeland Health (USDI-BLM 1997). The allotment evaluation process, which included new data gathering and interdisciplinary planning, resulted in many changes in grazing management on BLM-administered lands along the John Day River.

The results of the grazing allotment evaluation process was that by June 1999, 94% of river bank miles administered by the BLM within WSR segments had grazing management in place (for example, limiting the season of use for grazing to spring only), which was designed to protect and enhance outstandingly remarkable values. At that time, another 3% of BLM administered WSR bank miles had grazing changes planned that would protect and enhance outstandingly remarkable values, but the plans were not yet implemented. The remaining 3% of BLM administered WSR bank miles had grazing management that was not compatible with WSR management objectives and required further work to arrive at a solution. This plan reviews the previous decisions and management agreements and makes the balance of the needed decisions .

1b. How should noxious weed invasions be managed to protect and enhance river values?

The expansion of noxious weeds is a serious threat to the biodiversity and watershed health along the John Day River.

Noxious weeds are becoming established along all segments of the John Day River. These infestations now occur mainly along the valley bottoms and drainages, but are spreading outward onto slopes. The most common noxious weeds are diffuse knapweed, spotted knapweed, Russian knapweed, yellow starthistle, Dalmatian toadflax, Rush skeleton weed, scotch thistle, white-top, poison hemlock, medusahead, Canada thistle, and field bindweed. Recently found species of concern include leafy spurge and squarrose knapweed. Noxious weeds are spread by wind, water, horses, motor vehicles, recreation users, wildlife, and livestock.

Noxious weeds are increasing and threaten native vegetation and established uses of the land. Watersheds are being invaded at an accelerated rate, jeopardizing river values associated with scenery, vegetation, wildlife and fish. The use of herbicides is highly controversial, but at present appears to be the most time/cost efficient and effective way of controlling many problem weed species. Weed establishment in many areas has long passed the point where eradication of individual plants by hand pulling or cutting is possible.

1c. How should fire be managed to protect and enhance vegetation, scenery, recreation, and wildlife resources on public lands?

Fire management in the John Day River system currently focuses on prevention and suppression of wildfire to protect public values and private lands. Relatively successful prevention and suppression efforts have not allowed fire to play a natural role in the vegetative ecosystem, sometimes causing unintended consequences that have damaged resource values.

Although fires are a natural component of a healthy ecosystem, modern fires can cause problems by threatening private enterprises, promoting the spread of weeds, killing plants, and altering recreational and scenic resources. Some fire suppression techniques, such as bulldozing, further add to the disturbance caused by fire. Prescribed fires or wildfire for resource benefit (fires that ignite naturally and are monitored instead of actively suppressed) may be useful in meeting multiple use objectives. In areas with interspersed land ownership patterns, considerable coordination and cooperation with private landowners is necessary.

"Flashy" fuel types (such as fine dry grasses that burn quickly) and steep terrain contribute to the severity of fire hazards. Of particular concern to private landowners are the high value wheat fields located just above the lower

John Day River canyon. Although the majority of wildfires are lightning caused, numerous visitors float the John Day River every year, creating additional hazard.

1d. How should public agricultural (cultivated) lands be managed to protect and enhance river values?

The BLM manages several agricultural sites with water rights along the John Day River, totaling about 375 acres. The amount being leased for commodity production (220 acres) accounts for approximately 59% of this acreage.

Disturbance of soil and vegetation and/or water use associated with agricultural lands causes concern for the protection and enhancement of river values. The reduction in continued existing use of agricultural lands has also been identified as a concern.

The result of agricultural use is less acreage of native vegetation along river terraces and reduced quantities of surface water during the irrigation season while providing for other beneficial uses.

2. How can management actions best contribute to the protection and enhancement of fisheries values in the John Day River system?

Overall, fish populations and distribution have declined in the John Day River basin. This decline is due in part to the reduction in the quality and quantity of fish habitat. Other factors outside the scope of this plan that affect fish populations include ocean and estuary conditions, climate, dams, predation, and commercial and sport fishing. The quality and quantity of fish habitat has been directly and indirectly affected by past human habitation and subsequent land use practices.

The John Day River basin provides habitat for a variety of native and non-native fish populations. Population and distribution of some key species, particularly anadromous salmonids (spring chinook salmon and summer steelhead), have declined from historic numbers and range. These species are highly significant for their ecological, cultural, economic, and recreational values, and are the primary concern of the CTWSRO and CTUIR. Managers believe improved irrigation systems and restoration of the uplands and riparian systems would provide the greatest long-term natural benefits to fish (ODFW 1990). Anadromous salmonids and their habitat have been the focus of many local, state, federal, and tribal management directives. Continued improvement of fish habitat throughout the basin has been realized through these management and restoration efforts. Efforts to protect and enhance these species benefit other native species (for example, Pacific lamprey and suckers) that coexist in the basin.

Smallmouth bass, a non-native species introduced in the 1970s, are identified as an outstandingly remarkable value (Congressional Record 1988) and the primary recreational fishery (ODFW, personal communication, 1997) of the John Day River. Concern has been expressed by management biologists (Shrader and Gray 1998) and anglers about the apparent reduction in numbers of large (greater than 12 inches) smallmouth bass over the past few years.

Steelhead (FR 64:14517) and bull trout (FR 63:111) in the John Day River system have been listed as "threatened," and Westslope cutthroat trout have been petitioned for review as "threatened" (FR 63:111) under the Endangered Species Act. In addition, chinook salmon and steelhead populations are currently below production goals established by the ODFW and Columbia Intertribal Fish Commission.

3. How can management actions best contribute to protection and enhancement of wildlife within the John Day Wild and Scenic River?

Forestry, grazing, wildfire suppression, agriculture, and recreation have contributed to a change in the extent and composition of wildlife along the John Day River system.

Wildlife are important for social activities such as hunting or viewing, as well as ecological functions such as nutrient cycling. The diversity of wildlife species and habitat in the John Day Basin has noticeably changed in the past several decades and before. Wildlife species have reacted differently to these changes; some populations have expanded whereas other populations have decreased.

Wildlife species are very diverse in the basin. The quality and diversity of habitat in the John Day River caused BLM to rate wildlife values as outstandingly remarkable for designated Wild and Scenic segments (USDI-BLM 1991a, b).

4. How should the John Day Wild and Scenic River be managed to honor federal trust responsibilities to recognized Native Americans Indian tribes?

The John Day River basin encompasses lands ceded to the U.S. Government in 1855 in treaties between various Native American Indian bands, specifically the legal predecessors in interest of the Confederated Tribes of the Warm Springs Reservation of Oregon (CTWSRO) and the Confederated Tribes of the Umatilla Indian Reservation (CTUIR). The Burns Paiute and Klamath Tribes, both federally recognized tribes, have current and/or potential valid interests in protecting certain public lands within the geographic area for traditional values and uses.

The CTWSRO and CTUIR treaties provide for continuation of traditional subsistence activities, including tribal access to usual and accustomed fishing stations. The heritage-related interests of contemporary Native American Indian peoples include the protection of graves and burial grounds and archaeological sites, as well as the perpetuation of traditional practices. Federal court decisions, federal legislation, secretarial and executive orders, and BLM policy define the continuing responsibility of federal land-managing agencies to honor the terms of the treaties and to protect the rights and interests of Native American Indian tribes.

5. What land management activities can address water quantity relative to the protection and enhancement of river values?

The variation in seasonal precipitation, the semi-arid nature of the John Day basin, and lack of dams or other impoundments results in a historically wide range of water levels in the river. The use of the watershed's resources to satisfy consumer demand for forest products, cattle, grains, minerals, and other commodities has likely accentuated the natural late winter/early spring runoff pattern at the cost of decreasing summer and fall flows (OWRD 1986). The Oregon Water Resources Department identifies groundwater discharge as the main contributor to stream flow during the dry summer and fall months. Channel down-cutting, as exhibited on many tributaries of the John Day River, has been shown to result in lowering of stream and groundwater levels (Jensen et al. 1989).

Seasonally low water levels for the John Day River have caused concern for certain river values, such as fisheries and recreation, which are dependent on minimum water flow levels. The seasonal distributions of stream discharge, particularly regarding low flows in summer and fall and the irrigation use, are the primary water quantity concerns. Managers believe that improved irrigation systems and restoration of uplands and riparian systems would provide the greatest long-term benefit for fish, as well as improved late-season stream flow (ODFW 1990).

6. How can water quality be protected and enhanced to meet the requirements of the Clean Water Act, Endangered Species Act, and Wild and Scenic Rivers Act?

The status of water quality in the John Day River system is a function of basin conditions, both natural and human induced. Basin orientation and climatic factors naturally influence stream temperature. The legacy of forestry, livestock, agriculture, mining, road construction, fire suppression, and recreation practices have further influenced water quality in the John Day River system.

Improved water quality would better support water-dependent river values in the John Day River system. Temperature and sediment are generally recognized to be the two most significant water quality concerns for the river system, particularly as they relate to cold-water fisheries. Fecal coliform levels have also been identified as a water quality concern for the John Day River system.

The John Day River and many of its tributaries have been identified as "water quality limited" streams by the ODEQ under section 303(d) of the Clean Water Act. The primary factor for this determination is summer stream temperatures relative to salmonid fish species rearing habitat. The John Day River and South Fork John Day River WSR segments are on the 303(d) list under the criteria summer temperature (64 F).

7. How will paleontological resources within the river corridor be protected and enhanced, while allowing for other uses?

Fossils and fossil localities are exceedingly sensitive and may be damaged or depleted by unauthorized or inadvertent disturbance. The recent increased popularity of dinosaurs and other fossils has heightened interest in fossil resources of the John Day River basin for recreational collecting, education, scientific study, and commercial purposes.

The John Day River basin is unique in the world for its time-sensitive, fossil-bearing exposures. It is one of the few areas world-wide where a continuous span of geologic history, covering 40 million years, is exposed. The combination of a long, continuous sequence of geology, its time-sensitive nature, and the vertebrate and botanical fossil records make the paleontology of the John Day Basin nationally, as well as internationally, significant for understanding ecosystems generally and geologic processes and mammal evolution specifically. The John Day Fossil Beds National Monument was established to protect some fossil localities in its three separate units near the river. The majority of the fossil-bearing rock, however, is actually found on private and BLM-administered lands. Exposures on BLM and other lands are important, because they provide significant time periods, specimens, and geographic settings not found or protected on the John Day Fossil Beds National Monument.

8. How will cultural resources within the corridor be protected and enhanced, while allowing for other uses?

Unauthorized disturbance, either intentional or inadvertent, of cultural resources by other resource uses has been and continues to be a serious concern along some segments of the river.

Significant cultural sites are concentrated along some portions of the John Day River. The actual numbers and location of sites in general along the river corridor, however, are not yet fully understood. Access to many known sites is a recognized problem. For example, the remoteness of some stretches of the river makes monitoring or preventing unauthorized excavation of sites difficult. On the other hand, the same remoteness makes the possibility of mitigating impacts problematic due to constraints imposed by logistical considerations.

The use of cultural resources for education/tourism purposes is on the increase within the region. Increasing exposure of the resource to the public in this manner opens up a multitude of potential protection and preservation issues, such as looting and vandalism of sites. How does one use the resource in this context without identifying specific locations? Can this make the resources vulnerable to continued or new unauthorized disturbance? Does providing general information contribute to cumulative impacts? These are not easily solved by common management practices, such as avoiding, recording, or salvage excavation. Managing agencies must consider alternative strategies to protect cultural resources within different segments of the John Day River. For example, alternative management strategies might involve using local Native American tribal members, historians, or permitted commercial outfitters as interpreters, monitors and/or site stewards, offering interpretive training for commercial outfitters, and providing interpretive brochures for the general public. To the extent possible, all site locations would be kept confidential, though a case could be made for using some damaged sites as negative examples of information sharing and access.

9. How and where should public information and education efforts be concentrated?

There is increasing public demand and need for John Day River visitor information, education, and interpretation.

Visitors to the area need to know land status, public access points, and other information to help facilitate a safe and enjoyable experience. Visitor information is also needed to increase resource protection, especially in the areas of low impact camping techniques, fire regulations, respect for private property rights, and noxious weed control.

The appropriate level of information, education, and interpretation needed on any given river segment needs to be determined. Input from state agencies, local counties, and local businesses is needed to identify efficient and effective means of providing this information to the public.

10. How should law enforcement and emergency services be provided as visitation increases on the John Day River?

Current public use of the John Day River has grown beyond the ability of local counties to provide law enforcement and emergency services.

The BLM law enforcement officers have authority to enforce natural resource regulations on public lands. Search and rescue, emergency medical, and law enforcement assistance are the responsibility of local county sheriff departments. Local county budgets and personnel cannot support the added responsibility of meeting needs associated with the John Day River.

Medical emergencies that occur in a remote setting sometimes require highly trained response personnel. Methods used to rescue, stabilize, and transport victims to a medical facility are complicated and expensive.

Local landowners report the need for law enforcement assistance to resolve trespass and vandalism problems. Additional reported problems include visitors' needs for motor vehicle assistance. It is common in some areas of the river for local landowners to receive pleas for vehicle assistance from visitors.

Illegal activities that occur along the river corridor include trespass, vandalism, game and fish violations, unauthorized fires, guiding without a commercial permit, and drug use. Addressing these problems is difficult with the level of law enforcement coverage currently available.

11. How should the outstanding scenic qualities of the river corridor be protected and enhanced?

Potentially influences to the river's scenic quality include road construction, timber harvest, mining, changes in land use, private and commercial development, noxious weeds, improper grazing, erosion, and utility rights-of-way.

Scenery was identified by Congress as an outstandingly remarkable value in all WSR segments. The State Scenic Waters Program classified several John Day River segments as "Scenic River Areas." This designation overlaps most of the National Wild and Scenic river miles. Scenery is an important value in non-designated river segments as well, and segments of highways that parallel the John Day River have been identified as State Scenic Byways. In managing scenic qualities, including those of the John Day River, the BLM uses a Visual Resource Management (VRM) system to inventory and manage these values. See the Glossary and Appendix O for VRM descriptions.

Currently, changes in land use and the development of structures for private or commercial use pose the greatest potential for change to the river's scenic quality, especially in the less developed segments of the mainstem and the North Fork. The BLM uses the VRM process to preserve scenic qualities on public lands, but has no control over development of private lands along any portion of the river. Scenic qualities can be preserved to some degree on private lands located in SSWs segments under the provisions of the SSWs System. County agencies have the option of addressing future riverside development through local land use plans.

12. How should increasing recreation use be managed to protect and enhance river values?

Visitors to the John Day River come to participate in many types of activities and seek a variety of recreation experiences. There has been a significant increase in public use of the John Day River system in recent years. The amount and type of recreation use may be degrading river values in some areas. Some visitors report that it is becoming increasingly difficult to find the type of experience they are seeking or have enjoyed in the past due to increased use and types of use. Other visitors, especially those visiting the area for the first time, tend to be satisfied with the present recreation experience and opportunities.

The very large and diverse John Day River system allows managers to provide a wide variety of recreation opportunities and experiences, while emphasizing protection of river values.

Increased use on all river segments has led to the need to determine, for each river segment, which recreation activities and social experiences are most compatible with the protection and enhancement of river values. These determinations will then guide recreation management decisions.

12a. How should boating use levels be managed to protect and enhance river values and minimize social conflict?

The amount of recreational boating use is increasing steadily on all segments of the lower mainstem and North Fork John Day River. There were approximately 18,000 boater days (one boater using the river for one day) recorded between Service Creek and McDonald Crossing during 1998. Boating use tends to be concentrated on weekends from mid-May through early July. This concentrated recreation use may have an effect on outstandingly remarkable values in the designated WSR segments, including fish habitat, wildlife habitat, vegetation, water quality, scenery, and paleontological and cultural resources. The quality of recreation opportunities, also an outstandingly remarkable value, may be affected by the resource and social conditions encountered by the user. The BLM began collecting visitor use data in 1998, comparing the number of recreation visits to the condition of river campsites. Additional visitor use data collected over time should be extremely useful in determining appropriate boating use levels.

Some boaters feel that boating use should be limited to protect resource conditions and to ensure that a "primitive" or "semi-primitive" boating experience remains available in certain river segments. Other boaters are willing to accept frequent contact with other parties as long as limits on boating use are avoided.

Increased boating use is of particular concern in less developed river segments, such as the mainstem from Service Creek to Cottonwood Bridge, and the North Fork from Camas Creek to Monument, where the effects of increased use are particularly noticeable.

12b. How should boating use be limited if boating use limits are needed in a river segment, and non-permit measures to adjust use are unsuccessful?

Limiting boating use may ultimately require implementing a permit system using one of several allocation methods to determine who does, or does not, receive a permit. Each allocation system has its own strengths and weaknesses, and no single allocation system has emerged over the years as being the most fair to all users. Selection of an allocation system on other rivers has consistently involved intense public debate.

12c. How should motorized boating be managed to minimize social conflicts and protect river values?

Water levels make it possible to use motorized boats on the lower mainstem and lower North Fork for most, but not all, of the year. (Water levels are often too low for motorized boating during late summer and early fall.) Motorized boating is allowed on all segments of the John Day River, except for a seasonal closure on the mainstem from Clarno to Tumwater Falls, May 1 to October 1, which was imposed to protect wildlife.

Motorized boats observed on the John Day River include jet boats, gasoline-powered outboard motors, and electric motors (used in conjunction with a drift boat or a raft). The total number of jet boat user days, from Service Creek to Cottonwood Bridge in 1998, was estimated at less than 50. Observations by BLM river patrol personnel indicate that the use of outboard and electric motors is much more common than use of jet boats, although definitive data on this has not been collected.

Although motorized boating use is very low on the John Day River, this is one of the most controversial issues on the river. The effects of motorized boating on resource conditions are difficult to measure, and effects on social experiences have not been systematically studied.

People who favor the use of motorized boats point out that their use makes the river more accessible for the disabled, elderly, and people who have limited time available. They also point out that there is no credible evidence that motorized boating harms fish, wildlife or other river values.

People who oppose motorized boating argue that the noise created by motorized boats, especially jet boats, is disturbing to wildlife and people, and reduces the opportunity to experience solitude in the more primitive river segments. They also argue that the wake created by motorized boats may accelerate bank erosion, disturb shoreline cultural sites and impair fish spawning. Local land owners feel that increased access via motor boats is associated with increased vandalism during winter months.

The effects of motorized boating on these resources vary according to factors such as the type and size of motor, water level, stream structure, bank soil type, and fish species involved. These variables make research especially difficult and expensive. When a study is concluded, the results may not be applicable to another river or even another segment of the same river.

12d. How should camping be managed to protect resource and social conditions, and if visitor facilities are developed, where and what type of facilities should be developed?

Impacts of camping can affect river values in areas where dispersed camping (camping where no facilities are provided) is popular. River values affected include fish habitat, wildlife habitat, vegetation, water quality, scenery, paleontological resources, cultural resources, and recreation opportunities.

Dispersed camping, as well as camping in developed campgrounds, occurs on most river segments. Drive-in dispersed camping occurs along the river banks in areas where road access is available, and on hills overlooking the river. Boat-in dispersed camping occurs on public and private land along the river as part of multi-day river trips. Camping in developed sites occurs at four BLM campgrounds along the river and at Clyde Holiday State Park located on the upper mainstem near the town of Mt. Vernon.

Some campers practice low impact camping techniques and do not severely impact camping areas. Other campers leave varying degrees of human impacts behind when they vacate their camp.

Vegetation at some dispersed sites is trampled by foot or vehicle, leaving the soil more prone to erosion and weed infestation. Trees are sometimes limbed or cut down for use as firewood. Trash, campfire pits, human waste, and animal gut piles are sometimes left behind on land or in the water. Camping furniture may be constructed of off-site materials, reducing the natural appearance of an area. Many of these impacts make a campsite less desirable for the next visitor. The new visitor often chooses to camp in a new site rather than use a site left in an undesirable condition, thus increasing the area of human impact.

Developed campgrounds can support high visitor use much better than undeveloped sites. The nature and extent of facilities such as parking areas, toilets, boat launches, garbage cans, tables, and signs are a concern of visitors and local landowners. Facilities are expensive to build and even more expensive to maintain. Such facilities enhance the experience of some visitors and degrade the experience for others who prefer more primitive settings. Facilities often provide an unintended attraction that increases and concentrates visitation.

Disturbed soils and vegetation caused by camping in some areas may fully or partially recover prior to the following use season. Certain areas have sustained long periods of damage and do not recover naturally with continued use.

12e. How much, and where should, public access be provided to the John Day River, and how should trespass problems be addressed?

There is much public land in the John Day River system, yet access to the river lands is extremely limited in some river segments due to the lack of public roads and trails leading to the river. The issue of ownership of the bed and banks of the John Day River has yet to be determined. A future decision on the river's navigability will determine whether the bed and banks fall under public or private ownership.

Legal public access is defined as access that is completely across BLM, other public lands or public roads. There is no legal public access to the river in some segments where public land is completely surrounded by private land. Some sections of river can only be accessed by boat or permission to cross private land. Several landowners are currently charging visitors an access fee to use private land to access the river and associated

public lands that are not otherwise accessible to the public.

Most of the boundaries between BLM land and private land are not marked on the ground. Some of the boundaries marked with fences and/or "Private Property" signs are not marked in the correct location. Whether or not private property lines are marked, private landowners often report public trespass problems. The trespass problems occur where private land either borders the John Day River, borders public land, or lies between public land and a public road. Sometimes the trespass problems also involve vandalism of private property.

Public viewpoints on this issue range from those who want increased public access within the John Day basin, allowing more public use, to those who want public access to remain limited as a way to protect resource and social conditions from the effects of increased recreation use.

The CTWSRO and the CTUIR have treaty rights to access usual and accustomed fishing stations and to utilize public lands traditionally used for hunting, gathering and grazing on ceded lands within the John Day Basin. These tribes wish to exercise their treaty rights by preserving or increasing access to public lands for these purposes.

Public access and trespass on private lands have been strong concerns voiced during the planning process in nearly all segments of the river system.

12f. How much, and what type of, commercial recreation use should be permitted on the John Day River?

Commercial use is defined as recreational use of the public lands and/or related waters for business or financial gain. The BLM issues Special Recreation Permits to authorize specific commercial recreation uses. The objectives of the BLM recreation permitting program are to satisfy recreational demands within allowable use levels in an equitable, safe, and enjoyable manner while minimizing adverse resource impacts and user conflicts (USDI-BLM 1987).

A Special Recreation Permit must be obtained from the BLM to operate a commercial business on the John Day River. Permit holders must meet application requirements, pay annual permit fees, and agree to follow permit stipulations.

Prior to 1996, there were no limitations on the number of commercial permits issued by the BLM for the John Day River. In January 1996, a temporary moratorium was placed on issuing new commercial permits until this plan could be completed to allow the desired level of commercial use to be determined by the planning process. Since the planning moratorium began in 1996, 28 individuals have expressed interest in obtaining a commercial permit for the John Day River.

In 1998, there were 34 commercial permit holders who reported 2,647 commercial customer user days and 968 guide or employee days, which translates to 19.7% of the total John Day River boating use. Approximately 20 % of the total permittees reported 70% of the commercial use. Of the 34 permittees, 11 reported running one or no trips with paying customers during 1998. Based on the low number of user days reported by many permittees, the supply of commercial services may currently exceed the public demand for these services. Most permittees are unable to sustain a living by operating solely on the John Day River, but use this business to supplement other sources of income or run the John Day in conjunction with other rivers. Some existing commercial permit holders and some non-commercial boaters feel that the BLM should limit the number of new permits issued, whereas persons hoping to obtain a new permit do not want to see commercial permits limited.

Non-profit organizations (such as religious, conservation, school or social groups) want special consideration to allow issuance of "institutional" permits despite current or future limits on traditional commercial permits.

Vehicle shuttle services used by John Day River boaters are not currently under BLM permit, although such services meet the definition of "commercial services" under BLM policy.

In addition to guided and outfitted services, the BLM has received inquiries from individuals interested in setting up commercial vending operations at BLM launch points to sell food, souvenirs, and boating equipment. The

sale of fire pans and portable toilets at launch sites could greatly improve compliance with BLM low-impact camping regulations. A concession operation would require compliance with SSWs stipulations and may not be allowable in some river segments.

The BLM currently administers a limited number of permits for operation of commercial services on public lands in most river segments. In the past two years, the number of requests for new permits has nearly equaled the number of existing permits, with some requests involving new locations or types of activities.

13. How will BLM manage mineral and energy resource exploration and development while protecting and enhancing river values?

The present mineral program for the John Day River corridor protects other resources through regulations requiring mitigation of impacts on other resources and to prevent unnecessary or undue degradation of public lands. There may be opportunities to use more restrictive requirements to enhance the outstandingly remarkable values in the designated WSR segments.

Currently, all public lands within the river corridor are open to mining under the 1872 Mining Law. The BLM 43 CFR 3809 regulations make it necessary to submit a plan of operations for lands within WSR corridors. Stipulations are also imposed under the Two Rivers and John Day RMPs, and State regulations pursuant to ORS 468B.050 apply to dredging.

Minerals are classified as locatable (value minerals such as gold and mercury), salable (common rock and clay), and leasable (such as oil and gas).

Currently, mineral and energy development within the WSR is uncommon. The potential for occurrence of locatable minerals in the WSR corridor is low. The potential for occurrence of leasable minerals ranges from low to moderate. The potential for the occurrence of salable minerals is high.

14. What type and where should new utility or transportation facilities be permitted, or land acquisitions, exchanges, or disposals be authorized along and across the John Day River?

Land use authorizations and actions may affect the John Day River's scenic and other resource values. Utility and transportation rights-of-way already exist in many places along and across the John Day River. The BLM regularly receives new requests to build or improve roads and to place pipelines, buried cables, overhead lines, other utility lines, or communication sites along or across the John Day River on BLM-administered land. The BLM must decide whether or not to approve these land use authorizations, and if so, what stipulations should be attached to minimize adverse impacts to resources. Utility and transportation facilities are also related to the issue of protecting and enhancing scenic quality. Requests for utility and transportation rights-of-way have been minimal in recent years, but requests for communications (notably cellular phone) sites are expected to increase in the future.

The BLM completed a Final Environmental Impact Statement for the Northeast Oregon Assembled Land Exchange (NOALE) in June 1998. This land exchange, if implemented, would mean that approximately 5,000 acres of public land would be acquired along the North Fork John Day River. Other land acquisitions could further increase public lands along the river, creating additional opportunities to protect and enhance river values and facilitate management. Potential acquisitions identified in this plan would protect and enhance resource values, including recreation, wildlife/fisheries, cultural resources and wilderness. These acquisitions may be implemented if landowners are willing to participate in land exchanges or provide easements. Legal authority does not exist for the direct purchase of land, other than through the Land and Water Conservation Fund. Potential acquisitions of up to 3,200 acres have been identified. Acquiring these lands through exchange would require disposal of enough public lands from other areas to meet the value of acquired lands.

Chapter 2 - River System Environment

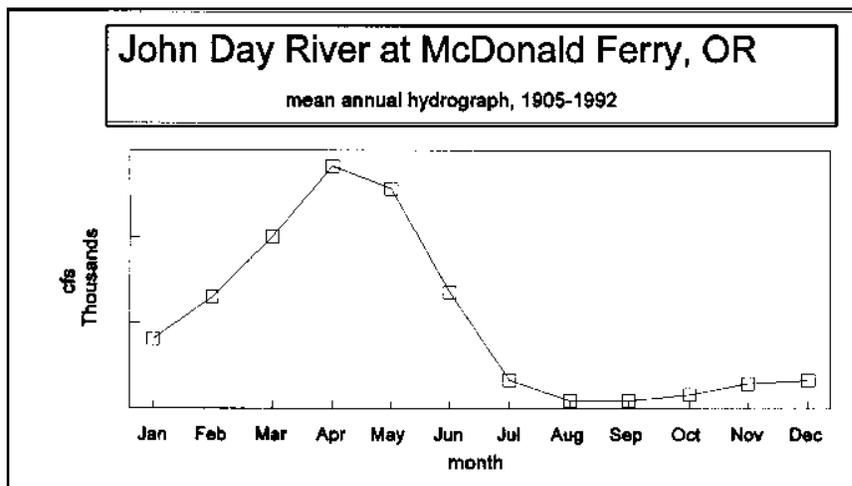
River System Description

The mainstem John Day River flows 284 miles from its source in the Strawberry Range to its mouth at River Mile (RM) 218 on the Columbia River. The largest tributary in the John Day basin is the North Fork John Day River, which originates in the Blue Mountains at elevations near 8,000 feet. It flows southwesterly for 117 miles and joins the mainstem near Kimberly. The Middle Fork John Day River originates just south of the North Fork and flows in a similar direction for 75 miles until they merge about 31 miles above the community of Kimberly. The South Fork John Day River, tributary to the mainstem near Dayville (RM 212), extends 60 miles north from its headwaters in the southwest portion of Malheur National Forest (ODFW 1990).

The John Day River basin drains nearly 8,100 square miles of an extensive interior plateau covering central and northeastern Oregon. Elevations range from about 265 feet at the confluence with the Columbia River to over 9,000 feet in the Strawberry Range. Land forms in the basin range from plateaus in the northwest to glaciated alpine peaks in the southeast. The basin includes portions of the Deschutes-Columbia Plateau and the Blue Mountains physiographic provinces.

Average annual discharge of the John Day River into the Columbia River is slightly more than 1.5 million acre-feet. Due to variations in yearly weather patterns, the total annual discharge has varied between 1 million and 2.25 million acre feet. As is typical of free flowing rivers in semi-arid environments, the annual range of flows for the John Day River is variable. At McDonald Ferry, the peak flow during the October through September water year typically is over 100 times greater than the lowest flow during the same water year. Peak flows can vary as much as 300-700% from year to year. The flow variations within the water year and from year to year can be illustrated by displaying flow levels over the most recent 10-year period for which data is available (see Figure 2-A).

Figure II-A. Mean monthly hydrograph of the John Day River at McDonald Ferry, Oregon for the period 1904-1992).



Climate

The climate in the John Day basin ranges from sub-humid in the upper basin to semi-arid in the lower basin. Mean annual temperature is 38° F in the upper basin, to 58° F in the lower basin. Throughout the basin, actual temperatures vary from sub-zero during winter months to over 100 ° F during the summer. Seventy percent of the precipitation falls between November and March. Only 5% of the annual precipitation occurs during July and August. The upper elevations receive up to 50 inches of precipitation annually, and 12 inches or less fall in the lower elevations. The average frost-free period is 50 days in the upper basin and 200 days in the lower basin.

According to the state climatologist, the Northwest experiences 20- to 25-year cycles between wetter than average years or mostly dry years. The dry years tend to be warm, and the wet years cool. The years from 1975 to 1994 were a very dry period; the entire state saw two significant droughts and 10 consecutive dry years. Some research suggests that we have now entered a wet and cool cycle (Taylor 1999).

River History Overview

Human use of the John Day River basin spans at least 10,000 years. Prehistoric peoples found shelter, dependable water and a variety of resources in the basin. These same conditions attracted many animals which in turn provided meat and furs for hunters. Resident fish, shellfish, runs of anadromous fish, and a variety of root crops provided ready food sources, especially from late spring through summer. Riparian and other terrestrial vegetation provided food and materials for baskets, tools, clothing and houses. The intensity of prehistoric use undoubtedly varied over time based on physical and social environmental factors.

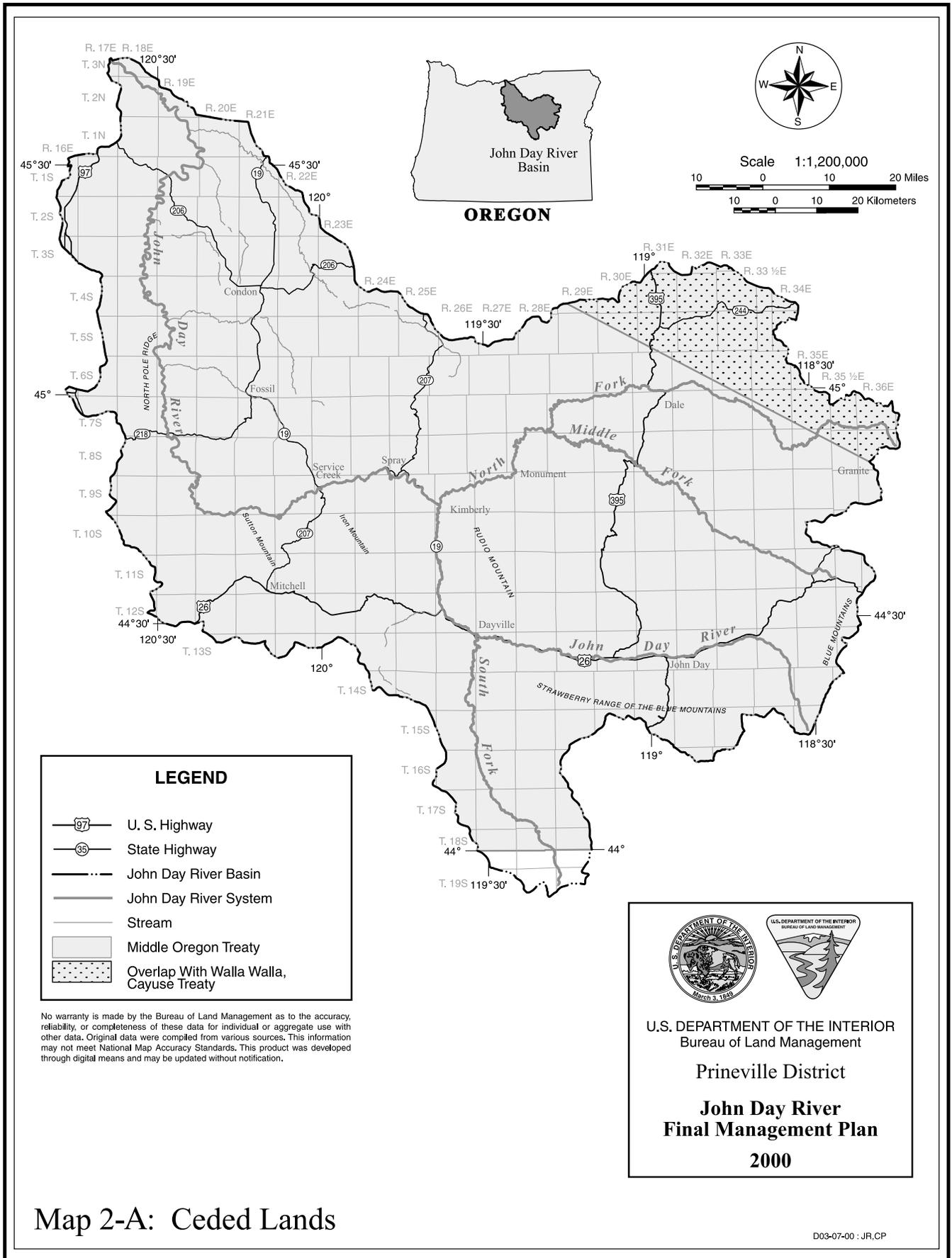
During the 1850s, the U.S. government negotiated several treaties with Native American Indian bands occupying the John Day basin. Most lands occupied or used by these bands were ceded to the government, but reserved rights for the continuation of off-reservation subsistence activities (**Map 2-A**). Specifically, each treaty provides that:

"...the exclusive right of taking fish in the streams running through and bordering said reservation is hereby secured to said Indians; and at all usual and accustomed stations, in common with citizens of the United States, and of erecting suitable [structures] for curing the same; the privilege of hunting, gathering roots and berries, and pasturing their stock on unclaimed lands in common with citizens, is also secured to them" (Treaty with the Tribes of Middle Oregon, 1855 and Treaty with the Wallawalla, Cayuse, and other tribes 1855)

These rights and privileges remain in effect, and federal agencies have trust responsibilities to provide for continuing practice.

Historic use of the John Day River began in the early nineteenth century with fur trapping expeditions. In fact, the river is named for an early fur trapper. Oregon Trail emigrants bound for the Willamette Valley crossed the John Day River beginning in the 1860s. Conflicts between the native populations and the newcomers led to military actions against the Indians and their relocation to reservations. Homesteads and ranches were established on the river corridor where fertile bottom lands could be farmed and water was available for irrigation and livestock. Small communities eventually were established along the river to provide goods and services for mines, homesteads and ranches. Road networks expanded and improved as population increased. Agriculture and, eventually, timber harvesting became important sources of income in the area.

The latter half of the twentieth century has seen a great increase in the use of the John Day River for leisure activities. Hunting, fishing, boating, camping, wildlife observation, photography, hiking, swimming, and scenic viewing are among the most common recreational activities.



LEGEND

- U. S. Highway
- State Highway
- John Day River Basin
- John Day River System
- Stream
- Middle Oregon Treaty
- Overlap With Walla Walla, Cayuse Treaty

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

Prineville District

**John Day River
Final Management Plan
2000**

Map 2-A: Ceded Lands

D03-07-00 : JR,CP

Human Uses and Values

Introduction

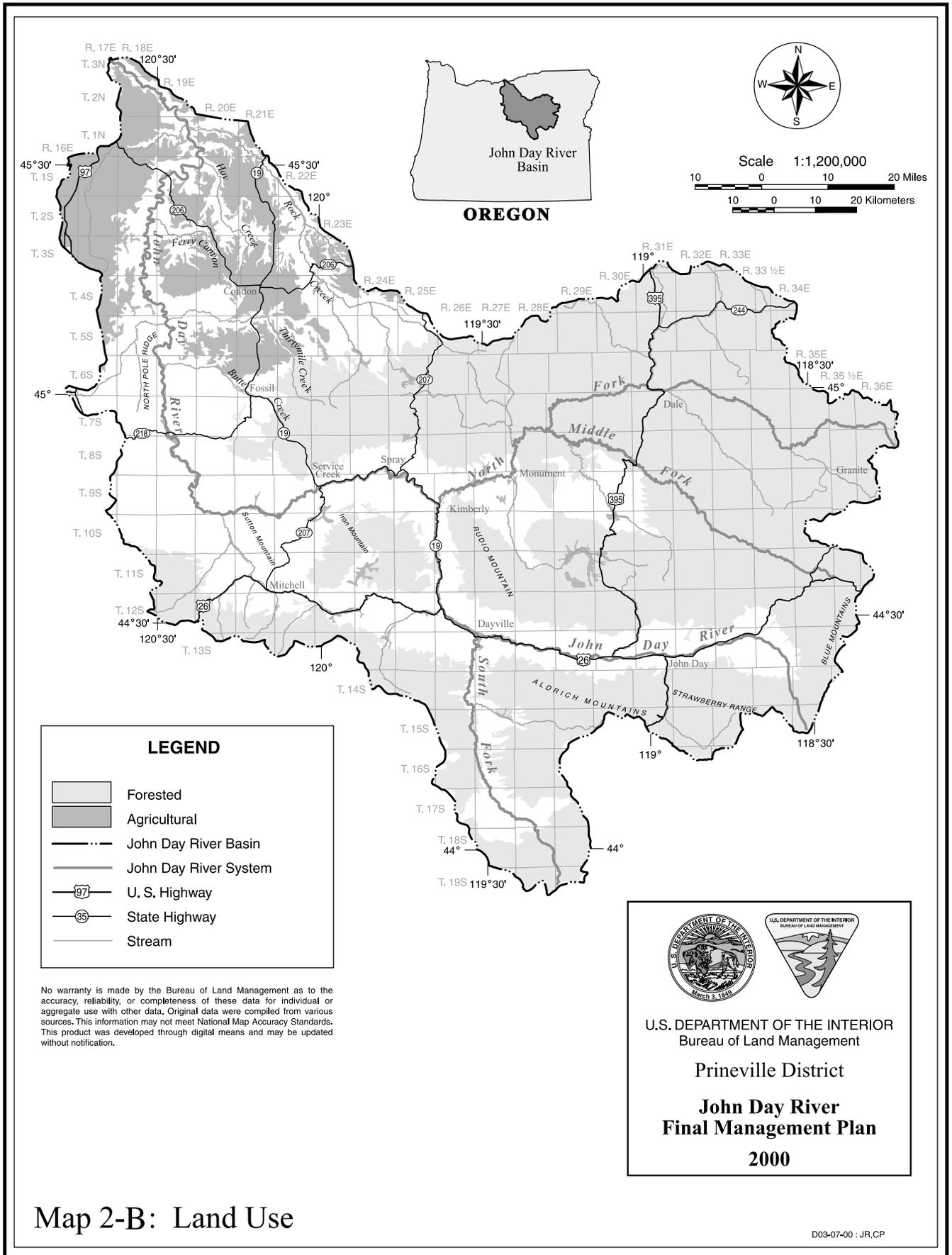
Livestock production and agriculture are important sources of income throughout the basin. Cattle ranching and associated hay crops are major components of these activities. Grass and alfalfa hay, grown mostly along stream bottoms upstream from Service Creek, are the predominant irrigated crops in the basin. The forest products industry is most important in the forested upper portions of the basin around Spray, John Day, and Prairie City. Land uses in the John Day basin are shown on Map 2-B. While dryland production of grain crops remains the major economic activity, tourism and recreation are growing and contribute significantly to the basin's economy.

Human uses of public resources of the John Day River generate private economic activity. Recreational visitors spend money at local retail stores, service stations, and lodging places. Many service businesses (such as guides and shuttle operators) exist or operate in the basin. Much of the land administered by the BLM within the river corridor is available for grazing by privately owned cattle, through a permit system. Water from the river is diverted for agricultural uses on private and some public lands. Mineral resources on public land in the basin are available for location, sale, or lease (depending on commodity) by private individuals or companies. Water rights filed with the state govern the use of the water resources on both public and private lands. Small amounts of BLM-managed timber within the basin are sold to private companies. The following discussion estimates and profiles the amount of economic activity generated by current use levels of John Day River resources on both public and private lands.

Population

Communities in the basin include: Arlington, Condon, Monument, Dayville, Fossil, Dale, Spray, Mitchell, Mount Vernon, Izee, Kimberly, John Day, Canyon City, and Prairie City. Major population centers within travel distance of the John Day basin are shown on Map 1-A. The basin includes major portions of Gilliam, Grant, and Wheeler counties and small portions of Crook, Harney, Jefferson, Morrow, Sherman, Umatilla, Union and Wasco counties.

The John Day River basin is not a highly populous area. The 1998 population in the eight main counties in the John Day basin (represented in Table 2-B) was 127,650. Major population centers such as Pendleton, The Dalles, Hermiston, Milton-Freewater, and Madras are located within the multi-county region, but outside the basin (Map 2-C). Wasco County boasts the largest population which is concentrated along the Columbia River at the mouth of the John Day and Deschutes Rivers. The 1998 population for incorporated communities on or near the river totaled 7,065 and is detailed in Table 2-A.



LEGEND

- Forested
- Agricultural
- John Day River Basin
- John Day River System
- 97 U. S. Highway
- 35 State Highway
- Stream

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

Prineville District

John Day River
Final Management Plan
2000

Map 2-B: Land Use

D03-07-00 : JR,CP

Table 2-A. Populations For John Day River Communities

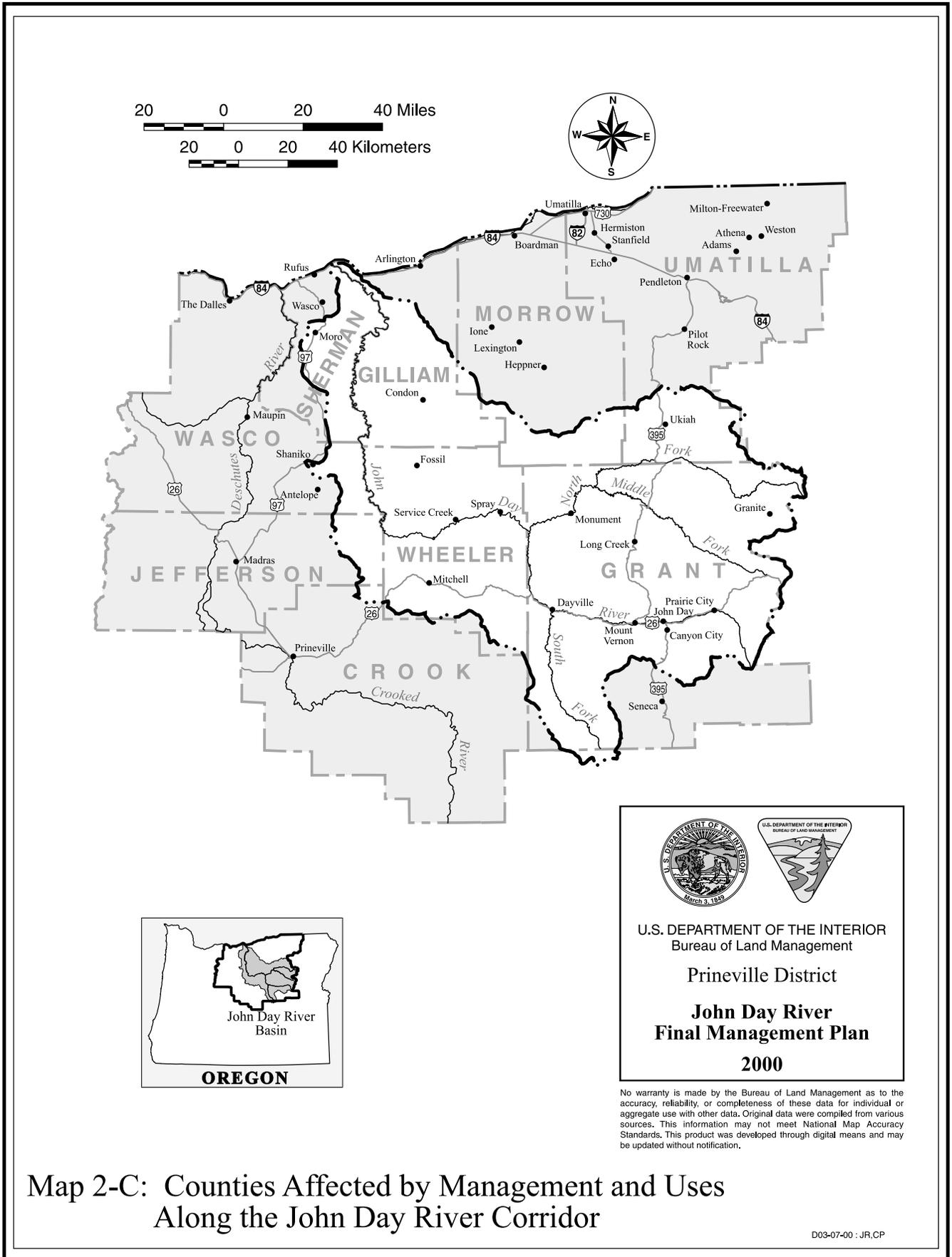
Community	Population
Antelope	65
Canyon City	725
Condon	830
Dayville	185
Fossil	530
John Day	2,015
Mitchell	200
Monument	165
Moro	340
Mt. Vernon	650
Prairie City	1,195
Spray	165

Source: Center for Population Research and Census (1998)

Table 2 -B. Percent of Population Over 65 Years of Age, by County (1997)

County	Percent of Population Over 65 Years of Age
Gilliam	18.1
Grant	15.8
Jefferson	14.4
Morrow	12.8
Sherman	20.3
Umatilla	13.3
Wasco	18.1
Wheeler	21.4

Source: Wineburg (1998)



Map 2-C: Counties Affected by Management and Uses Along the John Day River Corridor

D03-07-00 : JR,CP

Age distribution within the counties varies significantly (Table 2-B). In 1997, six of the eight John Day River counties had high proportions (over 15%) of citizens aged 65 or older, with Sherman and Wheeler counties having the highest proportions. Statewide, average percent population over age 65 was 13.6%. Percent population age 65 or older for the eight counties in 1997 ranged from 12.8% to 21%.

Three of the eight counties (Jefferson, Umatilla, and Wasco) have strong Native American and Hispanic populations. Protection of cultural sites, hunting, fishing, mushroom gathering, and gathering of other special forest and range products is of importance to these populations.

Employment

The diversity and amount of wage and salary employment in the John Day basin is limited. Total employment for the eight county region was 48,615 people in 1998. Much of this employment is located in population centers located outside the basin, but within a county partially within the basin, including Hermiston, Pendleton, and Milton-Freewater in Umatilla County; The Dalles in Wasco County; and Madras in Jefferson County.

Total wage and salary employment in Gilliam County was 760 during 1998. Gilliam County leads the region in percentage employment growth since 1990, at 52.0%. Given the small amount of initial employment (only 500 wage and salary jobs in 1990), the 195 new jobs added by the Arlington landfill in 1992 was a substantial percentage increase in jobs in the county.

Jefferson County increased employment slightly more than Oregon as a whole, with increases of 25.6%. Jefferson County showed increases in most economic sectors, even in lumber and wood products. The other manufacturing sector (other than lumber and wood products) is still recovering from a large decrease in 1991 and remains slightly down. The services sector was down 55.2% due to reclassification of over 1,000 tribal jobs from individual sectors to the government employment sector, resulting in a 125.7% increase in government employment.

Morrow County also increased employment, attaining a 29.1% increase. Morrow County had a stellar employment increase of 166.7% for the construction and mining sector. Other non-manufacturing sectors also showed strong growth, particularly the services sector, which increased 213.3%. Morrow County's manufacturing sector lost 40 lumber and wood products jobs, (a 16.7% reduction) and the other manufacturing sector, primarily food processing, did not change.

Sherman and Wheeler counties each have less than 1,000 people employed with a wage and salary of \$700 and \$325, respectively.

The trade and government sectors were by far the largest employers in Sherman County, employing 330 and 280 people, respectively. No employment has been recorded for Sherman County in the construction and mining sector since 1996.

Employment is very limited in Wheeler County. Government is by far the largest employer, at 210 jobs, representing 65% of all employment. An estimated 10 people are employed in the manufacturing sector and none in lumber and wood products. The trade sector (wholesale and retail) employs about 55 people.

Umatilla County has the highest population and employment of the eight counties in the John Day River basin. Most people and jobs are concentrated in Hermiston, Pendleton, and Milton-Freewater, communities located outside the John Day River basin. Umatilla County boasted 26,260 wage and salary jobs in 1998, which was a 25% increase since 1990. The strongest growth sector was construction and mining (143.5%) with finance, insurance, and real estate (17.6%), services (33.7%) and government (26.2%) showing good growth. As in Jefferson County, tribal employment was reclassified in 1995, shifting about 500 jobs into the government sector.

Grant County wage and salary employment totaled 2,770 people in 1998, a decrease of 3.1% since 1990. Grant County had 670 lumber and wood products jobs in 1990, representing 23.4% of total county employment. In 1996, there were 440 lumber and wood products jobs, representing 15.3% of total county employment. Lumber and wood products employment was not disclosed in 1997 or 1998 for confidentiality reasons (there was only

one company). Growth in other sectors was good between 1990 and 1998, but not enough to offset losses in the lumber and wood products sector. Sectors with employment increases were: construction and mining (75%), transportation, communication and utilities (25%), trade (18.2%), and services (26.9%).

Wasco County employment totaled 8,860 in 1998, mostly concentrated in The Dalles, which is located outside the John Day River basin. In 1990, there were 310 lumber and wood products jobs, representing 4.1% of total county employment. By 1998, Wasco County had 180 lumber and wood products jobs, representing 2.0% of total county employment, a decline of 41.9%. However, this loss was offset by increases in other sectors such as: construction and mining (68.8%), trade (18.8%), and services (16.1%). Like Jefferson and Umatilla counties, tribal employment was reclassified in 1995, shifting 170 jobs into the government sector.

Income

Wages and salaries are an important source of income for an area. Income derived from other sources includes dividends, interest, rents, and transfer payments (such as Social Security). Reviewing these income sources helps to understand the overall wealth of an area.

Wages and Salaries

The 1995 percent of income from wages and salaries for five of the eight John Day River counties was near the statewide average of 64.7%. However, for the other three counties (Gilliam, Sherman, and Wheeler), income from wages and salaries is significantly lower than the statewide average (see Table 2-C). This is not unusual for rural counties with wage and salary employment under 1,000 and no major business or population centers.

Table 2 -C. Income Sources for John Day River Counties (1995)

County	Percent Income From Wages and Salaries	Percent Income From Dividends, Interest, and Rents
Gilliam	46.6	29.5
Grant	60.0	14.7
Jefferson	61.2	15.7
Morrow	69.0	14.4
Sherman	34.8	31.8
Umatilla	63.8	14.1
Wasco	59.4	18.6
Wheeler	30.3	38.9

Source: Oregon Employment Department (Undated: a,,b,,c,,d,,and e)

Dividends, Interest and Rents

Dividends, interest, and rents are important income sources for individuals who have accumulated assets. This includes business owners and many retirees. The 1995 statewide percent of income from dividends, interest and rents was 18.3 %. The percentage for each John Day River county ranges from approximately 14% in Umatilla County to almost 40% in Wheeler County (see Table 2-C)

Transfer Payments

Transfer payments are another important source of income in many areas. This includes government payments such as social security, medicare/medicaid payments, and a variety of income maintenance payments to low income individuals and families. Transfer payments represent 16.6% of income in Morrow County, which is near

the statewide average of 17%. Transfer payments for other John Day River counties are higher. They represent over 20% of total income in five of the eight counties (Gilliam, Grant, Jefferson, Umatilla, and Wasco) and over 30% in Sherman and Wheeler counties (Oregon Employment Department, Undated a,b,c,d,e). It is not unusual for rural counties with employment under 1,000 and no major business or population centers to have high levels of transfer payments. Sherman and Wheeler counties fit this profile. Social security payments are the major component of transfer payments, so high percentages are typical in counties with large populations over age 64.

Poverty rates (estimated number of people living at or below the poverty level) are another important indicator of wealth in an area. Poverty in 1993 was defined as an income of \$7,518 or less for one person. For a two-parent family of four, the threshold was \$14,654; and for a single parent with two children it was \$11,642. Statewide, the poverty rate was 13.2% in 1993. Estimated poverty rates for the counties of the John Day River basin range from a low of about 6% in Gilliam, to about 17% in Jefferson and Umatilla counties (see Table 2-D). Three of the eight counties (Jefferson, Umatilla and Wasco) have poverty rates that exceed the state rate.

Table 2 -D. Estimated Poverty Rates For John Day River Counties (1993)

County	Poverty Rate (%)
Gilliam	6.2
Grant	12.3
Jefferson	17.4
Morrow	7.3
Sherman	10.2
Umatilla	17.1
Wasco	13.4
Wheeler	9.5

Source: McGinnis et al. 1996

Travel and Tourism

Travel and tourism dollars spent in the John Day basin are low compared to other Oregon counties. However, these dollars play an important economic role in John Day River counties that have low populations.

Annual estimated travel expenditures for Oregon and its counties are made by Dean Runyan and Associates for the Oregon Tourism Department. These expenditures include travel for business and pleasure. Table 2-E displays estimates for 1996 for Oregon and each of the eight counties. The estimates cannot differentiate to sub-county levels and do not address the John Day River basin specifically.

Table 2 -E. Travel-Related Spending and Employment for John Day River Counties (1996)

County	Travel Spending (Dollars in 000)	Employment (Jobs)
Gilliam	2,900	43
Grant	18,270	266
Jefferson	43,810	660
Morrow	11,700	186
Sherman	11,040	146
Umatilla	54,950	941
Wheeler	2,980	40
South Wasco	18,130	276
Regional Total	163,780	2,558
Oregon Total	4,483,200	68,539

Source: Oregon Tourism Commission (1997)

Common recreational activities on the John Day River include boating, angling from boat and bank, hunting, camping, nature study (especially paleontological resources), sightseeing by car, and general day uses such as picnicking.

There are 34 individuals holding John Day River outfitter and guide permits, primarily for boating and fishing. Many are wide-ranging firms, located as far away as Eugene and Portland. Of these 34 John Day River permittees, 18 also hold permits for the nearby Deschutes River, which is also administered by the BLM Prineville District.

There are no studies that specifically address visitor spending in the John Day basin. However, estimated expenditures per visitor day for specific activities in Oregon are available (see Table 2-F)

Table 2-F. Expenditures by Activity

Activity	Expenditure (1993 Dollars)
Downhill Skiing	57.46
Snowplay	25.04
Camping	15.95
General Day Use	37.08
Water Recreation	25.30
Fishing	26.80
Hunting	33.22
Motorized Recreation	23.89
Non-Motorized Dispersed	10.04
Nature Study/Interpretive	26.52

Source: Johnson, Litz, and Cheek (1995)

Only a few communities in the basin are large enough to offer a full spectrum of services. Visitors who know this make purchases before arriving in the basin.

Agriculture and Grazing

Agricultural sales in the eight counties fully or partially within the John Day River basin totaled over \$628 million in 1997 (Oregon State University Extension Service, Various Years). This represented 19% of all agricultural sales in Oregon. Umatilla and Morrow counties were the leading agriculture producers in the basin, with \$308 million and with \$110 million in sales, respectively. In Umatilla County, grain crops were the most valuable (\$93 million), followed by field crops (\$57 million), and vegetable crops (\$54 million). Sales of cattle and calves in Umatilla County totaled \$33 million in 1997. Field crops were the most valuable in Morrow County (\$39 million), followed by grain crops (\$36 million). Sales of cattle and calves totaled \$16 million. Morrow and Umatilla counties benefit significantly from irrigation from the Columbia and Umatilla Rivers, and only small portions of these counties are drained by the North Fork John Day River.

Sherman, Gilliam, and Wasco counties abut the lower John Day River. Grain crops are the leading cash crop in Sherman (\$24 million) and Gilliam (\$19 million) counties. Wasco County sales from grain crops (\$14 million) are surpassed by tree fruit and nut crops (\$33 million). This production is centered around The Dalles, somewhat distant from the John Day River. Sales of cattle and calves for these three counties are as follows: Sherman, \$1.6 million; Gilliam, \$3.6 million; and Wasco, \$6.8 million. Jefferson County abuts the mainstem John Day River at its eastern border, but the majority of agricultural lands in the county are located in the Deschutes River basin. Total farm sales in 1997 for Jefferson County were \$50.9 million, with field crops (\$14 million) and cattle and calves (\$7.7 million) the leading products. Wheeler County has limited agricultural activity with total 1997 agricultural sales of \$6.98 million; sale of cattle and calves represent more than half of this total with \$4.3 million in sales.

Grant County is located at the headwaters of the John Day River. Livestock is the primary agricultural activity with \$19.8 million in sales for 1997. A variety of other agricultural products brought total sales of \$27.3 million in 1997.

Livestock grazing on BLM-administered lands contributes to agricultural activity in all the counties. Private livestock owners are authorized to graze a specified number of cattle for specific periods of time in exchange for a fee. Access to this public forage increases productivity for ranchers. The U.S. Forest Service has a similar permitting process for National Forest lands.

There are 119 grazing allotments fully or partially within the corridor (64 of which are within the designated WSR segments) affecting a total of 22,781 Animal Unit Months (AUMs). An AUM is the amount of forage necessary to sustain one cow and calf for one month. Given the existing inventory of cattle (estimated at a total 328,370 head, including 95,300 calves and 233,00 adults and yearlings) within the eight-county region, AUMs attached to BLM lands within the corridor comprise approximately 1% of the total forage consumed by livestock. This represents a very marginal economic contribution to the region. Detailed financial information on approximately 110 affected operators is proprietary; therefore, specific outcomes cannot be estimated.

Approximately 220 acres of BLM-managed land are leased for irrigated agricultural/cultivation. The majority of these lands were acquired through land acquisitions. Some were created to resolve unintentional trespasses from fields developed prior to accurate surveys. These lands are leased to adjacent landowners who cultivate the lands in conjunction with their private lands. Six individuals hold these leases. These lands are generally used to grow grains, hay, alfalfa, dry beans, and some speciality crops including mint, onion seed, carrot seed and coriander. The BLM does not currently dictate the type of crop grown.

Lumber and Wood Products

The John Day River basin is an important timber-producing area. There is no significant timber harvest in Sherman and Gilliam counties. A large percentage of timber harvest has historically been from National Forest lands, especially in Grant County. Forest industry companies and other private timber entities own a significant land base in the basin. Harvest from private lands in 1996, by county, is provided in Table 2-G.

Table 2-G. Timber Harvest From Private Lands By County (1996)

County	Harvest Volume in Million Board Feet
Grant	49.3
Jefferson	2.5
Morrow	20.1
Umatilla	16.5
Wasco	2.9
Wheeler	82.2

Source: Oregon Department of Forestry, Various Years

Timber harvest also occurred on tribal lands in Wasco, Jefferson, and Umatilla counties. These lands are all located in portions of the counties outside the John Day basin.

Historically, harvests from National Forests were the largest portion of total harvest in counties along the John Day River. Since a harvest peak in 1989, harvest from National Forest lands has decreased dramatically and is now a relatively minor portion of harvest. For example, in Grant County, 1989 National Forest harvest totaled 256.1 million board feet (mmbf), or 87% of total harvest. By 1996, harvest volume had dropped to 21.3 mmbf, or 30% of total harvest.

Total BLM harvest within the basin between 1987 and 1997 was 20.5 mmbf, with 16.1 mmbf of this harvest occurring in 1987 and 1988. Harvests have been concentrated in the Rudio Mountain and Dixie Creek areas. Dixie Creek, a tributary of the mainstem John Day River, is located north of Prairie City; Rudio Mountain is located between the communities of Dayville and Kimberly east of the river. None of the recent BLM harvest was within the Wild and Scenic River corridor.

Much smaller salvage and selective harvests have been the emphasis of BLM's timber management program since implementation of the John Day Resource Management Plan of August 1985.

Purchasers of sales since 1987 have included Malheur Lumber Company of John Day, Ochoco Lumber Company of Prineville, Ellingson Lumber Company of Baker City, Widows Creek Timber of Mt. Vernon, and D.R. Johnson Lumber of Prairie City. As of December, 1998, estimated hourly earning in the lumber and wood products industry in Oregon was \$13.63 (Oregon Employment Department 1999)

Native American Uses

There is little information available on specific current Native American Indian use within any of the river segments. Information regarding areas visited by individual Indian families for root collecting, hunting, fishing or religious practices is not formally shared within a tribe or with agencies. For many segments, access is an issue due to land ownership or geography. Ethnographically, it is known that the river corridor was used by various tribal groups to conduct all these activities. The CTWSRO and the Burns Paiute, however, have indicated that some of their tribal members continue to use the region for hunting, fishing, gathering and religious activities. More specific information, when known, is provided in the Cultural Resource section or in individual segment descriptions.

Land Ownership and Withdrawals

Ownership

The ratio of private to public land in the basin has changed little within the last decade, although some federal-private land exchanges have occurred involving willing sellers. The Northwest Power Planning Council (1991) reported that 62 % of the land in the basin is private (5,027 square miles), 29.6% is USFS (2,396 square miles), 7% is BLM (587 square miles), and 1.4% is state and ODFW (83 square miles).

The Northeast Oregon Assembled Land Exchange and Final Environmental Impact Statement (USDI-BLM 1998b), proposes to change the amount and distribution of public lands administered by the BLM in the upper part of the basin. The Preferred Alternative involves the exchange of approximately 90,000 acres of BLM-administered lands for as much as 70,000 acres of private land. The distribution would change, with public lands becoming more consolidated, and higher-value lands bordering rivers and streams transferred to public ownership.

Table 2-H summarizes land ownership on the banks of the John Day River mainstem, North Fork, Middle Fork, and South Fork.

Table 2-H. Land Ownership Along John Day River						
Owner	River Miles	% of Total	River Frontage Miles	% of Total	Acres Within 1/4 Mile of River	% of Total
Mainstem (Tumwater Falls to Dayville)						
BLM*	84	(42)	171	(42)	26,960	(42)
State	4	(2)	2	(2)	1,200	(2)
Private	114	(56)	232	(56)	36,480	(56)
Total	202		405		64,640	
North Fork (Kimberly to Camas Creek)						
BLM	12	(23)	25	(23)	4,760	(24)
State	1	(5)	1	(5)	1,040	(5)
Private	48	(72)	95	(72)	14,000	(71)
Total	61		121		19,200	
Middle Fork (North Fork Confluence to Highway 395)						
BLM	1	(5)	2	(5)	640	(9)
Private	21	(95)	42	(95)	6,400	(91)
Total	22		44		7,040	
South Fork (Mainstem Confluence to USFS Boundary)						
BLM	12	(29)	24	(29)	4,800	(29)
USFS	1	(1)	2	(1)	240	(1)
State	6	(9)	12	(9)	1,440	(9)
Private	56	(61)	93	(61)	10,160	(61)
Total	65		130		16,640	

*23,700 acres of BLM land are withdrawn for potential hydroelectric development

Ownership of the River Bed and Banks

State ownership of the beds and banks of navigable water bodies was granted to Oregon in 1859 when it became a state. The beds and banks of non-navigable waterbodies remain in the ownership of adjacent landowners or land management agency. Under state law, the Division of State Lands is responsible for managing the beds and banks of navigable waterbodies. These assets are to be managed for the greatest benefit of the people of this state under sound techniques of land management. Protecting public trust values of navigation, fisheries and public recreation is also important.

The navigability of the John Day River has not been established. Currently, both the state and federal governments, and in some cases private property owners, claim ownership of the river's bed and banks.

The original federal test for determining navigability was established in the Daniel Hall Case over 100 years ago. The U.S. Supreme Court case clarified that rivers "are navigable in fact when they are used, or susceptible of being used, in their ordinary condition, as highways of commerce..." Subsequent court decisions have adopted this test, ruling that a water-body is navigable if it was capable of use, at the time of statehood, as a public highway for transporting goods or for travel in the customary modes of trade and travel on the water.

Although the Division of State Lands has determined that there is sufficient evidence to support a claim of navigability of at least part of the John Day River system, no such legal claim has officially been filed.

Withdrawals

A "withdrawal" is a land classification that removes involved lands from actions under various public land laws, including the mining laws. Withdrawn lands may ultimately be transferred from BLM jurisdiction to other federal agencies. Numerous "withdrawals" have been made along the John Day River for more than 100 years. The most common withdrawals along the river were made over 50 years ago to reserve areas for future hydroelectric power projects. However, there are no such developments or current proposals. The WSR Act caused the remaining federal lands within the designated WSR segments to be withdrawn from entry, sale, or other disposition.

Utility Corridors

Six major electric power lines cross the mainstem of the John Day River (**see Map Plates 1-6**). A Pacific Power and Light Company 69-kV line crosses the river approximately 1.5 miles downstream from McDonald Ferry (RM 19). The Bonneville Power Administration (BPA) McNary-Maupin 230-kV steel tower line No.2 and the Slatt-Marion 500-kV double circuit line cross the river between Scott Canyon and Hay Creek (RM 28). The BPA DeMoss-Fossil 115-kV wood pole line crosses the river at Cottonwood Canyon (RM 40). The Columbia Power Cooperative 69-kV line crosses the river south of Clarno near Pine Creek between RM 110 and 111. Numerous other smaller power lines (estimated near 100) cross the river, mostly along upper portions of the river system, primarily to provide power to homes and irrigation pumps.

Two pipelines belonging to the Pacific Gas and Electric Gas Transmission-Northwest cross beneath the river at Thirtymile Creek near RM 85.

Information and Education

Public information sources for the John Day River system include the Prineville BLM office and river staff, three privately published river guide books, and information bulletin boards at most launch sites.

The BLM provides an information packet addressing camping and boating opportunities on the John Day River in response to public requests. The packet includes information on minimum impact camping requirements, boating and fire regulations, and preventing the spread of noxious weeds. Two BLM maps are available showing the Upper and Lower John Day River basin. These 1:100,000 scale maps show public and private roads, topography, location of launch sites, and land ownership.

The three river guidebooks are: *Oregon River Tours* by John Garren (1979), *Soggy Sneakers* by the Willamette Kayak and Canoe Club (1994), and the *John Day River Drift and Historical Guide* by Arthur Campbell (1980). These books, which can be ordered by request at most bookstores, have maps that show river miles, rapids, popular campsites, and information on season of use and projected water flows.

Law Enforcement and Emergency Services

In addition to addressing the typical law enforcement needs of rural communities, law enforcement personnel within the John Day Basin are called to respond to a variety of incidents associated with increased recreational use of the area. Among those are enforcing traffic rules and game and fish regulations; and responding to vehicle accidents, wildfire, search and rescue incidents, vandalism, trespass, alcohol abuse, firearms violations, illegal fires, dumping, and unauthorized use of off-road vehicles. The current staffing levels and services of the combined Federal, State, and County law enforcement agencies in the John Day Basin are not adequate to meet the rising demand for these services within the basin.

Energy and Minerals

Agencies Regulating Mining

The BLM administers mining on BLM-administered lands. Those wishing to mine on lands within the WSR corridor, except for casual use, must submit a detailed plan of operations to the BLM Prineville District Office and receive the approval of that office before mining. A reclamation bond must be obtained in an amount determined by BLM for any mining operations in the river corridor.

The law does not require the BLM to be notified for “casual use” mining operations. Casual use is when prospecting or mining activity will cause only negligible disturbances to the land and resources, does not require the use of mechanized earth moving equipment or explosives, and/or does not involve the use of motorized vehicles in areas designated as closed to off-road vehicles.

The Oregon Division of State Lands (ODSL) issues prospecting permits for exploration and mining activities within the state on private, state or federal lands. The ODSL also issues removal-fill permits for activities occurring in waters of the state. Individual removal-fill permits and Land Board approval are required in Oregon State Scenic Waterways, except that no permit is required for gold panning if less than 5 cubic yards per year per stream are moved. Other permits may be required depending on the nature and location of the proposed activity. Refer to ODSL bulletin “Placer Mining In The State Of Oregon” for more details.

The Oregon Department of Environmental Quality (ODEQ) issues two permits to protect water quality: National Pollution Discharge Elimination System (NPDES) permit and Water Pollution Control Facilities (WPCF) 600 permit. The NPDES General Permit 700-J is required to operate an instream suction dredge of no more than 40 horsepower and to discharge the resulting wastewater into the waters of the state. The WPCF 600 permit is required for small scale, non-chemical, off-stream, placer mining activity.

The Oregon Department of Fish and Wildlife (ODFW) publishes the brochure “Oregon Guidelines For Timing to Protect Fish and Wildlife Resources.” The information in this brochure is necessary to ensure that requirements of the Department of Environmental Quality’s General Permit 700-J (to not dredge when fish eggs could be in the gravel) are met.

Other permits may be required by other agencies depending on the proposed activity.

Mining in BLM Wilderness Study Areas (WSAs) is regulated under the 43 CFR3802 regulations. Any claims filed in a WSA would be subject to the guidelines of the BLM Interim Management Policy (IMP). No leasing or disposal of salable minerals is permitted in WSAs.

Locatable Minerals

Mining has been an important use in the upper John Day basin for over a century. Mining for gold and other locatable minerals continues, or has occurred recently, on the upper North Fork, upper Middle Fork, and on tributaries of the upper mainstem John Day River. Bentonite is currently being mined along the lower mainstem John Day River near Clarno, but not within the river corridor.

Salable Minerals

Salable minerals, primarily rock and gravel used for road construction, is mined throughout the basin. There are several of these operations on private, state and public land close to the river in the upper mainstem John Day River. In Segment 4, an operation exists across the highway from the river but within the State Scenic Waterway boundary near Muleshoe Creek. Operations on the South Fork are separated from the river by BLM or county roads and are located at Smokey Creek and Cougar Creek. Rock and gravel operations occur in the lower part of the basin but are restricted to areas outside of the river corridor.

Leasable Minerals

There is no leasing of fluid minerals within sections of the corridor that are Wilderness Study Areas. In other parts of the corridor, a restrictive “no surface occupancy” stipulation for fluid minerals exploration and development is maintained on lands identified as nationally significant or visually sensitive in the Two River RMP area and with standard stipulations in the upper John Day (and South Fork) basins.

Exceptions to the “no surface” occupancy stipulation would be evaluated using the following criteria:

- (1) Evidence of exploration or similar activities would not be visible from the surface of the John Day River.
- (2) All activities involving exploration would use existing roads to the fullest extent possible.
- (3) Any proposed exploratory drilling pad or road construction for access to a drilling site would be located to avoid canyon slopes and areas of high visibility. In these areas, roads and drilling sites would be fully rehabilitated when operations have been completed.

If leases are issued with the “no surface” occupancy stipulation, the criteria for exception would be included in the stipulation.

Geology/Geomorphology

The John Day basin has a complicated geologic history that has resulted in a complex and diverse assemblage of rocks. These rocks include masses of oceanic crust, marine sediments, a wide variety of volcanic materials, ancient river and lake deposits, and recent river and landslide deposits. Distribution of the basin’s major geologic units has largely been controlled by the structural evolution of the basin.

Lava flows and volcanic ash, sandstone, and shale deposits more than 250 million years old comprise the earliest rocks in the John Day basin. More than 65 million years ago, during pre-Tertiary time, sediments and volcanic rocks of the oceanic crust were contorted, uplifted, and eroded. Roughly 54 to 37 million years ago, a series of widespread volcanic eruptions produced the lava, mudflows, and tuffs of the Clarno Formation. As this activity waned, new eruptions in the area of the present day Cascade Range began depositing thick layers of volcanic ash, which resulted in the John Day Formation. Extensive deposits of ancient mammals, leaves, and petrified woods have been preserved in volcanic ash within these formations. During a period approximately 19 to 12 million years ago, the region (along with much of northern Oregon, southern Washington and western Idaho) experienced volcanic eruptions that resulted in a series of flood basalts known collectively as the Columbia River Basalt Group. Much of the modern landscape of the basin is still highly influenced by these lava flows, which are more resistant to erosion than the older John Day and Clarno formations. Sometime after these basalt flows blanketed the region, fine-grained volcanic sediments of the Mascall Formation were

deposited locally atop the basalts. At around 10 million years ago, the eruptions ceased and the processes of erosion and faulting continued to alter the landscape. The Rattlesnake Formation, a thick sequence of sand and gravel, was deposited in the ancestral John Day Valley. An east-west fault zone, which includes the John Day fault, probably controls the location of the John Day River upstream of Picture Gorge.

The John Day basin includes portions of two major physiographic provinces: the Deschutes-Columbia Plateau and the Blue Mountains. The Deschutes-Columbia Plateau Province is a broad upland plain formed by floods of molten basalt overlain with wind-deposited loess. In contrast, the Blue Mountains Province is a diverse assemblage of older sedimentary, volcanic, and metamorphic rock that was uplifted, tilted, and faulted to form rugged hills and mountains. These two physiographic provinces roughly divide the basin in half near Service Creek. The mountainous upper basin lies to the south and east, and the plateau-like lower basin is to the north and west. The Blue Mountain anticline, a broad up-arching of the earth's crust, forms part of the divide between the John Day basin and Columbia River tributaries to the north.

The Blue Mountains Province is one of Oregon's most physiographically diverse regions, containing mountains, rugged hills, plateaus cut by streams, alluvial basins, canyons, and valleys. The present day landscape and river morphology is highly influenced by landslides that develop when softer rock layers erode. The area downstream from Picture Gorge illustrates this characteristic. Many alluvial stream bottoms and adjacent bench-lands are suitable for irrigated agriculture. In contrast to the upper basin, the lower basin is a plateau of nearly level to rolling, loess-covered Columbia River basalt that is deeply dissected by the John Day River and its tributaries.

Large fluctuations in flow over the course of a year, and from year to year, are products of variable weather and the free-flowing condition of the John Day River. The bedload materials in the river channel now consist of large gravels, cobbles and boulders. The amount of bedload is so large in some cases that the river cannot accommodate the load in the normal erosional and depositional processes. During large flow events, the bedload is moved and deposited downstream, either as part of a new gravel bar or eventually as part of the sediments in the Columbia River. When the bedload is deposited in mid-channel, hydrologic forces are exerted against river banks, causing more lateral expansion, adding more sediment and gravel to the system, and decreasing water quality. Overall, the John Day River can be characterized as a high gradient system dominated by geologic and geomorphic processes that can, at times, introduce large amounts of sediment into the system. These sediments are typically deposited in downstream reaches of the basin or flow into the Columbia River system.

This process has some implications for many different aspects of the WSR outstandingly remarkable values. The widening of the channel has contributed to the heating of the water through exposure to air and sunlight and, therefore, resulted in elevated water temperatures. Channel widening has removed vegetation along the river banks and continues to reduce reestablishment where the widening processes are still active.

Caves

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 © and (d). The FCRPA defines a cave as any naturally occurring void, cavity, recess, or system of interconnected passages, which occurs beneath the surface of the earth or within a cliff or ledge, including any cave resource therein, that is large enough to permit a person to enter, whether or not the entrance is naturally formed or manmade. Rock shelters, less than fifty feet in length and containing no dark zone, are not considered to meet the definition of a cave.

One cave has been listed as significant within the John Day River corridor. This small cave is located within a cliff overlooking the South Fork and receives limited use by the western big-eared bat. No public nominations have been received, and no other caves are documented within the planning boundary. Cave inventories have not been extensive along the John Day River system; therefore, it is possible that undocumented cave passages are present, this is particularly likely within the cliffs and ledges above the river, although a majority of "caves" in the area are likely rock shelters that do not meet the definition of a cave. If additional cave nominations are received,

or unknown cave passages are discovered, these caves would be considered “potentially significant” and would be evaluated for listing under the FCRPA.

Until management plans are prepared to provide specific management prescriptions, significant and potentially significant caves would be managed in accordance with the Interim Management Policy for BLM caves in Oregon and Washington. The policy provides protective management of all cave resource values, procedures for authorizing human uses, and restriction of specific human activities. Public input would be pursued and incorporated into cave management plans.

Paleontology

Paleontological resources are known to occur throughout the middle reaches of the John Day River system. These portions of the basin are considered some of the richest Tertiary plant and animal fossil localities in the world. Significant paleontological locations occur on the mainstem between Butte Creek and Service Creek. Many of these localities are on BLM-administered lands, and a few occur in or adjacent to the river corridor. However, only a few formally conducted inventories have been performed within or near the river corridor. The John Day Fossil Beds National Monument, administered by the National Park Service, has three separate units interpreted. Two of these, Clarno and Sheep Rock, are located adjacent to the river. Only the Clarno unit, however, occurs in close proximity to the federally designated Wild and Scenic River corridor.

Cultural Resources

The John Day River encompasses a wide range of physiographic and environmental settings used by various peoples over at least the last 10,000 years. Archaeological data from this vast region is limited. Several sites have been formally excavated near the confluence of the John Day and Columbia Rivers and in the lower mainstem (Dumond and Minor 1983, Schalk 1987, and Atwell and Katsura 1995). Much of the knowledge about the archaeology of the river comes from an extensive inventory conducted by Polk (1976) along the lower mainstem. Archaeological research along the remaining portions of the river is meager. This is due, in part, to the large percentage of river frontage in private ownership and the development in those areas considered as high potential for prehistoric sites. Several recent and extensive inventories in the mid-to-upper basin (Burtchard 1998, USDI-BLM 1998e), however, have contributed significantly to our level of understanding about the archaeology, both along the river and in the surrounding uplands.

This limited archaeological data does provide some information about the various peoples who occupied and used this area. Prehistoric use of the region appears earliest near the Columbia River, dating back at least 10,000 years. Ancestors of these prehistoric peoples continue to use the river system and surrounding upland. Some areas experienced periods of intensive use and/or occupation, such as along the lower stretch between 2,000 and 1,000 years ago. Ethnographically, there appears to have been two or three main users of the John Day River system. The primary and traditional aboriginal groups were the Sahaptin-speaking Tenino and the Numic speaking Northern Paiute. Cayuse and Umatilla groups, both Sahaptin-speakers, also are known to have occupied a portion of the John Day River system. Ethnographically known villages of these various tribes are reported to have occurred along the lower mainstem, the Middle Fork, and the North Fork of the John Day River. The exact location of most of these sites is unknown.

A variety of prehistoric site types occur along the river. Evidence of tool making, food preparation, storage, and shelter building are present at some of these sites. Influences of both the Columbia Plateau and Great Basin cultures are evident in the archaeological record.

The earliest evidence of substantial historic use in the region dates to the 1840s with the Oregon Trail crossing at what is now McDonald Ferry. Settlement of the region began in earnest in the 1860s and was related to mining, homesteading, and transportation.

Recorded historic sites on the John Day River center on the themes of homesteading, ranching, gold mining, and transportation. The sites date from the late 19th through the early 20th centuries. The most common sites are wooden homestead or line cabins or their remains, along with associated features such as wells, outhouses,

trash dumps, and non-native trees. Corrals, fences, flumes, canals, and farm equipment also are present on some sites.

Roads, pack trails, and features associated with ferries and fords comprise the transportation sites. The Oregon Trail crossing at McDonald Ferry, located at RM 21, is the earliest and most famous historical site in the John Day River basin. Segments of The Dalles Military Road occur within the river corridor between Clarno and Service Creek.

About half of the known cultural resource sites are in fair to poor condition. Most occur along the lower stretch and were impacted prior to the Wild and Scenic River designation, primarily by looters. The greatest threat to these fragile sites is continued illegal digging and surface collection of artifacts by relic hunters. Recreational activities, farming, livestock trampling, and erosion also have impacted cultural resources, but to considerably less degree than illegal digging and surface collection, especially where access is limited. Farming and ranching are historic uses in the river basin, dating from the 1860s. These various activities have affected only the surface (up to the top 12 inches of sediment) manifestations of some open-air prehistoric sites, with no appreciable changes occurring after their initial disturbance (notably dispersed livestock trampling). Erosion in its various forms is a natural process that, despite well-intentioned human efforts to curb it, continues to affect both prehistoric and historic sites. In the generally drier climate of the John Day River canyon, erosional processes are slow except in high flow and intense thunderstorm events. Even then, the erosive action is very location specific and not widely distributed. Recreation activities also have different effects, depending on the various activities performed. In general, the detrimental effects of any recreation activity on cultural resources depend on the spatial co-occurrence and the nature of the activity. None of the cultural sites on the mainstem John Day River have been evaluated for their eligibility to the National Register. However, most are considered potentially significant because of the overall lack of understanding of the regional prehistory, and to a lesser degree, the history.

Cultural resources, both historic and prehistoric, are identified as outstandingly remarkable values on the lower John Day mainstem WSR and potentially significant on the South Fork John Day WSR.

Water Quantity and Quality

As mentioned in the introduction to this chapter, the large fluctuation in flow over the course of a year, and from year to year, is a product of climate, geomorphological process, and the free-flowing condition of the John Day River. Peak discharge usually occurs from March through May. Seasonal low flows typically occur in August and September (Moffatt et al. 1990). Extreme flood events tend to occur during December and January when warm temperatures and extremes in precipitation result in rain on snow events, which lead to extreme run-off and increases in stream discharge. Extreme high and extreme low flows recorded at the McDonald Ferry gauging station (USGS 14048000) for the period of 1904 to 1996 range from a high of 42,800 cubic feet per second (cfs) for December 24, 1964, to a low of zero cfs for September 2, 1966, August 15 through September 16, 1973, and August 13, 14, and 19 through 25, 1977.

Mean annual daily discharge is 2,103 cfs (Moffatt et al. 1990). The annual water yield has shown multi-year cycles that generally follow state climatic wet-dry cycles. The 10-year moving average for annual discharge measured at McDonald Ferry peaked in the early 1920s at nearly 1.8 million acre-feet. It hit a low around 1940 at about 1 million acre-feet, and peaked again in the late 1950s at 1.8 million acre-feet. In the 1960s, it again hit a low near 1.2 million acre-feet.

The majority of water in the John Day Basin is derived from the upper watershed. As a result, water quantity and quality in the river below Kimberly at RM 185 are determined more by input from upper basin tributaries (such as the North Fork, South Fork and upper mainstem) than by inputs originating below Kimberly (OWRD 1986). Therefore, water quantity and quality has little opportunity to be influenced after entering the lower basin.

The flow regime affects the shape of the river channel, the ability of riparian sites to support vegetation, and the extent that recreationists can enjoy the river. For example, river flow affects water temperature, which has consequent effects on dissolved oxygen and the suitability and productivity of habitat for fisheries production. Most water quality problems in the John Day Basin stem from historical mining and dredging, livestock grazing,

cumulative effects of timber harvest and road building, and water withdrawals (OWRD 1986, ODEQ 1988). Soils and geomorphological processes that drive the system contribute to naturally elevated sediments in the basin, especially Segments 10 and 11.

The ODEQ has identified much of the John Day Basin as water quality limited (see Table 2-K). This designation derives from the condition of waters that do not meet instream water quality standards for certain water quality parameters for all or a portion of the year. A stream, or portion thereof, is designated as water quality limited if, after implementation of standard technology, the stream fails to meet water quality standards, if a stream utilizes higher than standard technology to protect designated beneficial uses to achieve instream water quality, if there is insufficient information to determine if water quality standards are being met, or if it is determined that a stream would not be expected to meet water quality without higher than standard technology (OAR 340-041-0006-30). Designated beneficial uses referenced above are the purposes or benefits to be derived from a water body, as determined by the Oregon Water Resources Department Commission (OAR 340-41-0006-34). Among the designated beneficial uses of the John Day Basin surface and ground waters are domestic, livestock, municipal, ground water recharge, irrigation, agriculture, power generation, commercial, industrial, mining, fire, protection, recreation, pollution abatement, wildlife, and fish life uses (OAR 690-506-0040-2).

Table 2-I. Summary of Existing Water Rights for the John Day Basin by Cubic Feet Per Second and Beneficial Use

Beneficial Use	Water Rights in Cubic Feet Per Second (CFS)						Total
	Lower John Day	Middle Mainstem	Upper Mainstem	North Fork	Middle Fork	South Fork	
Agriculture			*				0.0
Commercial				3.7			3.7
Domestic (lawn & garden)	0.2	0.2	0.2	0.1	*		0.7
Domestic	0.1	1.3	1.6	1.2	1.8	0.1	6.1
Fish Life	0.1	0.7	12.8	2			15.6
Fire Protection		*	0.2		0.1		0.3
Industrial/Manufacturing	0.8		7.3	2.1	2.1		12.4
Irrigation	229.0	495.5	927.0	291.5	88.5	97.5	2,129.0
Livestock	4.0	0.6	0.9	1.7	0.8	0.3	8.3
Mining		30.8	40.5	202.2	49.5		323.0
Municipal	15.4	5.4	9.3	3.9	3.1	5.1	42.2
Power			13.9	25	0.8		39.7
Quasi-Municipal	2.5	2.8					5.3
Recreation	0.2		*	2	*		2.2
Temperature Control	3.3						3.3
Wildlife		*	*				0.0
Other	9.6	6.8	4.3	0.7			21.4
Total	265.2	544.1	1,018.0	536.1	146.8	103.0	2,613.2

Source: OWRD 1986

Table 2-J. Monthly natural stream flow estimates, consumptive use estimates, net stream flow estimates, and State Scenic Waterway Flow values (OVRD); recommended minimal and optimal instream flow for anadromous fish; and instream water rights at or near John Day River (RM 21 and RM 156.5), South Fork John Day River (RM 0.0), and North Fork John Day River (RM 0.0). (all figures represent cfs)

Stream	Category	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	
John Day River River Mile 21 McDonald Ferry	Natural (50%)	1250	2440	3250	4860	5050	2700	715	340	271	380	542	940	
	Natural (80%)	626	1050	1680	2920	3020	1440	470	246	194	283	393	513	
	C.U. & Storage	16.7	23.9	32.8	157.6	321.4	292.8	265.6	192.6	128.5	51.6	12.1	14.7	
	Net Flow (50%)	1233	2416	3217	4702	4729	2407	449	147	142	328	530	925	
	Net Flow (80%)	609	1026	1647	2762	2699	1147	204	53	65	231	381	498	
	Scenic Flow	500	1000	2000	2000	2000	2000~1000	500	500	500	500	500	500	500
John Day River River Mile 156.5 Service Creek	Fish Flow (opt.)	500	500	500	500	500	500	500	500	500	500	500	500	
	Fish Flow (min.)	390	390	390	390	390	390	390	390	390	390	390	390	
	Instream Right	20	20	20	20	20	20	20	20	20	20	20	20	
	Natural (50%)	1130	2060	2860	4610	4770	2410	652	312	312	260	385	508	859
	Natural (80%)	556	953	1506	2710	2860	1270	420	242	242	203	280	384	473
	C.U. & Storage	12.5	16.5	25.8	100.5	192.2	189.6	230.3	176.3	176.3	119.3	50.1	9.6	11.3
John Day River North Fork River Mile 0.0	Net Flow (50%)	1118	2043	2834	4510	4578	2220	422	136	141	335	498	848	
	Net Flow (80%)	544	936	1480	2610	2668	1080	190	66	84	230	374	462	
	Scenic Flow	500	1000	2000	2000	2000	2000~1000	500	500	500	500	500	500	
	Fish Flow (opt.)	500	500	500	500	500	500	500	500	500	500	500	500	
	Fish Flow (min.)	390	390	390	390	390	390	390	390	390	390	390	390	
	Instream Right	30	30	30	30	30	30	30	30	30	30	30	30	
John Day River South Fork River Mile 0.0	Natural (50%)	649	1240	1820	3170	3500	1650	353	159	141	169	243	490	
	Natural (80%)	293	523	952	1830	2130	813	215	120	109	127	165	216	
	C.U. & Storage	4.0	4.8	9.4	36.1	72.2	52.5	60.9	46.9	31.9	13.9	3.2	3.8	
	Net Flow (50%)	645	1235	1811	3134	3428	1597	292	112	109	155	240	486	
	Net Flow (80%)	289	518	943	1794	2058	760	154	73	77	113	162	212	
	Scenic Flow	380	380~600	1300	1300	1300	800	235	235	235	235	235	235	
John Day River South Fork River Mile 0.0	Fish Flow (opt.)	380	380~600	600	600	600	380	235	235	235	235	235	235	
	Fish Flow (min.)	235	235~380	380	380	380	235	175	175	175	175	175	175	
	Instream Right	55	55	55	55	55	55	55	55	55	55	55	55	
	Natural (50%)	235	235~380	380	380	380	235	175	157	140	168	235	235	
	Natural (80%)	110	177	245	358	267	147	42.6	31.9	29.1	38.3	54.2	72.3	
	C.U. & Storage	53	84	132	197	146	72.8	24.1	18.8	18.1	31.6	37	44.2	
John Day River South Fork River Mile 0.0	Net Flow (50%)	0.5	0.6	0.6	3.9	7.8	10.1	14.6	11.4	7.7	3.1	0.4	0.5	
	Net Flow (80%)	53	83	131	193	138	63	10	7	10	28	37	44	
	Scenic Flow	110	176	244	354	259	137	28	21	21	35	54	72	
	Fish Flow (opt.)	133	133~225	225	225	225	133	90	90	90	90	90	133	
	Fish Flow (min.)	100	100~133	133	133	133	100	50~25	25	25	25	25	50	
	Instream Right	100	100~133	133	133	133	100	50~25	25	25	25	25	50	

Source: Lauman (1977)

River Segment	303(d) Listing Criteria
Segment 1	Temperature
Segment 2	Temperature
Segment 3	Temperature
Segment 4	Bacteria, Dissolved Oxygen, Flow Modification, and
Segment 5	Bacteria, Dissolved Oxygen, Flow Modification, and
Segment 6	Temperature
Segment 7	Temperature
Segment 8	Temperature and Habitat Modification
Segment 9	Temperature
Segment 10	Temperature
Segment 11	Temperature

Water quality parameters that relate to designated beneficial uses of the John Day include: temperature, dissolved oxygen, and habitat modification, that relate to the beneficial use for fish life; flow modification that relates to the beneficial use for fish life; and bacteria that relates to the beneficial use for recreation (ODEQ 1998). Of these, water temperature is the only parameter that has been monitored intensively throughout the basin.

All segments of the Wild and Scenic River are listed on ODEQs 303(d) list of affected waters for temperature. The Upper John Day from the North Fork confluence (RM 185) to Reynolds Creek (RM 274) is listed for bacteria, dissolved oxygen, flow modification, and temperature (ODEQ 1998). Low summer flows on the mainstem John Day River above Dayville contribute to problematic eutrophication and consequent elevation of pH and dissolved oxygen in the South Fork and mainstem John Day rivers (Cude 2000).

The North Fork John Day is listed by ODEQ as water quality limited for habitat modification and temperature. In this condition, the North Fork does not meet PACFISH pool frequency management objectives. Because the North Fork contributes 60% of the flow to the mainstem John Day, the influence of the North Fork on temperature and, therefore, fisheries is significant. Converse to the North Fork, the basin drainage area between Service Creek and McDonald Ferry gaging stations contributes only 13%, 9%, and 1% of the flow during July, August, and September, respectively, to the mainstem John Day. This exemplifies the limited influence that flows in the lower basin have on water quality and quantify (See Chapter 3).

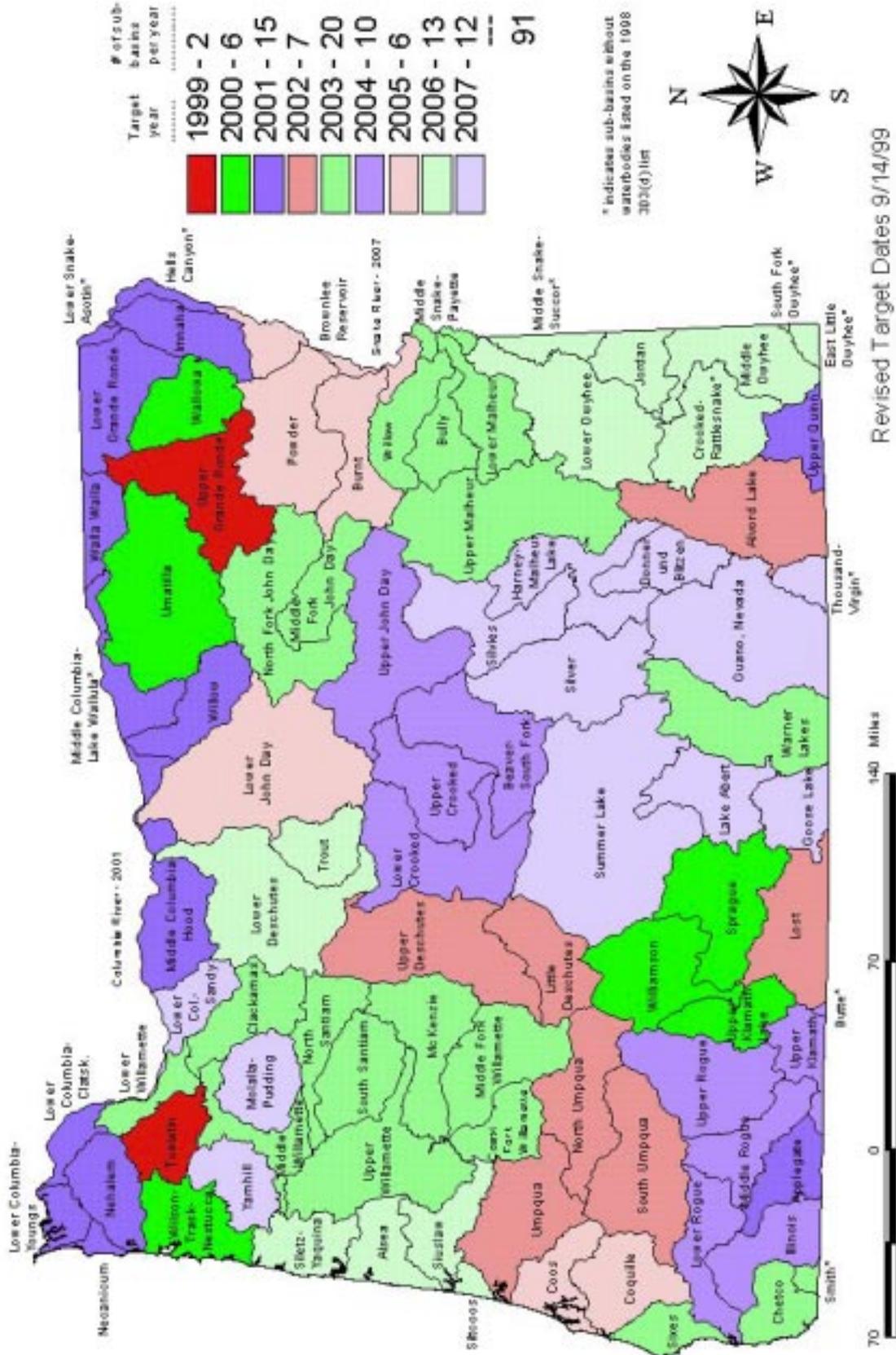
During the summer months from approximately July to September, groundwater provides much of the base flow to the Lower John Day River. Although ODEQ has listed the lower river as water quality limited for temperature, other water quality constituents such as total phosphates, biochemical oxygen demand, and fecal coliform could also become limited during late summer when flows are the lowest and water temperatures are the greatest (Cude 2000).

Temperature gains per river mile in the John Day vary widely between basins and are influenced by aspect, channel geometry, vegetation, river width, and latitude. The ODEQ will model the temperature load allocation throughout the John Day Basin during their TMDL process in 2003 (North Fork), 2004 (Upper John Day), and 2005 (Lower John Day) (**see Map 2-D**).

As a part of the agency's responsibility to comply with the Clean Water Act, the BLM will work with ODEQ, ODA, and private landowners to develop a TMDL and a companion WQMP for the portion of the John Day Basin where BLM land management could affect a change in water quality. The BLM protocol for addressing 303(d) affected waters will guide development of Water Quality Restoration Plans (WQRPs) that will be incorporated into the ODEQ WQMPs. The WQMPs will guide restoration actions to improve water quality in those areas where BLM land management actions have an effect.

Map 2D

Sub-Basin Target Dates for Completion of TMDL's for Waters Listed in the 1998 303(d) List



Revised Target Dates 9/14/99

Water Rights and Use

Water rights in the John Day Basin are assigned for consumptive use, instream flow rights, and maintenance of Federal and State Scenic Waterways. All waters in Oregon are publicly owned, so users must obtain water rights from the Oregon Water Resources Department (OWRD) to use waters under ground, in a lake, or flowing in a stream. This principle of prior-appropriation is the foundation of water law in Oregon. Water rights are attached to the land where they were established. Water may only be legally diverted if it is used for a beneficial purpose without waste. The OWRD is responsible for administering state water laws and ensuring the wise use and conservation of water. State waters must be used for beneficial purposes at least once every five years or a right is forfeited.

The Oregon Water Resources Commission is responsible for setting policy and making long-range plans for use and control of the state's water resources. Obtaining a water right requires application and permit issuance through the OWRD. Additional water right permits for consumptive uses are issued based upon the availability of water to satisfy the permit. In 1993, OWRD began determining water availability using a model called the Water Availability Resource System. This model is based on an 80% exceedence value for stream flows within segments by month (80% of the time flow meets or exceeds this level). Available water is equal to the 80% value less current authorized use, less the state determined scenic flow requirements (Diack flows), less any instream water rights. This means new water right permits would only be issued in months where a surplus exists after all current uses, Diack flows, and instream water rights are satisfied. No surplus water is available during the irrigation season on the John Day River, so OWRD has ruled that no additional water rights will be issued within the basin for the period from May to October.

Consumptive Use

Consumptive use occurs when water is removed from the stream and used for purposes such as irrigation or mining. Water in the John Day Basin has been used for these purposes since the early 1860s (OWRD 1986). Competition for limited river water increased as population and acres under cultivation increased in the basin. Established water uses were adjudicated by 4 court decrees; Cochran Creek and its tributaries in the North Fork subbasin (1910), Cherry Creek and its tributaries (1922), Bridge Creek and its tributaries in (1937), and the remainder of the John Day Basin (1956). These water right adjudications resulted in the legal assignment of rights in these basins.

Since the 1860s, about 4,500 rights have been established for 6,200 cfs flow. Subsequent to that time approximately 800 rights that account for 3,600 cfs have been canceled. Sixty percent of historical water right appropriations were assigned between 1860 and 1920. A moderate increase in water rights allocation occurred from 1920 to 1970, with a larger increase occurring during the 1970s. Recently, the number of applications for water rights has been declining. Table 2-1 summarizes current rights by cfs and use by subbasin.

The total water diversions permitted for the basin account for 76% of the basin's average annual discharge of 1,475,000 acre feet. Actual consumption is less than the permitted rights. Basin discharge is adequate to satisfy all water rights on an average annual basis, even in critically low flow years. However, because of the wide variation in seasonal distribution of runoff, there is insufficient flow during the late summer to satisfy all the water rights when they are most needed (OWRD 1986).

Incidental, short-duration water uses for recreation site maintenance or wildlife guzzler refills do not require water rights. These uses do not involve continuous water removal that would have a rate or duty, much like the rate or duty assigned to a consumptive or instream water right, associated with it. Irrigation accounts for over 69% (by volume) of all water used in the basin. While mining accounts for 12% of allocated water rights in the basin, USGS (1985, 1990, 1995) compilation reports on water availability found no reported data for water use related to mining activity.

Water rights associated with BLM-managed lands could result in the consumption of approximately 0.8% of the total John Day River Basin water for irrigation (OWRD 1986). Currently, about 50% of water allocated to BLM-managed lands is available for irrigation (0.4% of basin irrigation water). The other 50% is retained for instream uses.

Instream Flow Rights

Instream flow rights are water rights reserved instream for the benefit of fish, wildlife, recreation, and water quality. Three state agencies are authorized to request instream water rights. The Oregon Department of Fish and Wildlife may request instream rights for public uses relating to the conservation, maintenance, and enhancement of aquatic and fish life, wildlife, and their habitat. The ODEQ may request instream rights to protect and maintain water quality standards established by the Environmental Quality Commission. The Oregon State Parks and Recreation Department may request instream rights for public uses related to recreation and scenic attraction. Currently, there are 41 instream water rights and 17 pending applications for instream rights. These rights are regulated much like consumptive water rights and are assigned according to priority.

The federal government is not allowed to apply for or hold state instream water rights under State of Oregon water laws. Instead, they may lease or purchase an existing right for conversion to an instream right to be held by the OWRD for the people of Oregon. In order to improve instream flows and in order to protect and enhance river values associated with these rights, the BLM may: 1) consult and coordinate with state agencies that can apply for and hold an instream water right, or 2) acquire land with a consumptive water right and transfer that right to an instream right to be held in trust by the OWRD.

About 50% of BLM's existing water rights are maintained instream through non-use or instream lease agreements with OWRD. According to current management practices a BLM water right maintained instream through non-use or an instream lease agreement would manage the full rate as an instream flow from the original BLM point of diversion downstream to the next water right point of diversion, without guarantee of any instream flow below the next point of diversion. If, however, the BLM water right was transferred to OWRD to hold in trust, the OWRD would manage a portion for a specific allocation, to be determined by OWRD, as an instream flow right from the original BLM point of diversion downstream to the mouth of the John Day River.

State and Federal Recommended Flows

The Oregon Supreme Court ruled in 1988, that before authorizing any new diversion of water from or above a State Scenic Waterway, or from a tributary to it, the OWRC must find that the needs of the State Scenic Waterways are met. The OWRD identified minimum flows necessary to maintain river values in the John Day River State Scenic Waterway (OWRD 1990) (Table 2-J). For example, the OWRD found that a minimum of 1,000 cfs is needed for rafting and drift boating, and a minimum of 500 cfs is needed for canoes, kayaks, and other small water craft these. These minimum flows are referred to as the "Diack" flows. Table 2-J quantifies natural flow at 50% and 80% exceedence and total consumptive use and storage for the various designated State Scenic Waterway segments. Net flow at the exceedence levels quantifies resultant river flows after consumptive uses and storage are subtracted. The scenic flow represents the minimum waters level in the river for recreational uses, fish flows, optimum and minimum quantify flows needed for anadromous fish species in the river. Instream flow rights are also quantified and represents water for which there is a valid water right that has been designated for instream use. Table 2-J shows that in all segments recommended minimal and optimal instream flow for anadromous fish, as described by Lauman (1977), are not met during the critical summer time period; however, this is consistent with observations that in the lower river (below Service Creek) anadromous fish and resident salmonids are not highly concentrated in the summer season.

The "right" of the federal government to John Day River water was established in 1988 when segments of the river were designated Wild and Scenic by the US Congress. In this case, the managing federal agencies were granted title to the water necessary to maintain the purposes for which the river segments were designated. The priority date of these right becomes the date of the particular WSR designation. The purpose of these federal water rights is similar to the state Diack flows, in that they are necessary to protect the outstanding, remarkable or significant values identified in the legislation designating a WSR.

Fish

The John Day River system provides habitat for a variety of native and non-native fish populations, including five special status species (Table 2-L and 2-M). Special status fish species in the John Day River basin are Mid-Columbia steelhead (Threatened), Bull trout (Threatened), Interior Redband trout, Westslope Cutthroat trout, and Pacific Lamprey (Sensitive). Information on population trends and distribution has focused primarily on

anadromous salmonids, and to a lesser extent on resident salmonids and warm water game species. Native, non-game species have received less attention. However, it is presumed that activities designed to benefit anadromous and resident salmonids will be advantageous to these species that evolved under similar environmental conditions.

Table 2-L. Fish Species Occurring in the John Day System

Common Name of Species	Scientific Name of Species	Origin
Chinook salmon	<i>Oncorhynchus tshawytscha</i>	Native
Rainbow trout (resident and	<i>Oncorhynchus mykiss</i>	Native
West slope cutthroat trout	<i>Oncorhynchus clarki lewisi</i>	Native
Yellowstone cutthroat trout	<i>Oncorhynchus clarki bouvieri</i>	Introduced
Lahonton cutthroat trout	<i>Oncorhynchus clarki henshawi</i>	Introduced
Mountain whitefish	<i>Prosopium williamsoni</i>	Native
Bull trout	<i>Salvelinus confluentus</i>	Native
Brook trout	<i>Salvelinus fontinalis</i>	Introduced
Paiute sculpin	<i>Cottus beldingi</i>	Native
Shorthead sculpin	<i>Cottus confusus</i>	Native
Bridgelip sucker	<i>Catostomus columbianus</i>	Native
Largescale sucker	<i>Catostomus macrocheilus</i>	Native
Mountain sucker	<i>Catostomus platyrhynchus</i>	Native
Carp	<i>Cyprinus carpio</i>	Introduced
Chiselmouth	<i>Acrocheilus alutaceus</i>	Native
Northern pikeminnow	<i>Ptychocheilus oregonensis</i>	Native
Longnose dace	<i>Rhinichthys cataractae</i>	Native
Speckled dace	<i>Rhinichthys osculus</i>	Native
Redside shiner	<i>Richardsonius balteatus</i>	Native
Peamouth	<i>Mylocheilus caurinus</i>	Native
Small mouth bass	<i>Micropterus dolomieu</i>	Introduced
Largemouth bass	<i>Micropterus salmoides</i>	Introduced
Bluegill	<i>Lepomis macrochirus</i>	Introduced
Black crappie	<i>Pomoxis nigromaculatus</i>	Introduced
Channel catfish	<i>Ictalurus punctatus</i>	Introduced
Brown bullhead	<i>Ictalurus nebulosus</i>	Introduced
Pacific lamprey	<i>Lampetra tridentata</i>	Native
Western brook lamprey	<i>Lampetra richardsoni</i>	Native

Source: ODFW (1989)

Table 2 -N. Average Annual Production Goals for Spring Chinook Salmon and Summer Steelhead in John Day Basin

Species	Sport and Tribal Harvest Estimate	Natural Reproduction Escapement Estimate	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)

The John Day River system supports one of the few remaining wild runs of spring chinook salmon (*Oncorhynchus tshawytscha*) (Lindsey et al. 1986, OWRD 1986, Quigley and Arbelbide 1997) and summer steelhead (*Oncorhynchus mykiss*) (Quigley and Arbelbide 1997, OWRD 1986) in the Columbia Basin, providing approximately 1,800 miles of spawning habitat for summer steelhead and 117 miles for spring chinook (ODFW 1997). Table 2-M illustrates when and how the river is used by salmon and steelhead.

The lower (RM 0 to RM 109) and middle (RM 109 to RM 212) subbasins (Segments 1 through 4) function primarily as a migration corridor for anadromous salmonids. This portion of the basin accounts for an estimated 6% of the steelhead production in the John Day basin and a small run of fall chinook salmon (OWRD 1986). The upper mainstem John Day River subbasin (RM 212 to headwaters) produces an estimated 18% of the spring chinook salmon and 16% of the summer steelhead in the John Day basin (OWRD 1986). Increasing population trends of spring chinook salmon are indicated for the upper mainstem John Day River sub-basin. These trends are attributed to management and restoration efforts implemented over the last few decades (ODFW 1997). The South Fork subbasin (Segments 10 and 11) produces approximately 7% of the summer steelhead population in the John Day basin (OWRD 1986). The North Fork and Middle Fork subbasins (Segments 6 through 9) produce approximately 82% of the spring chinook salmon and 73% 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 steelhead have been limited to the catch-and-release of "wild" fish from 1996 to the present. Steelhead production takes place in the tributaries and headwaters of the river, mostly outside the river corridor.

Several species of resident salmonids inhabit the John Day River system. Redband trout (*Oncorhynchus mykiss*) occur throughout the John Day River system. The primary habitat is found in the upper subbasins and tributaries. Hatchery supplementation with rainbow trout has occurred in the past, but the ODFW no longer releases hatchery fish in streams associated with the John Day River. Two subspecies of cutthroat trout, Yellowstone (*Oncorhynchus clarki bouvieri*) and Westslope (*Oncorhynchus clarki lewisii*), are found in tributary streams of the upper John Day River. Yellowstone cutthroat trout were introduced in the 1900s and have not been stocked since (ODFW 1989). The Westslope cutthroat trout is native to the North Fork and upper mainstem John Day River. The current distribution of these species is confined to headwater tributaries in the upper mainstem and North Fork subbasins (Duff 1996). Bull trout (*Salvelinus confluentus*) occupy habitat in the upper mainstem John Day subbasin, North Fork subbasin, and Middle Fork subbasin. The primary habitat occurs upstream of Camas Creek in the North Fork subbasin, upstream of Big Creek in the Middle Fork subbasin, and upstream of Canyon Creek in the upper mainstem John Day River subbasin (ODFW 1996). Winter distribution in the North Fork includes Segments 6 and 7, downstream to Wall Creek, with one documented sighting as far downstream as Rudio Creek in 1999 (Unterwegner 1999).

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 dolomieu*) and channel catfish (*Ictalurus punctatus*). Upon assurance that warm water predation on salmonids would be minimal, these species were introduced into the John Day River in the early 1970s (ODFW 1999). Smallmouth bass are distributed throughout the mainstem, from Tumwater Falls to Picture Gorge (Segments 1, 2, 3, and the lower portion of Segment 4) and in the North Fork from Kimberly to Wall Creek (RM 0 to RM 22, lower portion of Segment 6). Diet studies support the theory that smallmouth bass in the John Day River are not feeding on

migrating salmonids (ODFW 1999). Smallmouth bass have successfully filled a niche in the John Day River, which has developed into a nationally recognized sport fishery.

Wildlife

The *Oregon Wildlife Diversity Plan* (Puchy and Marshall 1993) separates Oregon into physiographic provinces based on geologic and vegetative patterns. The John Day basin is within the Blue Mountain and High Lava Plains provinces. Community types associated with these two provinces include: coniferous forest, juniper steppe, sagebrush steppe, riparian, and marshes. The portion of the John Day basin within the Blue Mountains Province has average wildlife diversity. Fish and herptile diversity is below the state province average, but bird and mammal diversity are above average. The coniferous forest community type adds to this diversity, as it is a major habitat component. Relative species use of the four habitat types dominant in the Blue Mountains Province are shown in Table 2-O. The open nature of the High Lava Plains province, combined with canyons, rimrocks, sagebrush and juniper provides modest habitat diversity. This province has below average vertebrate diversity in all animal groups (Puchy and Marshall 1993) when compared to other provinces in the state.

Table 2-O. Usage Levels of Native Wildlife Species in John Day Basin (Selected Communities Regularly Used by Native Species of Herptiles, Birds, and Mammals, by Province¹

Species Type Using Province	Total Number of Species Using the Province	Percent of Community Type				
		Sagebrush Steppe	Coniferous Forest ²	Juniper Steppe ³	Riparian Area	Marshes
<i>High Lava Plains Province</i>						
Herptiles	20	65	-	50	35	25
Birds	194	22	-	24	49	45
Mammals	56	54	-	46	63	32
<i>Blue Mountains Province</i>						
Herptiles	17	76	42	-	29	29
Birds	231	19	34	-	51	37
Mammals	75	38	62	-	65	32

¹Excludes irregular and accidental species.

²Not a selected community type for the High Lava Plains Province.

³Not a selected community type for the Blue Mountains Province.

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 are inappropriate logging or grazing practices, wildfire suppression, drought, agricultural conversion, weed invasion, human expansion into rural areas, and recreational activities. Wildlife habitats are constantly changing with new disturbances, both natural and unnatural, and associated species tend to be fairly resilient. Some species have increased with these disturbances; others have declined.

Wildlife habitat needs vary significantly by wildlife species. It is generally true, however, that healthy and sustainable wildlife populations can be supported where there is a diverse mix of plant communities to supply structure, forage, cover and other specific habitat requirements.

Large ungulates, such as mule deer, elk and antelope, are common year-round residents in the John Day River basin. 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.

Non-native and/or wild sheep, goats and pigs are becoming more prevalent in the river corridor. The BLM has concerns with problems these species present to native wildlife species and their habitats.

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.

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.

Special Status Wildlife

“Special Status Wildlife Species” refers to all species receiving special management by state or federal programs or laws. 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 E.

The bald eagle (*Haliaeetus leucocephalus*), currently the only federally listed wildlife species in the John Day basin, 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 recovered. 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 nocturnal roost areas, as well as a few known nest sites, occur in the basin. The primary night 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 (*Lynx canadensis*) is currently proposed for listing 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 Canada lynx likely has never been as abundant in the lower 48 states as it was in northern Canada and Alaska, because there is less habitat at the southern part of their range. Potentially suitable habitat in the John Day basin includes those plant communities above 4,500 feet in elevation that could support vegetation capable of providing denning, foraging, or travel habitat for lynx. There is one lynx travel management zone in Segment 10 along the South Fork, between Smokey Creek and up river to Wind Creek. The drier plant communities at lower elevations in this area are not considered as potentially suitable lynx denning and foraging habitat.

The Peregrine falcon (*Falco peregrinus*), an “Endangered” species as described in the ESA, may occur as a seasonal migrant through the John Day basin. However, there are no known nesting or roosting sites in the basin.

Historically, the John Day River was home to a large population of California bighorn sheep, a Bureau Sensitive species in Oregon. Since 1978, the ODFW and the BLM have reintroduced California bighorn sheep to several locations throughout the John Day basin. These populations are expanding as expected and are now used as reintroduction stock for other locations throughout the West.

Non-native and/or wild and domestic sheep and goat species that have the potential to move into occupied bighorn sheep habitat are a concern because of potential for disease transmission and habitat competition and degradation.

The spotted bat, also a Bureau Sensitive species in Oregon, is found in one segment along the John Day River.

Scenery

The John Day River system contains an abundance of high quality scenery that contributed to the state and federal river designations and is extremely important to visitors and residents of the area. Scenery is identified as an outstandingly remarkable value for federally designated WSR segments by both Congress and the BLM. Oregon Parks and Recreation Department (OPRD) has also identified scenery as a "Special Attribute" for State Scenic Waterways along the mainstem, 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. Diverse vegetation, from fir and pine trees in the uplands to high desert communities of sagebrush and juniper in the lowlands, dot the landscape along the South, North, and Middle Forks of the John Day River. Ranches, intermingled with public lands, add an interesting contrast. No major hydroelectric dams or developments impair the visual resource values in the basin.

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. VRM inventories were completed and resulted in VRM classifications, which were documented in the Two Rivers RMP (USDI-BLM 1986) and John Day RMP (USDI-BLM 1985) for all river segments, except Segment 8. Comparable scenery management guidelines were established for Segment 8, the upper North Fork, by the Umatilla National Forest in the North Fork John Day WSR Plan (USDA-FS 1993). All WSR segments, most non-designated segments, and portions of some tributaries are classified as VRM Class II, in which management activities resulting in changes to the existing character of the landscape may be allowed, provided they do not attract the attention of the casual observer. A recent change in BLM policy 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. The Two Rivers and John Day RMPs have yet to be amended to reflect the change in VRM classification for WSAs (Appendix O).

Vegetation

A useful way of discussing vegetation is by examining plant communities similarly affected by landscape and climate (Oosting 1956). These classifiable plant communities are referred to as ecological sites. Ecological sites are grouped according to specific physical characteristics that differ from other kinds of land in the ability to produce a distinctive kind and amount of vegetation (such as potential vegetation). Potential vegetation is a function of soil, parent material, relief, climate, flow regime (for riparian communities), biota (animals), and time (time for the biotic community to approximate a dynamic equilibrium with soil and climate conditions) (USDA NRCS 1997). Ecological sites along the John Day River can be broadly categorized into four basic divisions according to the topographic position which they occupy: riparian, riverine terrace, upland, and forest-woodland (see Appendix M).

Riparian

The riparian zone is the area that normally receives some degree of inundation (or saturated soil conditions) during the growing season (for more information refer to U.S. Army Corps of Engineers 1987 and USDI-BLM 1993). In most of the John Day River, the majority of the riparian zone is flooded during part of the growing season and dry during mid to late summer. There are several riparian ecological sites that have distinct potential plant communities. Some of these sites have potential for dense riparian plant communities. In areas where the soils are not developed enough to moderate the annual wet-dry cycle, vegetation is either lacking completely or restricted above the normal high water line to plants such as service berry, hackberry, mock orange and various annual and perennial grasses and forbs. The areas where soils are developed and well-drained have more shrubs that are traditionally considered riparian, such as willow and alder. Where water flow is slow or where saturated soil conditions last longer into the growing season, sedges and rushes occupy more of the plant composition. General descriptions of the ecological sites are presented in Appendix M.

The BLM currently uses several techniques for monitoring riparian conditions on the John Day River. One technique is the Proper Functioning Condition (PFC) ratings, which have been done by a BLM interdisciplinary team for most river segments (see PFC ratings in individual river segment descriptions later in the chapter). An inventory of willow communities along the river in Segments 2 and 3 was completed in 1981 and 1995 (USDI-BLM 1996a). Willow communities expanded from unmeasurable in 1981, to 15.56 river bank miles (35.84 acres) in 1995 (results by allotment are presented in Appendix L). Photopoint monitoring occurs at 51 randomly selected sites along river Segments 1, 2, 3, 10 and 11. Photos are taken at 1 to 5 year intervals. Results of this monitoring show variations depending on site potential and water flow, but overall, where riparian-oriented management has been implemented, vegetative structure, density and diversity have increased (results by allotment are summarized in Appendix L; examples are shown in Appendix M). In 1990, prior to implementation of most riparian-oriented management, an additional 329 photopoints were established at 1/4 mile intervals along public land portions of the river.

Riverine Terrace

Riverine terraces are formed from abandoned floodplains. When the John Day River channel eroded, the water table dropped and the floodplain soils drained. Due to lack of subsurface water, vegetation on the abandoned floodplain changed to more xeric plants, such as sage brush and annual grasses. Leopold and Vita-Finzi (1998) documented riverine terraces of similar ages throughout broad geographic areas and correlated them with climate cycles. Depositional periods were wet, or were periods of small rainfall events. Erosional periods were either dry or periods of large, infrequent storms. Two and, in many cases, three such deposition and erosion cycles are represented by remnant terraces in stream and river valleys throughout the semi-arid western United States. The latest erosional event (since about 1860) could have been intensified by land use activities that increased the susceptibility of the basin to erosion, disrupting the hydrological function of the watershed. The period of adjustment that follows channel downcutting includes widening and development of a new floodplain within the confines of the eroded channel.

The riverine terrace includes the primary terrace immediately adjacent to the river, as well as any secondary or tertiary terraces above. Depending on the subsurface water regime, the zone is more or less a transition between riparian and upland vegetation. The vegetation on these (typically) deeper soils is sagebrush, annual grasses, Great Basin wild rye, a mix of perennial bunchgrass and forb species, and western juniper.

Upland

The upland zone is often characterized by steep slopes with shallow soils on ridges, south and west-facing slopes, and deeper well-drained soils on the north and east-facing slopes. The upper layer of soil is sometimes bound by a biological soil crust consisting of algae, fungi, mosses and lichens. Plant communities may include scattered junipers and low shrubs, such as sagebrush and snakeweed, with an herbaceous layer of cheatgrass and cold season grasses including bluebunch wheatgrass and Idaho fescue.

Formal inventories of the upland vegetation were completed in 1974 (range surveys) and 1982 (ecological site inventories). The range surveys determined the amount of harvestable forage, and the ecological site inventories determined the condition class of vegetation (see discussion below). The results of both inventories are presented by allotment in Appendix L. Monitoring includes photopoints and species composition measurements using such sampling techniques as line intercept, Daubenmire and nested frequency. There are 117 monitoring sites in pastures that are partially within the WSR boundaries. Results show variations, depending on site potential and climate; overall, where management has been applied, conditions have improved (results are summarized by allotment in Appendix L).

Forests and Woodland

Higher elevational sites have greater effective precipitation and cooler temperatures. These factors, combined with parent material, slope, and time can produce deeper soils which, in turn, may allow for the growth of larger trees. Half of the basin's uplands are forested. On the southerly aspects, there are ponderosa pine-mountain mahogany/elk sedge-Idaho fescue communities. Steep north-facing slopes support Douglas fir/elk sedge communities. Western juniper occur throughout these communities (USDI-BLM 1991c).

Ecological Condition and Trend

The condition of vegetative communities of the John Day River has been improving due to the efforts of private landowners in cooperation with local, tribal, state, and federal agencies. Vegetative condition refers to the similarity of a site with an “undisturbed” ideal. Vegetation condition and trend is a concept created out of succession concepts pioneered by Clements near the turn of the century and elaborated on by others (Smith 1989). The model predicted that all effects of abusive grazing or drought (changes in the vegetative community away from the undisturbed ideal, stable state or climax) could be reversed by reduced grazing or increased precipitation (Westoby et al. 1989). In spite of these concepts being challenged at first by plant ecologists, range managers have, until recently, ignored the controversy (Smith 1989). A second concept on plant succession, called “multiple stable states” or “state and transition” model, has recently gained acceptance (Quigley and Arbelbide 1997). This model recognizes that a site may be capable of supporting numerous stable vegetative communities. This new model recognizes relatively stable groups of species that change after a threshold of tolerance has been exceeded (Laycock 1991, Friedel 1991). The results of this change persist, in spite of removal of the forces which caused the change. For example, in a stable sagebrush-bunchgrass community where heavy livestock grazing has occurred for many years, the bunchgrass component may have been removed, thereby allowing sagebrush to occupy the vacated site (Laycock 1991). This produces a new stable state dominated by sagebrush. Although livestock may be completely removed, the community will remain in this new stable state.

So far, the “state and transition” model is assumed to be the most accurate model for arid and semi-arid ecosystems. Where water is less limiting, the Clementsian model is thought to be the more accurate representation (Quigley and Arbelbide 1997). Inventory, monitoring and research techniques vary depending on the model assumed to be operable (Westoby et al. 1989). Data interpretation also varies widely, depending on the model used as the underlying concept of ecosystem processes. For example, in the past, climax was thought to be the most productive state and early seral the least productive. Recent studies have shown little or no correlation between production and seral state (Tiedeman et al. 1991, Frost and Smith 1991). Climax was thought to provide the best wildlife habitat, but wildlife are more likely to respond to stand structure than to species composition (Smith 1989). The lower John Day basin range conditions and trends were inventoried in the late 1970s and early 1980s, at a time when the “state and transition” model was not a recognized model. The results of the inventory are presented in Appendix L by allotment. In interpreting the data, it is important to remember that a “low seral” ecological status does not imply that there are necessarily opportunities for improvement to “mid seral” or “high seral” status through changes in grazing management alone (Friedel 1991).

Riparian areas are one example of where the Clementsian model is still thought to be operable (Quigley and Arbelbide 1997). The BLM technical reference 1737-7 (USDI-BLM 1992a) describes the procedure for inventorying riparian conditions. So far, in the John Day basin, seven different site types have been identified: basalt ledge/cliff, colluvium, cobble/gravel bar, terrace edge, non-riparian terrace, alluvial fan, and hill slope (see descriptions in Appendix M). Potential vegetation communities vary not only with each site type, but also with topographic position within a site type (that is, whether the plant community is covered by water at river flows of 15,000 cfs, 2000 cfs, or 200 cfs). For example, basalt cliffs do not produce the same vegetation communities as areas of alluvial fan. Similarly, sites with free water in August, but covered by 5 feet of water in April, support a different vegetative community than sites with free water in April and dry soils in August (see Appendix M, photos 11-14). The rates of successional change could vary within and between site types as well. With respect to river management, resource objectives and monitoring standards must take into account the differences in site potentials.

The increase in the amount of woody riparian vegetation along the river (see USDI-BLM 1996a, monitoring studies presented in Appendix L, and before and after photo sequences in Appendix M) indicate vegetation is increasing in density and diversity on sites with potential to support vegetative communities. The plant communities along the John Day River express a broad range of potentials, ranging from sagebrush flats to ponderosa pine forests, from basalt cliffs adorned with toe-holds of moss and monkey flowers, to riparian soils with willow and alder thickets. Some areas within the river flood plain have conditions that inhibit development of plant communities. Examples are gravel bars, which can wash away and reform several times a year, depending on flooding patterns; and ice flows that can shear off established woody plants at ground level. Where management has been implemented that meets the physiological needs of plants, vegetative communities are coming into balance with the potential of the site.

Special Status Species

The John Day River basin supports several special status plants normally associated with a specific, limited habitat. These special status plants contributed to the finding that botanical values are an outstandingly remarkable value of the South Fork. A Bureau Sensitive species, *Astragalus diaphanus* var. *diurnus* (South Fork John Day milkvetch) is found in Segment 10 and is suspected to occur in Segment 11 (the South Fork). Another Bureau Sensitive species, *Thelypodium eucosmum* (arrowleaf thelypody), is found within Segments 3, 4 and 6 and is suspected to occur in Segments 10 and 11. *Rorippa columbiae* (Columbia cress), another Bureau Sensitive species, has not been found on the John Day River, but is suspected to occur along the entire river since one of its known habitats is river gravels subjected to ephemeral flooding.

Mimulus jungermannioides (hepatic monkeyflower) is a Bureau Sensitive species found on moist rock walls in Segment 2 and is suspected to occur anywhere there are moist cliffs, particularly on the lower river. *Astragalus collinus* var. *laurentii* (Lawrence's milkvetch) is a Bureau Sensitive species found east of the Prineville District, but is suspected to occur within the basin. *Carex hystericina* (porcupine sedge) is an Assessment Species that has been found within the basin, but not within the WSR corridor. Another Assessment Species, *Juncus torreyi* (Torrey's rush), is found in Segments 2 and 3 and is suspected to occur along the entire river.

Noxious Weeds

"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. The single greatest threat to the native rangeland biodiversity and recovery of less than healthy rangelands and watersheds is the rapidly expanding invasion of noxious weeds (Asher 1993). Both forestland and rangeland are being invaded by noxious weeds at an accelerating rate, consumptive and non-consumptive uses, including livestock grazing, timber production, and wildlife and scenery viewing. Noxious weeds reduce these uses 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 River basin are diffuse, spotted and Russian knapweeds; Dalmatian toadflax; yellow starthistle; Scotch thistle; purple loosestrife; rush skeletonweed; leafy spurge; poison hemlock; and medusahead rye. Weeds of special concern are those beginning to occupy very small niches with just a few plants along the high water line, 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 very prevalent on the west side of the river to the north and south of Highway 219, in the fairly recent burn areas. It is also prevalent in the Murderer's Creek drainage, a tributary of the South Fork of the John Day River. 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. 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 around the Columbia River near Biggs and the Horn Butte ACEC, an area north and east of the John Day/Columbia River confluence. Leafy spurge is found in Grant County in the upper watersheds (Fox Valley and Cottonwood Creek) of the North Fork of the John Day. Four sites were found and treated in 1995, and 18 sites were found and treated between Monument and Spray in 1996. A very serious threat is noted in the recent increase of perennial pepperweed in the Bridge Creek drainage.

Federal and state laws require certain actions be directed at managing noxious weeds. In large part, the "invasion of alien plants into natural areas" and the crowding" out of native flora and fauna has been stealthy and silent, and thus, largely ignored" (Cheater 1992).

Fire

Modern fire suppression and recent fire management plans have greatly altered the natural fire frequencies and intensities. They have changed, sometimes drastically, the species composition, vegetative diversity, and ecosystem structure of much of the Pacific Northwest (Norris 1990). Although varied across the landscape, the natural fire interval ranged from 15 to 25 years in the John Day basin region. For ponderosa forests east of the Cascade mountain range, the historic fire frequency has been documented to be as little as 5 years (Agee 1990, 1993). Many species found in the John Day basin, such as ponderosa pine and numerous grass species, reflect such ecological adaptations to fire as thick bark, buds protected from heat-induced mortality, and fire-stimulated flowering or sprouting. Without periodic fire, these species will decline in numbers and condition. On the other hand, other species without adaptations that facilitate survival from wildfire, such as the western juniper and sagebrush, have increased in abundance under current fire suppression methods.

Forest Products

Forest products are the second greatest source of income after agriculture in the John Day River basin. Almost all timber harvested within the basin is cut into lumber at local mills. Forest products other than lumber are also sources of income. These include Christmas trees, firewood, posts and poles, boughs, and wild mushrooms.

Approximately 1.6 million acres of forest land within the basin are classified as commercial, and approximately 43,000 acres of these commercial forest lands are managed by BLM. Commercial lands are suitable for, and capable of, producing sustainable levels of marketable timber.

About 200,000 acres of forest land within the basin are withdrawn from commercial use. These lands are capable of producing marketable timber, but are protected from harvest. Examples of commercially withdrawn forest land are stream and road side buffers, campgrounds, wilderness areas, research natural areas, and areas of critical environmental concern. None of the BLM commercial forest land is either wilderness or areas of critical environmental concern at this time.

Approximately 60% of the commercial forest land and more than 67% of the potential merchantable timber volume in the system is in public ownership. The potential for increased use of the forest resources is limited due to their location, which is far from existing and potential manufacturing sites and population centers.

Agriculture

Agriculture has been and continues to be one of the most significant land uses in the basin. Hay is the most common crop in the upper basin. Hay fields are located very near the river where they usually are irrigated with John Day River water. Wheat, the most common commercial crop in the lower basin, is not irrigated. Hay is still grown along the river in the lower basin, but the number of acres devoted to hay are minor compared to the number of acres of wheat grown on the plateaus near the John Day River. (See the previous "Human Uses and Values" portion of this chapter for a more complete discussion of the importance of agriculture in the basin.)

The John Day basin contains approximately 60,103 acres of irrigated land and 477,682 acres of non-irrigated agricultural land, 1.2% and 9.2% of the basin respectively (OWRD 1986)(Table 2-P). The majority of the irrigated acres occurs along alluvial bottom lands in the southern portion of the basin for hay production, whereas the northern part of the basin is dominated by non-irrigated grain production on the plateaus. Consumptive use varies among crops and with seasonal precipitation (Table 2-Q). Surface and subsurface return flow are additional factors in determining the amount of water removed from the John Day River for irrigation.

Table 2-P. Irrigated And Non-Irrigated Agriculture In Counties of the John Day Basin

County	Acres Used for Agriculture	
	Irrigated	Non-irrigated
Crook		45
Gilliam	3,476	251,034
Grant	40,277	14,480
Jefferson	194	607
Morrow	2,940	16,741
Sherman	428	165,899
Umatilla	trace	765
Wasco	823	3,298
Wheeler	11,965	24,813
Total	60,103	477,682

Source: OWRD 1986

Table 2-Q. Estimated Water Use For Three Major Spring Crops¹

Crop	Estimated Days of Water Use Per Month					
	April	May	June	July	Aug.	Sept.
Grain	0.0	4.0	12.6	5.7	0.0	0.0
Alfalfa	0.0	2.7	11.3	17.1	13.9	6.7
Beans	0.0	0.0	4.0	16.3	12.1	0.0

¹Based on a maximum irrigation rate of 1/40 cfs per acre, for subject three crops, during irrigation season (4/1 - 9/30) and crop irrigation demand in Figure 3-B.

The method of water application on irrigated agriculture land in the John Day basin varies. In 1984, Oregon State University Extension Economic Information Office summarized irrigation methods with respect to total number of acres (Table 2-R).

Table 2-R. Irrigation Methods and Acres Irrigated in the John Day Basin

Irrigation Method	Acres Irrigated By Method
Big Gun	800
Center Pivot	299
Drip	30
Gravity Flood	39,075
Hand Line	5,950
Solid Set	450
Wheel Line	13,163
Total	59,767

Source: OWRD 1986

BLM-Managed Agricultural Land

The BLM manages about **700** acres (1%) of the irrigated land and associated water rights within the basin and is potentially responsible for approximately 0.8% of the total irrigation use (OWRD 1986). Of the **700** acres, approximately 385 acres (0.6% of the total irrigated agriculture land in the basin) are within the John Day WSR and account for 0.5% of the total irrigation use in the basin. In the late 1970s, the BLM began a nationwide effort to identify historical, but unauthorized, agricultural use on BLM-administered lands occurring from absence of accurate surveys and to manage that use under agricultural leases. There are four sites along the river where public land is a small part of a larger, privately owned field. These fields were developed as part of a private enterprise before land ownership boundaries were clearly identified.

The BLM agricultural lands were acquired through land exchanges, a foreclosed estate that reverted back to the federal government, and historical but unauthorized agricultural use. Approximately 164 acres are managed as non-commodity production and are currently used to grow wildlife food and cover crops or native hardwoods for transplanting along the river, or they have active weed management programs to control noxious weeds. Approximately 221 acres are leased for commodity production and are used to grow crops such as grain, alfalfa, or specialty seed crops such as onion, carrot, coriander or beans. Most fields have buffer/filter strips between the crop and the river. Buffer/filter strips are being pursued on the remaining fields that currently do not have these buffers.

In addition to the 164 acres of non-commodity agriculture land with water rights within the Wild and Scenic River corridor, there are approximately another 145 acres outside the Wild and Scenic River corridor. These lands currently have an active weed management program and are planted with wildlife food and cover crops, or native hardwoods and shrub propagation. Rehabilitation of these fields has resulted in a backlog of work for the BLM.

The BLM also has several upland agricultural leases. With one exception at river mile 86 on the east side of the river, the agriculture leases are located outside of the river corridor and are typically operated in conjunction with dryland farming on fields with which they have been historically adjoined.

Grazing

Background

Congress passed the Taylor Grazing Act in June 1934. This Act established the basic legislative authority governing management and protection of vacant public lands of the United States. The Taylor Grazing Act made a distinction between public lands contained within a grazing district (referred to as Section 3 lands) and those “so situated as not to justify their inclusion in any grazing district” (referred to as Section 15 lands). Public lands consisting of mostly scattered tracts fell into this second group. All of the public lands in the John Day basin were Section 15 lands.

Lands administered under Section 15 of the Taylor Grazing Act were leased by the acre prior to 1969. Following publication of new regulations, a conversion was made to leasing on an AUM 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. Several of these surveys were contested when they appeared in the mid-1970s, because they substantially decreased authorized use. For example, in Gilliam County, AUMs on allotment #2597 were reduced from 621 to 183, or 71% (IBLA 75-36). On allotment #2512 in Jefferson County, AUMs were reduced from 2,684 to 635, or 76%.

The Natural Resources Defense Council sued the BLM in Washington D.C. in 1973, alleging that the BLM broad-scale “programmatic” grazing Environmental Impact Statements (EIS) did not comply with the requirements of the National Environmental Policy Act (NEPA). As a result of the law suit, the BLM agreed to prepare site-specific grazing EISs. In response, 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 (see explanation of ecological sites, condition and trend under “Vegetation” in this chapter).

Prior to issuance of Records of Decision for the Two Rivers Resource Management Plan (RMP) (USDI-BLM 1986a) and the John Day Resource Management Plan (USDI-BLM 1985), almost all Section 15 lands were managed by the BLM as “custodial” grazing allotments. Custodial means that BLM collected grazing fees for the use of these lands, but grazing management was left to the livestock operators. Enforcement of the use levels or seasons of use dates specified in the lease was done only in unusual cases. The two RMPs prescribed monitoring, evaluation, and planning efforts to improve resource conditions in these scattered tracts. The RMPs also prescribed priorities based on the presence of sensitive public resources, rating grazing allotments as “improve” (I), “maintain” (M) or “custodial” (C). Most of the range monitoring studies available in the basin were installed after 1986.

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.

The Secretary of the Interior approved and began implementation of the *Oregon/Washington Standards for Rangeland Health and Guidelines for Livestock Grazing Management* (USDI-BLM 1997a) in August 1997. These standards and guidelines are intended to form the basis for all livestock grazing management occurring on all BLM-administered lands. They provide specific goals to be addressed in grazing permits and leases, and

identify an array of indicators to consider in designing monitoring plans used to track progress in achieving standards.

Current Situation

There are 52 grazing allotments partially within the mainstem John Day WSR corridor, and 12 grazing allotments partially within the South Fork John Day WSR corridor. Few pastures and no allotments lie completely within the corridor.

The following occurred in the John Day River basin by June 1999:

- Allotment evaluations were conducted on 92 allotments within the basin, encompassing 91% of the public land river bank miles within the designated WSR segments.
- Grazing management adjustments occurred in cooperation with private landowners on 31 of the 64 grazing allotments in the WSR segments.
- Grazing management was in place for protecting and enhancing ORVs for 184.9 public land river bank miles (94%) in the WSR corridor.
- Planning processes were underway for protecting an additional 5.4 public land river bank miles (3%).
- Significant vegetative improvement is occurring on allotments where riparian-oriented grazing management was implemented. An inventory of willow communities was conducted on Segments 2 and 3 of the river in 1980 and 1995. The willow communities on those segments were not measurable in 1980. By 1995, there were 15.56 river bank miles of willow communities (USDI-BLM 1996a). Although much of the John Day River is not suitable for willow growth, further expansion of willow and other riparian plant communities is expected to occur with continued upland and riparian restoration throughout the basin. (See Appendix L for a summary for those studies near the river and Appendix M for photographic examples.)

A decision was issued in 1988 (John Day River Bighorn Sheep Reintroduction EA OR-050-7-38), which stated that conversion of cattle or horse permits to sheep permits would not be authorized on 22 allotments in Segment 2. This decision was necessary to reduce the possible transmission of disease from domestic sheep to bighorn sheep. There are no active domestic sheep or goat permits on BLM allotments in the Wild and Scenic Segments 1, 2, 3, 10 or 11.

Wilderness

Two federally designated Wilderness areas (North Fork John Day and Black Canyon) are within the river corridor. The North Fork John Day Wilderness is located along the upper North Fork, and the Black Canyon Wilderness is located on the west side of the South Fork John Day. Both are managed by the U.S. Forest Service.

Five Wilderness Study Areas (WSAs), which could become federally designated Wilderness, have been identified by the BLM on the lower mainstem and South Fork John Day Rivers. The five WSAs are:

- Aldrich Mountain
- Spring Basin
- North Pole Ridge
- Thirtymile
- Lower John Day.

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 (5,982 acres) is located south of Clarno on the mainstem John Day River. The North Pole Ridge WSA (7,609 acres) is located north of Clarno. Further north along the mainstem is the Thirtymile WSA (7,538 acres) and the Lower John Day WSA (19,587 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.

The BLM submitted a *Wilderness Study Report* to Congress in 1991. The report recommended that a combined Thirtymile/Lower John Day Wilderness Area, a Northpole Ridge Wilderness Area, and a Spring Basin Wilderness Area should be designated by Congress. The report did not recommend Wilderness status for the Aldrich Mountain WSA. Newly acquired lands, including Sutton Mountain, Pat's Cabin, and a 1,240-acre addition to the North Pole Ridge WSA, meet the WSA criteria and have been designated as WSAs through earlier planning documents. The study process for these three areas is not complete, and study reports with recommendations have not been forwarded to Congress.

Until final decisions concerning Wilderness status are made by Congress, federal law requires all lands within WSA boundaries be managed so as not to impair their Wilderness suitability. Management of WSAs is described in detail in the *BLM Interim Management Policy and Guidelines for Lands Under Wilderness Review* (USDI-BLM 1995b). (See Appendix N for more details on the Wilderness Review Process and WSA additions.)

Recreation

Recreation has been determined to be an outstandingly remarkable value on all designated WSR segments of the John Day River because of the diversity and quality of recreation opportunities potentially available. Within the John Day River system, recreation opportunities differ by river segment due to variations in river flow, character, topography, and availability of public access. Popular recreation pursuits range from picnicking, fishing, and swimming, to 5-day float trips through thousand foot deep canyons, and to hunting for upland birds and big game on slopes and side canyons adjacent to the river. Based on reports from the public and Oregon State Police, the use of small jet boats has been increasing in the lower river to provide access to hunting and fishing. Public road access is available at several remote locations on the lower mainstem, but boating provides the primary mode of access to this portion of the river. Between Clarno and Cottonwood, where no public road access is available, boaters have the opportunity for a semi-primitive, unconfined recreation experience—a recreation opportunity that is becoming increasingly uncommon. When compared to the neighboring Deschutes River, the John Day has fewer recreation developments along the river and its major tributaries, fewer river users, and fewer and less difficult rapids to negotiate. Historically, recreational use of the John Day River has been low due to limited access. Few regulations have been imposed on recreationists. Recreation use of the river has increased dramatically in recent years, resulting in concern over how this use will be managed in the future.

The upper South Fork, lower North Fork, and upper mainstem John Day Rivers provide a more rural setting that includes more farms and ranches, cultivated fields, and pastures than the upper North Fork or lower Mainstem. In the more populated areas of the river system, the sights and sounds of humans are often evident and the interaction between users occurs with moderate frequency.

The most popular activities on the mainstem John Day River are boating and fishing for smallmouth bass and steelhead. The mainstem John Day River, from Kimberly to Tumwater Falls, offers some white water boating opportunities with numerous Class II rapids, four Class III rapids, and one Class IV rapid. Rafts, drift boats, canoes, and kayaks are the most popular watercraft used on the John Day River. Some motorized boat activity occurs on the lower mainstem. The mainstem John Day River, between Clarno and Tumwater Falls, is closed to motorized boats from May 1 to October 1, and the use of personal watercraft (jet-skis) is prohibited year-round upstream of Tumwater Falls by Oregon Administrative Rule (OAR) 250-021-0030.

Other popular activities include camping; hunting for chukar, pheasant, geese, ducks, and deer; and viewing fossils in the John Day Fossil Beds National Monument. Secondary activities associated with float boating, fishing, and hunting include relaxation, photography, wildlife viewing, swimming, hiking, and sightseeing. Upland hunting and camping usually require the use of four-wheel drive vehicles where access is available.

Seasons of Use

As described earlier in this chapter, the amount of water flow in the river system varies widely by season and year (see Figure 2-A). The mainstem John Day River from Kimberly to Tumwater Falls can be floated during most of the year, but cold winters and very low late summer and fall flows discourage most boaters from floating the river during those times. Canoes, inflatable kayaks, and small rafts can be used during low water flows, but larger rafts and drift boats can be used only during the high water season, which is usually from February

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through mid-July. The main boating season downstream of Kimberly is from early May to mid-July, with weekends between Memorial Day and Fourth of July receiving the highest use. Boaters with the equipment and experience necessary to navigate low water levels float the river to access hunting and fishing in August, September and early October.

Motorized boats are used upstream from Clarno from March through July, and downstream of Clarno in March and April for access to fishing. Motorized use occurs in both areas in October for fishing and hunting access. Motorized boats are used between McDonald Ferry and Tumwater Falls from October through December to access steelhead fishing and hunting for upland birds and deer. Lower flows do not appear to affect motorized use, because boaters familiar with the river can maneuver a jet boat at flows below 1,000 cfs. Boaters with outboard motors can operate at low flows by raising the motor up when passing through shallow water.

The North Fork John Day River provides a very short floating season, usually from April to mid-June, and sometimes shorter. The Middle Fork is floated occasionally; however, even in the spring, water levels are rarely sufficient for boating. Flows on the South Fork are not sufficient to support boating.

Fishing for smallmouth bass occurs primarily during the spring and summer on the mainstem up to Picture Gorge and the North Fork John Day River up to Wall Creek. Fishing for steelhead occurs throughout much of the basin from October through March. Bank fishing for trout occurs on the North, Middle and South Forks from May through October.

Hunting is popular throughout the basin. Hunting seasons are from late August to mid-January for waterfowl and upland birds, and from August through November for deer and elk.

Camping primarily occurs during the summer months, and in the spring and fall associated with boating, fishing, and hunting.

Commercial Use

Guides and outfitters provide the opportunity for individuals without the necessary skill or equipment to enjoy the John Day River. Commercial use on the John Day River is regulated and monitored by the BLM through the issuance of a "Special Recreation Permit" to commercial operators. A guide or outfitter must meet application requirements, pay annual permit fees, and agree to follow permit stipulations. Float trips (typically guided fishing trips, but scenic and heritage trips are gaining in popularity) have been the primary commercial recreation use on the John Day River.

A moratorium was placed on issuing additional commercial guide and outfitter permits for the John Day River in 1996 for the duration of the planning process.

There were 34 permitted guides and outfitters at the time of the moratorium. Since then, 46 individuals have expressed interest in obtaining a new commercial guide and outfitter permit for the John Day River.

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.

An estimated 15 vehicle shuttle services are used by John Day River boaters. None are currently under BLM permit, although such services meet the definition of "commercial services" under BLM policy.

In addition to guided and outfitted services, the BLM has received inquiries from individuals interested in starting commercial vending (concessions) operations at BLM launch points to sell food, souvenirs, and boating equipment. Currently, no permits have been issued to operate concessions on BLM-administered lands within the John Day River basin.

Amounts of Use

Visitation Estimates

Visitors spend an estimated 100,000 visitor use days annually participating in recreation activities on BLM-administered land within the John Day River corridor.

An estimated 3,200 visitors spent approximately 4,800 visitor use days in 1998 at the four BLM developed campgrounds along the John Day River. This same year, car counters recorded 5,700 visits (estimated 14,300 visitor use days) at the Clarno Recreation Site and 14,700 visits (estimated 36,800 visitor use days) at Cottonwood Recreation Site. Travelers using these sites as roadside rest areas accounted for most of this use.

The BLM estimates approximately 5,500 boaters, accounting for 18,300 boater use days, floated the mainstem John Day River from Service Creek to McDonald Ferry during 1998. Approximately 41 of these boaters used motorized boats, accounting for 57 motorized use days. This data is based on information collected at boater registration stations, observations of BLM river personnel, and use reports submitted by commercial permittees. The number of boaters using motorized boats is likely higher, because boaters who attach electric or gasoline-powered outboard motors to driftboats or rafts may not note the specific use of a motor when registering. Use figures acquired before 1998 are less reliable, because boaters then were not required to register. Earlier use estimates were primarily based on BLM staff observations and data from car counters placed at key river access points. Preliminary review of 1999 boating use data indicates an estimated 10% overall increase in boating use levels.

Historically, the highest concentrations of boating use on the John Day River occurred on Memorial Day weekend. Detailed use data collected during Memorial Day weekend of 1989 accounted for 35 boating parties, totaling 312 people, that launched between Service Creek and Cottonwood Bridge over the three-day period. Data collected in subsequent years show that use on Memorial weekend remained nearly static (43 parties, totaling 309 people launched in 1998), but use increased on other weekends, both before and after Memorial Day. High water flows in 1997 and 1998 extended the normal floating season, and the Fourth of July weekend received heavy use. Launches were concentrated over eight weekends from Memorial Day weekend through mid-July in 1998, with the majority of launches occurring on Fridays and Saturdays.

Commercial guides and outfitters with permits from the BLM reported 2,647 commercial customer use days, and 968 guide or employee days in 1998. This was 19.7% of the total John Day River boating use during that year. Approximately 20% of the total permitted guides and outfitters reported 70% of the commercial use. Of the 34 permitted guides and outfitters, 11 reported either one or no trip with paying customers during 1998.

The Oregon Department of Fish and Wildlife (ODFW) estimated total angler visitor use days in 1987 to be about 12,000 for the North Fork John Day River, 3,000 for the South Fork and the Middle Fork combined, and 31,500 for the entire John Day River system. The same study estimated that there were 7,500 visitor use days for sightseeing, hiking, and photography and over 500 visitor days for swimming and other day-use activities in the river system. More recently, ODFW estimated angler visitor use days (by boat and bank) on the mainstem John Day River to be 9,600 in 1992 and 11,500 in 1993 for Service Creek to Tumwater Falls; and 14,250 in 1992 and 15,100 in 1993 for Kimberly to Service Creek.

The BLM estimates that hunting for chukars, grouse, other upland birds, geese, ducks, deer and elk within the John Day River corridor accounted for about 8,000 visitor use days in 1998.

Length of Stay

In 1998, the average length of stay on the John Day River was estimated to be 1.5 days for visitors at developed campgrounds and 2.7 days for boaters, based on sample observations and interviews. Actual length of stay varies with the type of activity and environmental factors (especially weather). For example, the length of stay for boaters is primarily determined by the number of river miles covered each day (which in turn is influenced by how fast the water is flowing). The length of stay for hunters usually exceeds five days, depending on the success of the hunt.

Group Size

Average group size for boaters on the John Day River over Memorial Day weekend in 1989 was 9 people, and for the same weekend in 1998 it was 7 people. Average group size for the 1993 season was 6.2 people and declined to 5.1 people in 1998. Commercial rafting group size varies from 2 to 16 people with an average of 7.4 people per group. The maximum group size between Service Creek and Tumwater Falls is 16 for both commercial and non-commercial groups. Boater registration data indicates that boating groups of 20 to 45 people are occasionally launching in violation of maximum group size rules. Bank anglers generally fish alone or in small groups of 2 or 3 persons. Data is not available for car camping or hunting group size.

Origins of Use

Boater registration data collected in 1998 found that 33% of trip leaders came from central Oregon; 64% from outside central Oregon but within the tri-state area of Oregon, Washington, and California; and 3% from other states (Table 2-S).

Table 2-S. Comparison of Boating Use Levels for 1998 in Segments 1, 2, and 3.

Month	Non-Motorized				Motorized				Total			
	Launches	Boats	People	Use Days	Launches	Boats	People	Use Days	Launches	Boats	People	Use Days
January	1	1	3	3	0	0	0	0	1	1	1	3
February	6	10	25	66	0	0	0	0	6	10	25	66
March	14	27	54	227	1	1	4	4	15	28	58	231
April	43	71	173	525	3	3	17	21	46	74	190	546
May	173	363	812	2,659	0	0	0	0	137	363	812	2,659
June	341	803	1,789	6,436	3	3	8	12	344	806	1,797	6,448
July	198	487	1,028	3,045	3	3	8	8	201	490	1,036	3,053
August	36	89	188	470	0	0	0	0	36	89	188	470
September	19	33	76	152	0	0	0	0	19	33	76	152
October	45	74	151	835	2	2	4	12	47	76	155	847
November	11	20	43	107	0	0	0	0	11	20	43	107
December	0	0	0	0	0	0	0	0	0	0	0	0
Total	851	1,978	4,342	14,525	12	12	41	57	862	1,991	4,383	14,582

Data does not include administrative trips conducted by BLM, Oregon State Police, County Sheriff, etc.

Based on field checks approximately 80% of parties register. Multiply the above figures by 1.25 for a corrected estimate of actual use.

Average party size for Segments 1, 2, 3 = 5.1 persons.

Average trip length for Segment 1, 2, 3 = 3.3 days.

Average number of persons per watercraft for Segment 1 = 2.3 persons.

Totals do not necessarily equal the sum of data shown in tables for Segment 1-3, as some trips were counted in more than one segment if direction of travel was uncertain.

Public Access

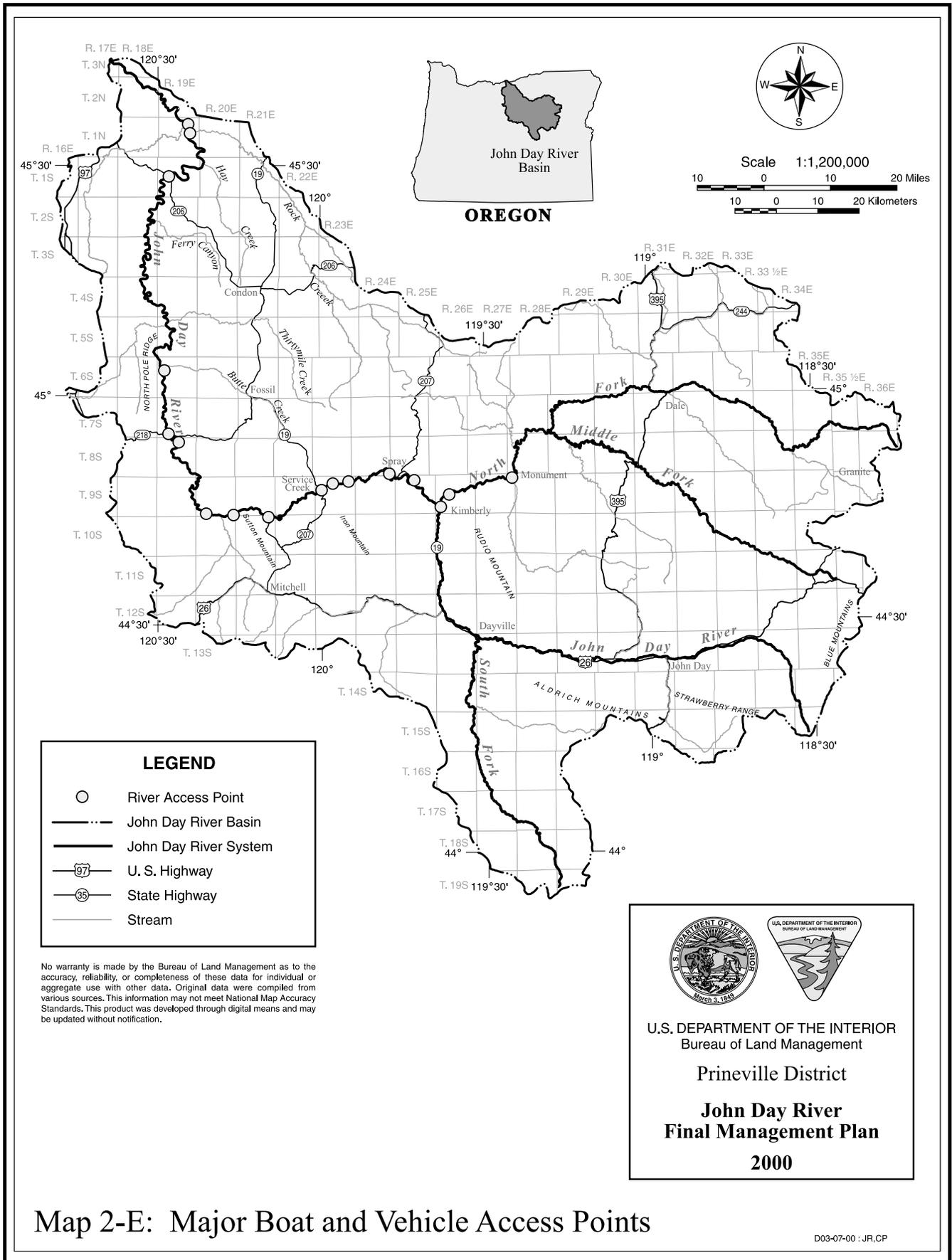
Roads and Trails

Public access to the river varies between paved highways and gravel roads that parallel the river, to bridged crossings over 50 river miles apart. The South Fork and middle mainstem John Day River have frequent and easy public access due to nearby public highways and numerous tracts of public land. Much of the North Fork is accessible by a more primitive gravel road and a public easement issued to ODFW. The lower mainstem and portions of the Middle Fork have infrequent and difficult public access due to lack of public roads and trails.

Private road access to the river that was historically open for public use is now being gated and locked in many areas, resulting in frustration for people who had grown accustomed to using the private roads. Some private landowners charge an access fee for public access to BLM-administered lands via private roads or trails. In addition, rural counties are abandoning some sections of county roads in an effort to save maintenance costs, leaving sections of road inaccessible to the public.

Boat Launching and Landing Sites

Primary public boating access sites are at Monument, Muleshoe, Service Creek, Clarno, Cottonwood Bridge, and McDonald Ferry (Map 2-E). Primitive, undeveloped launch sites are available on public land from a wooden bridge 2.5 miles upstream of the Muleshoe Recreation Site, between Twickenham and Cherry Creek; from a county road at Rock Creek; and on the North Fork near Camas Creek and at Monument. Other primitive launch sites are available, but most require permission from private landowners, and many require four-wheel drive vehicles for access.



Map 2-E: Major Boat and Vehicle Access Points

D03-07-00 : JR,CP

River Segment Descriptions

The following descriptions are organized the same as the preceding general description. Omission of topics previously discussed indicates that no additional information is available.

Segment 1: Mainstem - Tumwater Falls to Cottonwood Bridge

Location and Characteristics

This segment is the lowest in elevation of the John Day River. It lies between Tumwater Falls (RM 10) and Cottonwood bridge (RM 40), where State Highway 206 crosses the John Day River.

The lower subbasin, which includes this segment, drains an area of about 2,030 square miles. It is physiographically different from the upstream segments in that it generally lacks the mountainous terrain and high elevations that accumulate significant snow pack.

Land Ownership and Classification

The BLM administers about 25% of the 30 miles of river frontage in this segment, and the remaining 75% is private land. River-front ownership is mixed, so along many stretches, one side of the river is private, and the other side is BLM-administered land. The area at McDonald Ferry, on the east side of the river, is primarily private land, but there is BLM-administered land in the immediate vicinity. The BLM regularly receives inquiries from visitors wanting to fish or hunt in this river segment and who are confused about the ownership of the river's bed and banks. The BLM also receives occasional complaints from landowners about trespass by recreation users.

The river corridor between Thirtymile Creek and the Columbia River is a State of Oregon Wildlife Refuge that prohibits waterfowl hunting. The entire segment was designated as a federal Wild and Scenic River by Congress in 1988 and as a State Scenic Waterway in 1970 by the State of Oregon. This segment contains no designated Wilderness and no Wilderness Study Areas. The Oregon Trail crosses the river near RM 21.

This segment of the John Day River serves as the boundary between Sherman and Gilliam counties.

Sherman County has planned and zoned private lands adjoining the west bank of the river as "Exclusive Farm Use." The purpose of Exclusive Farm Use is to protect agricultural uses from encroachment by incompatible uses and to provide tax incentives to assure that agricultural land is retained in agricultural use. The minimum lot size for this zone is 40 acres. Subdivisions and major partitions are prohibited.

Gilliam County has also planned and zoned private lands along the east bank of the river as Exclusive Farm Use. A lot or parcel of 160 acres or more is considered a farm unit. A lot or parcel of less than 160 acres, but not less than 100 acres, may be acceptable as a farm unit if approved through the conditional use process. The Gilliam County Comprehensive Plan recognizes the existence of the State Scenic Waterway designation along the John Day River, and county policy states they will cooperate with OPRD when development is proposed on private lands along the river.

Information and Education

An informational bulletin board and boater registration station is located at Cottonwood Bridge Recreation Site. Posted information includes fire regulations, Marine Board regulations, and minimum impact camping requirements. There are signs discouraging shooting and garbage dumping, which are two of the main management problems at this site. BLM personnel and volunteers are present at this site on peak river use days to instruct boaters in the use of the new river-toilet dump station located here.

The BLM, in cooperation with the Sherman County Historical Society, constructed an Oregon Trail interpretive site on the west side of the river at McDonald Ferry (RM 21) to complement an existing monument erected previously by that local organization. The interpretive site and monument highlight the trials and tribulation of the Oregon Trail emigrants who crossed the John Day River at this location. Access to the monument is available from the west side of the river by county road from Wasco. The site can also be accessed along the county road by foot from the river, or by vehicle via a low water ford from the east side. Conflicts occur regarding access at this latter point; however, due to unclear direction via the county road across a 1/4 mile strip of private land between the site and the river.

Law Enforcement and Emergency Services

Several court cases are pending as a result of alleged private land trespass by recreationists. Ownership of the river bed and banks has not been determined by the State of Oregon, resulting in confusion over the legal rights of public land users and private landowners.

Cultural Resources

Segment 1 has been selectively inventoried for cultural resources by Polk (1976). This small sampling revealed the occurrence of only a few prehistoric sites. Based on this small sample and subsequent excavations along the river, it appears that human occupation in the lower part of the canyon extends back at least 8,000 years (Schalk 1987). It has been suggested that the interior portion of the canyon, but not necessarily this segment, was most heavily used after about 5,000 years ago.

Ethnographically, this segment of the river canyon is known to have been used by the Tenino group of Sahaptin-speakers, primarily for fishing. Several villages are known to have existed in the lower reaches of the river. The BLM has limited knowledge about other or more current uses of the canyon by Native American Indian groups. The CTWSRO have indicated past historical use of, and continued interest in, Tumwater Falls for fishing.

The primary historic use of this river segment occurred at the John Day crossing, what is now called McDonald Ferry. This was the only crossing point of the river for thousands of Oregon Trail emigrants between the 1840s and 1860s. In 1858, a ferry was built at the crossing. Later transportation routes used this same crossing.

Water Quantity and Quality

The lower subbasin, including this segment, can be characterized as an area that receives water, as opposed to one that produces it. Most tributary streams in the subbasin are nearly ephemeral, many ceasing to flow in summer (approximately July through September). There are three main tributaries to the lower mainstem: Rock Creek, Hay Creek, and Grass Valley Canyon. Rock Creek is the largest with a mean monthly flow ranging from 120 cfs in March to less than 1 cfs in September. Lone Rock Creek, a tributary to Rock Creek, stopped flowing at some time in at least 10 out of the 13 years between 1966 (first year of record) and 1978 (last year of published record). Generally, non-flow conditions last from August through September in these tributaries. In especially dry years, flows can stop as early as July and not resume until October.

The stream gauge at McDonald Ferry records discharge for over 95% of the John Day basin. It has been in operation since 1905 and provides an excellent record of stream flow variability. Discharge varies seasonally, from year to year, and from decade to decade (OWRD 1986). Peak discharge occurs between late March and early June, with 22% of runoff occurring in April and 21% in May. Low flows occur between July and November. The average monthly high flow is during April (5,710 cfs). Minimum monthly low flow occurs during September (87 cfs); no flow occurred for part of September 2, 1966, August 15 to September 16, 1973, and August 13, 14 and 19 to 25, 1977.

Frequency of peak flows has changed. The number of flow events exceeding 6,900 cubic feet per second (cfs) (defined by the USGS as a peak flow for the gauge at McDonald Ferry) was greater from 1980 to 1985 than any other five-year period since 1948. The flows during the 1964 and 1997 floods of 40,200 and 35,200 cfs respectively, exceeded any other flows on record by 35%. Changes in discharge may be caused by climatic variation or watershed alteration (OWRD 1986). The average annual discharge for the period of record is 1,524,000 acre feet. On some occasions, such as in 1966, 1973 and 1977, the river ceased to flow.

Final John Day River Plan and EIS

In 1996, the 29.5 miles of Segment 1 were included in the Oregon Department of Environmental Quality (ODEQ) 303(d) list of water quality limited streams as exceeding the state criteria of 64° F for summer water temperatures (ODEQ 1998). This river segment has a relatively high width-to-depth ratio, as would be expected with a river of this length, sediment load, and extreme flow variations. Low summer flows are spread into wide cross-sections, increasing the volume of water exposed to solar radiation. The percent of effective shade provided by vegetation decreases as channel width increases and is expected to be minimal for this segment. Temperature gains per mile vary widely between basins and depend on variables such as aspect, geology, vegetation, river width, and latitude. The ODEQ will conduct temperature modeling to develop TMDLs for the Lower John Day in the year 2005.

Instantaneous water temperature measurements at Cottonwood Bridge have been measured on a monthly basis by ODEQ for their Oregon Water Quality Index Reports. The 13 instantaneous measurements for June averaged 64° F. According to 22 afternoon measurements, the average daily afternoon water temperature is about 73° F in July and August.

As presented in the general discussion above, water quality in the lower river and in this segment is the result of upstream and local conditions. During the summer when flows are low, water temperatures exceed the criteria for rearing anadromous fish (ODEQ 1998). During low flow periods, water samples collected from McDonald Ferry indicate high levels of total phosphates, total suspended solids, biochemical oxygen demand, and fecal coliform. High levels of these pollutants also occur during periods of high runoff as a result of erosion and field runoff (Cude 2000).

The ODEQ non-point source assessment maps (August 1988) identify severe stream bank erosion and sedimentation in some of the major tributaries to the mainstem John Day. The OWRD (1986) has reported that water quality for cold water and warm water fish "...is on a downward trend threatening continued use of the water by that use." Since the time OWRD published these conclusions, however, ODEQ (1999) has noted, in reference to the entire lower John Day River, that water quality has "significantly improved" and utilizes a graph (Figure 2-C) to illustrate the upward trend of water quality since 1985 (water quality parameters that make up the water quality index are temperature, dissolved oxygen, biochemical oxygen demand, pH, ammonia+nitrate nitrogen, total phosphates, total solids, and fecal coliform). The ODEQ data collected between 1985 and 1998 at Cottonwood Bridge, the upstream end of Segment 1, revealed no improvement or decline in water quality.

Fish

This segment is within the lower John Day River subbasin and produces approximately 2% of the summer steelhead of the John Day basin (OWRD 1986). Steelhead spawning and rearing occurs in Grass Valley, Rock, and Hay creeks. The river itself functions as a migration corridor for adult and juvenile anadromous salmonids (summer steelhead and spring chinook) during fall and spring. During the summer months, the mainstem does not provide habitat for anadromous salmonids. Adult spring chinook migrate in the spring through the segment to spawning areas in tributaries. Steelhead and spring chinook eggs hatch, and fry rear, in the tributaries during the following year. Smolts migrate downstream from rearing areas in the tributaries during the spring and early summer. In addition, a small run of fall chinook may have historically utilized this segment.

This segment provides year round habitat for smallmouth bass, which provides the most notable fishery in this segment.

Wildlife

Wildlife species diversity in this river segment is limited by the lack of woody riparian vegetation that provides the vertical structure favored by many wildlife species. The condition of riparian habitat influences the presence of many wildlife species that rely on riparian diversity and structure for nesting and rearing of young. Riparian habitat conditions also influence production of food sources (such as flying insects), which contribute to the variety and numbers of species, such as bats or flycatchers. Dense stands of coyote willow have developed in many areas, especially where riparian-oriented grazing management has been implemented.

Some wildlife species expected to occur in riparian habitat, such as many species of neotropical migratory birds, use this segment, but on a very limited basis because of the relatively small area that can be inhabited. Beaver and river otter continue to utilize the river and may be increasing, but their use is restricted to suitable habitat. A few species, such as the introduced chukar, thrive here by primarily utilizing upland habitats away from the river. Although limited in this segment, irrigated agricultural fields provide mule deer with high protein forage, especially in the late summer and early fall when many native forb species lose their nutrients. Species presently found along this segment of river include great blue herons, beaver, mule deer, bobcats, Western rattlesnakes, nighthawks, cliff swallows, Canada geese, Brewer's blackbird, Pacific treefrog, spotted sandpipers, chukar, and golden eagles. This segment also has one of the very few known populations of spotted bat in the State of Oregon. The spotted bat is a special status species.

All of Segment 1 is within the John Day Wildlife Refuge. The refuge was established by the State of Oregon in 1933, but waterfowl hunting has been prohibited since 1921. This refuge includes a 0.25-mile corridor on each side of the river, measured from the high water mark. The primary purpose of this refuge is to protect wintering and nesting waterfowl. The area is open to deer and upland bird hunting during authorized seasons, between August 30 and October 31. No waterfowl hunting is allowed.

Scenery

A portion of this river segment flows through a deep canyon with steep walls next to the river. More often, however, the river flows through a wide valley with agricultural fields near the river. Signs of human activities in this area are those generally expected in a rural setting. Fences, fields, and farm equipment are visible from the river. Several residences and motor vehicles owned by the residents are also visible. The most significant visual intrusion in this segment are large power lines crossing the river upstream from Hay Creek. Segment 1 is classified in the Two Rivers RMP (USDI-BLM 1986) as VRM Class II, in which management activities resulting in changes to the existing character of the landscape may be allowed, provided they do not attract the attention of the casual observer (Appendix O).

Vegetation

The vegetation types in Segment 1 are among the driest within the basin. The average yearly precipitation is 9 to 12 inches. The river elevation rises from 270 feet to 520 feet above sea level, and the canyon walls rise to 1,600 feet above sea level. Most upland soils are stony and well drained, and hill slopes tend to be steep (35% to 70%).

Segment 1 lies entirely within the Columbia Basin ecoregion (Oregon Biodiversity Project 1998). Upland plant communities have been described as "dry grass" and "dry shrub" in ICBEMP (Quigley and Arbelbide 1997). The plant communities are generally dominated by bluebunch wheatgrass on south-facing slopes and Idaho fescue on north-facing slopes. Where sagebrush grows, it is usually low sagebrush or Wyoming big sagebrush. Some of the historic bunchgrass communities are now occupied by cheatgrass, Russian thistle, fiddleneck, snakeweed, and shrubs such as gray rabbitbrush. The most common noxious weed species in this segment are knapweeds and salt cedar.

Rorippa columbiae (Columbia cress), *Mimulus jungermannioides* (hepatic monkeyflower), *Carex hystericina* (porcupine sedge) and *Juncus torreyi* (Torrey's rush) are all suspected to occur in this river segment, but have not been found.

Riparian soils tend to be highly stratified river alluvium that deposits material from upriver or side canyons (USDA-SCS 1964, 1977). The alluvial sources from further up the river tend to be silty and clayey, whereas material from side canyons is more silty and sandy soils mixed with gravel, cobble and boulders. Riverwash mainly consists of sand, well-rounded gravel, stones, and boulders, although varying amounts of silt and clay material may be present due to redeposition from cutbanks.

Riparian plant communities vary in Segment 1, due in large part to the variable ecological sites. The establishment and health of willows, sedges, and rushes depends greatly on the ecological site potential of any given location in a river segment (Vol. I, Chapter 2, Resource Values, Vegetation and Vol. II, Appendix M). Some areas that have received riparian-oriented management have developed dense stands of coyote willow, although

natural forces (such as flooding, a mobile substrate, and ice flows) can have a retarding effect. Other locations have responded to riparian-oriented management with increased vigor and reestablishment of sedge and rush communities. On other sites, however, no response has been detected. Future correlation is needed between the ecological site potential of any particular spot on the river and results of a monitoring study of that location. Photos 13 and 14 in Appendix M, taken at the mouth of Hay Creek in this river segment, illustrate variations in river flow between May and September.

The functionality of the riparian area in this segment was rated in 1997, using the Proper Functioning Condition Assessment method (USDI-BLM 1993, 1998c). The functional rating for Segment 1 was "functional-at risk," meaning the riparian zone is in a functional condition, but susceptible to degradation from significant natural events or excessive human-caused influences. The trend rating was "upward," which means the riparian area is improving in its overall condition. The assessment found the riparian vegetation lacked in diverse age-class distribution and composition of vegetation. Plant species that indicate good riparian, soil-moisture-holding characteristics were well represented, but lacked continuity along the river to make this characteristic fully functional. In addition, this same lack of continuity existed with species that produce root masses capable of withstanding high flows. Also, there was a lack of vegetation cover present to protect banks and to dissipate flow energy during high water events. The riparian vegetation that is present exhibits high plant vigor. The PFC assessment is not designed to identify past causes of functional deficiencies in riparian areas, but to ascertain present functionality of the interaction among geology, soil, water, and vegetation. A particular rating is a product of human-caused influences (such as grazing and mining) and natural forces. In addition, the extent of future recovery hinges on management practices and ecological site potentials (Vol. I, Chapter 2, Resource Values, Vegetation and Vol.II, Appendix M).

Agriculture

Non-irrigated wheat production is the dominant agricultural use of this area, occurring on the plateaus outside of the river canyon. There are some privately owned irrigated fields, primarily used for pasture and hay production, along the river in this segment.

At approximately river mile (RM) 23, irrigated agriculture occurs on 8.7 acres of BLM-administered lands. This land is managed as part of an adjacent privately owned field. This field is located on the adjacent terrace, parallels approximately 1,650 feet of the John Day River, and is separated from the active flood plain by an access road. There are 0.22 cfs of water rights associated with this land.

Grazing

Segment 1 contains 14 grazing allotments (see Map Plate 1 and Table 3-E). One allotment (#2597) continues into Segment 2. Public land acreage in allotments in this segment varies from 40 to 4,743 acres, and public land forage varies from 3 to 155 AUMs. There are approximately 29.6 river miles (59.2 river bank miles) in Segment 1, and about one-third of the river frontage is public land. For details regarding management of the allotments, refer to Appendix L.

Allotment evaluations have been completed for 11 of the 14 grazing allotments in the segment, and changes in grazing management have occurred on 8 allotments. The changes include moving grazing use from primarily grazing during the warm season (late spring and summer) to cool season grazing (winter or early spring) or exclusion of grazing in some cases. In addition, by limiting grazing to seasons where the river flow is high, the river serves as an effective barrier to the movement of cattle, promoting the growth of grazed vegetation. Previously, some riparian enclosure fences were rendered ineffective, because cattle from allotments on the other side of the river would simply wade across the river during the summer to graze on riparian vegetation supposedly protected by fences. (Photos 11-14 in Appendix M illustrate the differences in high and low flows in the lower John Day.) Riparian areas now fenced from uplands are not being grazed, whereas previously they were grazed by a neighbor's livestock.

Current grazing management practices were judged by a BLM interdisciplinary team to be appropriate for protecting and enhancing river values on 66% (12.7 miles) of the public river bank miles in this segment.

Recreation

The small amount of public land and public access in Segment 1 restrict recreational opportunities. Where public land and access do exist, recreation opportunities include hunting, camping, fishing, boating, swimming, wildlife watching, and exploring the Oregon Trail. Boats can be used to access this area via the launch sites at Cottonwood Bridge and McDonald Ferry, and boaters primarily visit this segment to fish for smallmouth bass and steelhead, or to hunt for deer and chukar. The river in this segment is characterized by long, quiet stretches broken by a few Class I and II rapids. Floating between the two access points normally takes about two days. Cottonwood Bridge serves as a major take-out point for multi-day boating trips originating upstream at Clarno, with an estimated 1,900 boaters using this site as a take-out point in 1998. In 1998, an estimated 150 boaters launched from Cottonwood bridge, either landing at McDonald Ferry or returning to Cottonwood Bridge by traveling back upstream in motorized boats or canoes. At Cottonwood, two motorized trips were registered in 1998, one each in April and October, but their direction of travel is unknown. Assuming that both trips traveled into Segment 1, the two trips represent six motorized boating use days in April and two motorized boating use days in October, accounting for eight motorized boating use days launching from Cottonwood in 1998. No motorized use was recorded from Cottonwood during November 1998 (Table 2-T).

Table 2-T. Comparison of Boating Use Levels for 1998 in Segment 1.

Month	Non Motorized			Motorized			Total					
	Launches	Boats	People	Use Days	Launches	Boats	People	Use Days	Launches	Boats	People	Use Days
January	0	0	0	0	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0	0	0	0	0
March	0	0	0	0	0	0	0	0	0	0	0	0
April	0	0	0	0	1	2	6	1	1	2	6	6
May	2	2	5	5	Closed			2	2	5	5	5
June	4	7	15	21	Closed			4	7	15	21	21
July	8	11	26	45	Closed			8	11	26	45	45
August	4	8	23	29	Closed			4	8	23	29	29
September	1	2	2	2	Closed			1	2	2	2	2
October	6	6	16	26	1	2	2	7	7	18	28	28
November	9	10	30	34	0	0	0	9	11	30	34	34
December	0	0	0	0	0	0	0	0	0	0	0	0
Total	34	46	117	164	2	2	4	36	48	121	170	170

Travel direction of motorized launches is unknown; therefore, motorized launches at Cottonwood Bridge, with potential travel in Segment 1, are included. Data does not include administrative trips conducted by BLM, Oregon State Police, County Sheriff, etc.

Based on field checks, approximately 80% of parties register. Multiply the above figures by 1.25 for a corrected estimate of actual use.

Average party size for Segment 1 = 3.4 persons.

Average trip length for Segment 1 = 1.4 days.

Average number of persons per watercraft for Segment 1 = 2.5 persons.

There is no public take-out for floatboats downstream of McDonald Ferry. Therefore, the most common way to access the river between McDonald Ferry (RM 21) and Tumwater Falls (RM 10) is to use a motorized boat to return upstream to McDonald Ferry or to seek permission for access from a private landowner. Although no boater registration data is available for McDonald Ferry, increasing numbers of people use motorized boats to access this area for steelhead fishing and upland bird hunting. Several private helicopters are also used for recreation access to this river segment.

The Cottonwood Bridge Recreation Site (J.S. Burres State Park) is the most developed recreation site in this segment. It is owned by Oregon Parks and Recreation Department (OPRD) and managed cooperatively by OPRD and BLM under a long-term lease agreement. The site is maintained by the BLM and volunteers. This site is used for boat launching and landing, fishing, picnicking, swimming, and as a popular highway rest area. Facilities at this site include a primitive boat launch, a boater registration station, parking, a picnic table, vault toilets, and a toilet dump station for boaters who have just completed a river trip. Overnight camping is not allowed at this site.

There is a small recreation site accessible by county road at Rock Creek that contains several picnic tables and limited parking. Overnight camping is allowed at the site currently maintained by volunteers.

A comprehensive inventory of dispersed river campsites has not been completed for this segment. Map surveys and general knowledge of the area, however, indicate that approximately 30 places along the river could be used for camping, approximately 10 of which are on public land. Primitive river campsites are generally in good condition due to infrequent use.

Commercial permittees reported 28 boating use days in Segment 1 during 1998, all of which occurred in November for steelhead fishing.

Access

This river segment is accessible to the public by boat or two public roads, one at Cottonwood Bridge (RM 40) and the other at McDonald Ferry (RM 21) (also called McDonald, McDonald Ford, and McDonald Crossing).

The primary public access to this segment is at the recreation site (which contains a boat launch) next to Cottonwood Bridge, where State Highway 206 crosses the John Day River. After float boaters leave Cottonwood Bridge, there is no public road access until McDonald Ferry where the river's east and west banks are accessible by county road. Conflicts between visitors and private landowners sometimes occur on both sides of the river here, often due to confusion over ownership of the bed and banks of the John Day River, which has yet to be determined. There is no public road access to the river downstream from McDonald Crossing, and boat access to the Columbia River is blocked by Tumwater Falls (RM 10). The downstream end of Tumwater Falls is accessible by boat from Lake Umatilla, which backs up to Tumwater Falls from the John Day Dam on the Columbia River.

Segment 2: Cottonwood Bridge to Clarno

Location and Characteristics

This river segment winds 70 miles downstream from Clarno Bridge at State Highway 218 (RM 109) to Cottonwood Bridge on State Highway 206 (RM 40). This segment is well known for spectacular scenery and contains very high canyon walls. The river meanders more in this segment than in adjacent segments. This segment is also very remote and contains no public road access, except for two roads at each end of the segment.

Land Ownership and Classification

The BLM manages approximately 50 of the 70 miles of river frontage. Private lands are in several small tracts scattered throughout the length of this segment.

Land designations include three BLM Wilderness Study Areas and a State of Oregon wildlife refuge from Thirtymile Creek downstream to the Columbia River.

The mainstem of the John Day River serves as the boundary between Sherman and Gilliam counties and also as the boundary between Wasco and Wheeler counties.

Land use guidelines and county zoning for this segment are the same as in Segment 1.

This river segment is presently classified as a State Scenic Waterway "Scenic River Area," from Cottonwood Bridge to Ferry Canyon. State classifications in this segment include "Scenic River Area" from Clarno to Thirtymile Creek, "Natural River Area" from Thirtymile Creek to Ferry Canyon, and "Scenic River" from Ferry Canyon to Cottonwood Bridge. State guidelines under the existing Oregon Administrative Rules (OAR 736-040-0065) describe how lands should be managed under these classifications.

Information and Education

An information bulletin board and boater registration station is located at Clarno Recreation Site and at the BLM launch site at Butte Creek. Posted information includes fire regulations, Marine Board regulations, and minimum impact camping requirements. At Clarno, signs also discourage shooting and garbage dumping, which are the two main management problems at this site. An interpretive display encourages boaters to help pull noxious weeds. BLM personnel and volunteers are present at the Clarno Recreation Site on peak river launch days to contact boaters and instruct them in minimum impact camping requirements.

Paleontology

The lower two-thirds of this segment is considered to have low potential for both vertebrate and invertebrate fossils. The upper third, however, is in the vicinity of the Clarno Unit of the John Day Fossil Beds National Monument. Fossil-bearing exposures occur within and adjacent to this portion of the segment. No formal inventories have yet been conducted within the corridor but several locations are known to contain or are considered highly likely to contain significant vertebrate and botanical specimens. One fossil locality in the vicinity of Clarno is being used for outreach and education efforts with Oregon Museum of Science and Industry (OMSI) students under a long-term volunteer agreement with the BLM.

Cultural Resources

Polk (1976) conducted a cultural inventory of this segment. Within this particular stretch of the river, Polk recorded 59 prehistoric sites. An additional five prehistoric sites have been located since that time, and other sites are expected to exist but have yet to be discovered. The nature of several of the prehistoric sites is undetermined, because they are buried by river sediments. Many of the sites are in good condition, but those nearest to access points, and a few which are not, have been badly damaged by vandals. Recent formal excavations at a prehistoric site adjacent to the corridor have resulted in the hypothesis that prehistoric occupation and use increased dramatically between 4,000 and 2,000 years ago, then steadily declined (Atwell and Katsura 1995).

Ethnographically, the area was used by the Tenino group of the Sahaptin-speaking language family. Few of the early ethnographic studies specifically mention the use of the canyon. Suphan (1974) indicates that the canyon was used for fishing, hunting, and plant gathering. The few village and resource use locations noted by Suphan cannot be correlated with known archaeological sites. This segment of the canyon is used by members of the CTWSRO or other Native American groups for economic or religious purposes. However, the nature and extent of this use is unknown to the BLM.

Historic use of this segment is oriented primarily towards post-1900 farming and ranching, and a few sites are related to transportation, prohibition, and entertainment.

Water Quantity and Quality

Segment 2 drains about 906 square miles of arid lands. Precipitation here is around 10 inches per year, and mean annual runoff is between 0.5 and 0.75 inches per year. This means that this segment contributes between 35 and 50 cfs per year, based on calculations of data from OWRD (1986). Discharge patterns, peak flows, and duration of flow events are similar to those of Segments 1 and 3. Butte Creek, Thirtymile Creek, and Pine Hollow Creek are the main tributaries to this segment. Butte Creek flow averages from one to five cfs, July through October.

In 1996, the ODEQ included the 70 miles of Segment 2 in the 303(d) list of water quality limited streams under the parameter of temperature. The criteria of 64° F is based on the beneficial use of the waters for fish rearing. Instantaneous water temperature measurements at Cottonwood Bridge have been measured monthly by ODEQ for their Oregon Water Quality Index Reports. These measurements are taken at the downstream end of Segment 2. Thirteen instantaneous water measurements (1985-1998) averaged 64° F. Based on 22 afternoon measurements, the average daily afternoon water temperature is about 73° F in July and August (Cude 2000)..

Water quality impairment from within this segment is a consequence of stream bank erosion and sedimentation. In the past, Condon and Fossil municipal sewage treatment facilities were discharging poor quality effluent into Thirtymile and Butte Creeks (OWRD 1986.) The ODEQ is pursuing correction of problems at both facilities. However, the history of sewage discharge can influence current conditions because pollutants collect in stream sediments. This condition can exacerbate problems associated with eutrophication during low flows that result in the release of contaminants during periods of high flows. "Water quality constituents such as total phosphates, biochemical oxygen demand, and fecal coliform are typically elevated during late summer when flow is lowest and water temperatures are the highest" (Cude 2000). Average Oregon Water Quality Index scores are poor in the summer and fair during the fall, winter and spring (Cude 2000).

Fisheries

Like Segment 1, this segment is a migration corridor for adult and juvenile anadromous fish from September to the following May and June. Meaningful water temperature data is not available for this segment, but is assumed to be similar to Segment 3. Thirtymile and Butte Creeks provide steelhead and rainbow trout with spawning habitat. Butte Creek is important for improving water quality in the mainstem due to its colder water temperatures (Claire 1991). Pine Hollow Creek intermittently provides spawning and rearing habitat for steelhead, depending on water flows. Two other tributaries (Jackknife and Little Ferry Canyons) may still produce steelhead intermittently, but direct observations have not been made. Productivity of smallmouth bass in this segment is considered to be excellent and is a nationally known fishery (Claire 1991). Channel catfish are also present in this segment.

Wildlife

The portion of this segment from Thirtymile Creek to Cottonwood Bridge is within the State of Oregon John Day Wildlife Refuge. Canada geese, the main species of concern in the wildlife refuge, occupy this segment year-round. Wildlife diversity and numbers within Segment 2 is slightly higher than Segment 1. This can be partially attributed to riparian grazing systems, an increase in the occurrence of shrub communities, and increased features such as cliffs and more pronounced canyon formations. The same wildlife species found in Segment 1 occur in this segment, with additional representative species being prairie falcons, violet-green swallows, canyon wrens, red-tail hawks, osprey, and flickers. In addition, California bighorn sheep have been successfully reintroduced into this segment on both sides of the river, and populations are expanding. This segment (like Segment 1) has one of the very few known populations of spotted bat in the State of Oregon. The spotted bat is a special status species.

The Farmers Home Administration (FmHA) transferred title of a 512-acre property north of Clarno to the BLM in 1992. Technical experts from the U.S. Fish and Wildlife Service (USFWS) found unusually high fish, wildlife, and other environmental values associated with the land. Because of these values, the USFWS, in consultation with the ODFW, recommended FmHA protect and enhance these values for the public by transferring title to the BLM, which manages adjacent public land. Since that title transfer, much wildlife habitat improvement has occurred on this property. Weed control efforts, wildlife food and cover plots, wildlife guzzlers, as well as cottonwood

plantings are all part of the efforts that have been accomplished since BLM acquisition of this property. Wildlife food and cover plots and wildlife guzzlers have been accomplished through support and funding from the ODFW, Oregon Hunter's Association, Quail Unlimited, Oregon Wildlife Heritage Foundation, National Fish and Wildlife Foundation, and Pheasants Forever.

Scenery

The primitive and largely natural scenery of this segment provides river visitors with a sense of wildness and remoteness. It is an area of high plateaus bisected by the river and its tributaries. The river winds through majestic basalt cliffs that reach heights of over 1,000 feet above the river, and steeply sloped hills covered with grass, sagebrush, and juniper.

These high cliffs are impressively scenic, especially in the early morning or late afternoon when lighting is at its best. In contrast to the rugged, golden hills, riparian vegetation laces the river edge and rocky side canyons with a lush green hue. Scattered juniper trees produce a sprinkling of color and fragrance. Erosion and oxidation of some basalt columns and pillars have created interesting formations and colors that have become scenic landmarks for river visitors.

Visitor surveys conducted by the OPRD in 1983/84 found that solitude, scenery and wildlife were very important aspects of their visit to the John Day River. This portion of the mainstem exemplifies those qualities. Outstanding scenic qualities have been identified as a special feature of all three Wilderness Study Areas located within this river segment. Additionally, Congress and the BLM determined the scenery of the John Day River to be an outstandingly remarkable value of the mainstem John Day WSR.

Signs of human activity in this segment are either temporary or not significant enough to seriously affect the scenic values and are mostly products of ranching and farming. These include fences, spring developments, livestock, irrigation pumps, and a few private airstrips and primitive dirt roads. Highway 206 crosses the river at Cottonwood Bridge, and a powerline can be seen for approximately 4 miles from Devils Canyon to Cottonwood Bridge. Some evidence of an underground pipeline and a fiber optics line is present at Thirtymile Canyon. Segment 2, including substantial uplands between Clarno and Butte Creek and portions of some tributaries, are classified in the Two Rivers RMP (USDI-BLM 1986) as VRM Class II, in which management activities resulting in changes to the existing character of the landscape may be allowed, provided they do not attract the attention of the casual observer. (Appendix O)

Seven designated military overflight routes cross or closely parallel the John Day River between Cherry Creek and the Columbia River, and two other military routes cross the river at Kimberly. The types of aircraft vary, as do the allowed elevations of flight. In addition, privately owned aircraft occasionally fly over the John Day River, sometimes at very low elevations.

Vegetation

Segment 2 annually receives an average of 11 to 15 inches of precipitation. The river elevation rises from 520 feet to 1,380 feet above sea level, and the canyon walls rise to 2,600 feet above sea level. Canyon slopes in this segment are extreme, often exceeding 70%.

Segment 2 lies within both the Columbia Basin and the Lava Plains ecoregions, with the break being near Butte Creek (Oregon Biodiversity Project 1998). The upland plant communities have been described by ICBEMP as "dry grass" and "dry shrub," with the "cool shrub" type beginning at Butte Creek and progressing upstream (Quigley and Arbelbide 1997). Stiff sage communities become common on ridges. Sagebrush stands become denser on the hill slopes, and junipers form occasional, sparse stands in draws and on low terraces. An example of an increase in bunchgrass, on a riverine terrace site, is shown in Appendix M, Photos 23 and 24.

Riparian vegetation and soils are the same as those in Segment 1 (USDA-SCS 1964, 1970, and 1977). Two extensive willow surveys were completed on public land in this segment and Segment 3 in 1980 and 1995 (USDI-BLM 1996a). In Segment 2, *Salix exigua* (Coyote willow) increased from zero linear miles in 1980, to 9.50 miles in 1995, and the number of acres covered increased from zero to 22.69. Refer to Appendix L for a description of the willow increases on individual allotments in this segment. Examples of existing riparian sites are shown in Appendix M, Photos 1 through 12.

Special status species known to occur in this river segment are *Juncus torreyi* (Torrey's rush) and *Mimulus jungermannioides* (hepatic monkeyflower). Species suspected to occur in the segment are *Astragalus collinus* var. *laurentii* (Lawrence's milkvetch), *Carex hystericina* (porcupine sedge), and *Rorippa columbiae* (Columbia cress).

Functionality of the riparian area in Segment 2 was rated in 1997 using the Proper Functioning Condition Assessment (USDI-BLM 1993, 1998c). The functional and vegetation ratings were the same as Segment 1 (functional-at risk)(see Segment 1, Vegetation).

Riparian and Aquatic Habitat Restoration

In 1992, due to a Farm Home Administration foreclosure, approximately 512 acres of land and 3 miles of west side river bank (RM 106 to RM 109), immediately downstream from the Clarno Bridge, were converted to public ownership. Grazing has not been authorized on the area since 1989. Unauthorized grazing was addressed with a fence on the east side of the river in 1996. The riverine terrace contains 232 acres of arable land with active water rights, of which 70 acres are currently in agricultural production.

Historical farming and grazing practices of the land adjacent to the river resulted in removal of the riparian vegetation. Bedload deposition has also occurred in the same general stretch of the river, causing lateral river channel movement. These situations have combined to create overall river bank conditions that have rapidly deteriorated in the last 15 years. Cut banks are extremely steep and high (up to 25 feet) in some areas. The areas most impacted have annual erosion approaching 20 feet per year. There has been limited natural recruitment and establishment of riparian vegetation (USDI-BLM 1996c). The meandering of the river could eventually remove the entire acreage of arable lands. It is unlikely that the eroding river banks would make any appreciable recovery without intervention. Resource concerns associated with the area include recreation, access, scenery, soils, fisheries and wildlife.

Agriculture

Non-irrigated wheat production, the dominant agricultural use of this area, occurs on the plateaus outside of the canyon. Irrigated agriculture occurs along the terraces of the John Day River, primarily in the vicinity of Cottonwood Bridge, Butte Creek, and Clarno. Alfalfa hay is the most common irrigated crop grown along the river.

Segment 2 contains about 278.5 acres of public lands with water rights parallel to approximately 2.5 miles of the John Day River. These lands are associated with or adjacent to private agricultural lands. Activities include leased commodity production, riparian tree and shrub propagation and restoration, wildlife food and cover weed control, and non-use (Table 2-U). About half of the leased area is used for alfalfa hay, and the other for specialty seed crops such as carrot, onion, coriander, or beans.

Table 2 -U. Estimated Public Agricultural Land Water Use in Segment 2 (1998)

Location River Mile (RM)	Non-use/Instream (acre/cfs) ¹	Restoration/ Enhancement (acre/cfs)	Lease (acre/cfs)	Total (acres)
RM 106.5-109.5	107.1/2.7	65/1.6	60/1.5 ²	232.1
RM 101.5	0	0	43/1.0	43
RM 98.75	0	0	3.4/.08 ³	3.4
Total	107.1/2.7	65/1.6	106.4/2.6	278.5

¹Approximate maximum potential water withdrawal based on 1/40 cfs per acre.

²Ten acres of a 70-acre lease retained for wildlife food and cover in coordination with ODFW.

³Recently discovered incidental agricultural use associated to private land agriculture production.

Water rights associated with these lands are limited to 1/40 cfs per acre or less, and total use is not to exceed 5 acre-feet per acre during the irrigation season. However, actual use generally falls below the limits, depending upon actual precipitation and crop type. Table 2-U shows estimated use for 1998.

Grazing

Segment 2 contains 16 grazing allotments. A portion of one allotment (#2597) continues into Segment 1 (see Map Plate 1 and Table 3-E). Public land acreage in allotments in this segment varies from 343 to 14,683 acres; public land forage varies from 6 to 789 AUMs. There are approximately 69.6 river miles (139.2 river bank miles) in this segment, almost 4/5 of which are on public land. For details regarding management of the allotments refer to Appendix L.

Allotment evaluations have been completed on all but four allotments in this segment, one of which has no active grazing. Grazing decisions have been awaiting implementation on three allotments (#2538, 2591 and 2619). Grazing management changes have occurred on 13 of the 16 allotments, emphasizing cool season grazing (winter or early spring) over warm season grazing (late spring and summer). As in Segment 1, limiting grazing to seasons when river flow is high promotes growth of grazed vegetation and enhances the river's ability to serve as an effective barrier to cattle movement (see Grazing discussion for Segment 1).

Current grazing management practices were judged by an interdisciplinary team to be appropriate for protecting and enhancing river values on 98% (106.7 miles) of the public river bank miles in this segment. Implementation of grazing decisions resulting from this plan will enhance ORVs on the remaining 2% of the public river bank miles.

Wilderness

There are three Wilderness Study Areas along this segment of the John Day River. The North Pole Ridge WSA is 7,609 acres, Thirtymile WSA is 7,538 acres, and the Lower John Day WSA is 19,587 acres.

Wilderness values identified in the wilderness review process for these three WSAs are naturalness, opportunities for solitude and primitive and unconfined recreation, critical anadromous fish habitat, Columbia River Basalt Formations, outstanding scenic qualities, cultural sites, a potential natural community of bluebunch wheatgrass, and protected plants and wildlife. Detailed Wilderness inventory information on each of these WSAs is available from the BLM in Prineville.

The BLM acquired 1,240 acres of private land adjacent to North Pole Ridge WSA in 1998, through a land exchange process. The BLM included these lands in the North Pole Ridge WSA through the North Pole Ridge Coordinated Resource Management Plan (USDI-BLM 1998e), a public planning process.

The Wilderness review process requires BLM to recommend to the U.S. Congress which WSAs are suitable for Wilderness designation and which are not. Congress then makes the final decision as to which WSAs are designated Wilderness and which are released from further consideration. The BLM recommended to Congress that the three WSAs in this segment are suitable for Wilderness designation. These areas will be managed so as not to impair their suitability for protection as Wilderness until Congress decides whether or not to designate them. Management of the WSAs is discussed in detail in the *BLM Interim Management Policy and Guidelines for Lands Under Wilderness Review* (USDI-BLM 1995b).

Recreation

Oregon River Tours, a guidebook for Oregon rivers, states that the lower John Day River rates high on the list as a "scenic desert wilderness river tour" (Garren 1979). This description is especially applicable to Segment 2, where a combination of abundant public land, outstanding scenery, and limited road access creates excellent opportunities for recreation in a primitive setting. The undeveloped, largely natural viewshed provides visitors with a sense of wildness. In fact, two-thirds of this river segment flows through designated WSAs. Since road and foot access is extremely limited, recreationists primarily access this remote segment by boat for fishing, camping, hunting, wildlife watching, photography, hiking, and swimming. Fishing for smallmouth bass and steelhead is the most popular activity, followed by scenic floats, and hunting for deer and chukar. Floatboating is popular during late spring and early summer when optimum weather, fishing conditions, and ideal river flows

overlap, and in the fall to access hunting areas. Primary public access is by boat via the BLM launch site at Clarno. Motorized users can also access this segment from October 1 to May 1 by traveling upstream from Cottonwood Bridge, located in Segment 1. Motorized boating use is not permitted in this segment between May 1 and October 1. The river in this segment is characterized by long, quiet stretches broken by one Class III/IV rapid (Clarno), one Class III rapid (Basalt), and occasional Class I and II rapids. Floating this 70-mile segment generally takes about five days.

Clarno Bridge serves as a major launch point for the 70-mile Clarno-to-Cottonwood float trip, and in 1998, most of the estimated 1,900 people making the trip launched from this site. A small percentage of boaters floating this segment chose to pay the private landowner for road access to a BLM launch point approximately 12 miles downstream at Butte Creek. In the past, the BLM provided a primitive launch and a boater registration station at Butte Creek. As of 1999, fee access to Butte Creek road and the primitive launch is no longer available, due to a change in private ownership. In 1998, an estimated 386 groups floated this segment, averaging 4.9 persons per group. The average trip length for this segment was 4.7 days, accounting for approximately 8,800 boater use days in 1998.

A total of six motorized trips were registered at Clarno and Cottonwood in 1998, one in March, three in April, and two in October. The direction of travel for these trips is unknown. Assuming that each of the trips traveled into Segment 2, the six trips represent four motorized boating use days in March, 21 motorized boating use days in April, and 12 motorized boating use days in October, accounting for 37 motorized boating use days in Segment 2 in 1998. No motorized use was recorded in Segment 2 during November 1998. The most popular fishing seasons are May through July for smallmouth bass, and September and October for steelhead. Hunting seasons run from late August through mid-January for upland birds, and from August through November for big game. The portion of this segment from Thirtymile Creek to Cottonwood Bridge is within the John Day River Wildlife Refuge. No waterfowl hunting is allowed inside the refuge.

The Clarno Recreation Site is the most developed recreation site in this segment. It is owned by Oregon Parks and Recreation Department (OPRD), managed cooperatively by OPRD and BLM under a long-term agreement, and maintained by the BLM. The site serves as the major launch point for trips to Cottonwood Bridge and also as the main take-out point for multi-day boating trips originating upstream at Service Creek and Twickenham bridge. The site is also used by local residents for fishing, picnicking, swimming, and by travelers as a highway rest area. Facilities at this site include a primitive boat launch, a boater registration station, parking, vault toilets, and a river-toilet dump station. Overnight camping is not allowed. On busy weekends during boating season, the demand for launch lanes and parking space far exceeds the available facilities, and boaters must wait in line to launch or take-out and park along the highway right-of-way.

The Clarno area is a popular site for recreation activities. A BLM-maintained road on the west side of the river, downstream of Clarno bridge, provides access to approximately three miles of river frontage and neighboring uplands in the vicinity of the "Clarno Homestead" and **Sorefoot Creek**. This area is used for dispersed camping; nature study; boat landing; fishing; waterfowl and upland game bird hunting; and big game hunting. Upland game bird hunting became a recreational opportunity following a land exchange in 1992 and subsequent wildlife habitat improvement projects, including establishment and maintenance (via irrigation) of wildlife food and cover plots. Opportunities for this type of activity are rare in Segment 2 and, therefore, access to this opportunity in the Clarno area has increased and diversified recreational opportunities in this segment. Off-road vehicle use also occurs in the area, and resource damage attributed to off-road vehicle use is becoming an increasingly common occurrence.

In a preliminary survey of sites suitable for dispersed camping within this segment, the BLM identified approximately 78 sites located on public land, a few of which may be large enough to accommodate more than one group. Some popular dispersed campsites were found to be located on private land. Most campsites in this segment are in good condition, but some of the most popular sites are subject to bank erosion, soil compaction, loss of vegetation, tree cutting, trash, constructed furniture, fire rings scars, and human waste.

Most past commercial boating trips within this segment began at Clarno or Butte Creek. Some outfitters have agreements with private landowners to launch from private lands, which offer the flexibility to run shorter trips to meet customer desires. In 1998, during the time period of March through August, and October and November, commercial use of this segment included 28 trips, totaling approximately 899 customer use days and 185 guide days (Table 2-V).

Table 2-V. Comparison of Boating Use Levels for 1998 in Segment 2

Month	Non Motorized				Motorized				Total			
	Launches	Boats	People	Use Days	Launches	Boats	People	Use Days	Launches	Boats	People	Use Days
January	0	0	0	0	0	0	0	0	0	0	0	0
February	2	6	17	55	0	0	0	0	2	6	17	55
March	7	17	35	194	1	1	4	4	8	18	39	198
April	17	30	68	269	3	3	17	21	20	33	85	290
May	57	142	308	1,351	Closed				57	142	308	1,351
June	129	323	683	2,927	Closed				129	323	683	2,927
July	55	121	229	1,234	Closed				55	121	229	1,234
August	2	14	24	140	Closed				2	14	24	140
September	3	3	17	45	Closed				3	3	17	45
October	30	55	110	730	2	2	4	12	32	57	114	742
November	1	9	10	70	0	0	0	0	1	9	10	70
December	0	0	0	0	0	0	0	0	0	0	0	0
Total	303	720	1,501	7,015	6	6	25	37	309	726	1,526	7,052

Travel direction of motorized launches is unknown, therefore motorized launches occurring at Clarno or Cottonwood Bridge, with potential travel in Segment 2, are included.

Where a trip took place in more than one segment, the number of days in each segment is estimated.

Data does not include administrative trips conducted by BLM, OSP, Co. Sheriff, etc.

Based on field checks, approximately 80% of parties register. Multiply the above figures by 1.25 for a corrected estimate of actual use.

Average party size for Segment 2 = 4.9 persons.

Average trip length for Segment 2 = 4.7 days.

Average number of persons per watercraft for Segment 2 = 2.1 persons

Access

Public road access to the river within this segment is available only in the Clarno area. The Clarno Recreation Site and boat launch are located where State Highway 218 crosses the John Day River.

A dirt road provides access to 3.5 miles of BLM-managed land along the river's west bank, just north of State Highway 218 and across from the Clarno Recreation Site. This area is managed by the BLM for wildlife habitat and recreation use. It is popular for bird hunting, camping and fishing, and has no developed facilities.

No public road access to the river exists between Clarno to Cottonwood Bridge, a distance of about 70 miles. About a dozen private, primitive dirt roads reach the river in this segment, but there is no legal public access by these routes.

Public access was historically available via county road to blocks of public river frontage on the east side of the river, beginning about three miles downstream of the Clarno Bridge. This road is now closed to the public, approximately 0.5 mile from State Highway 218. The status of legal public access is unclear beyond this point.

Segment 3: Clarno to Service Creek

Location and Characteristics

This is a 48-mile segment between Clarno and Service Creek. This segment is designated as a State Scenic Waterway and federal Wild and Scenic River, as are Segments 1 and 2. The federal Wild and Scenic River designation ends at Service Creek, but the State Scenic Waterway extends into Segment 4 to Parrish Creek. Segment 3 has wide valleys with high, colorful hills and rimrock in some areas. The segment contains agricultural lands, especially hay fields and pastures. This segment is in a remote setting, but roads and human-made structures are more numerous than in Segment 2.

The Clarno area is a popular site for recreation activities. Located on the west side of the river, downstream of Clarno bridge, is a BLM-maintained road that accesses approximately three miles of river frontage and the neighboring uplands, in the vicinity of the "Clarno Homestead" and **Sorefoot Creek**. This area is currently used for dispersed camping, nature study, boat landing, fishing, waterfowl, upland game bird and big game hunting. Beginning with a land exchange in 1992 and subsequent wildlife habitat improvement projects including the establishment and maintenance, via irrigation, of wildlife food and cover plots, this area has offered the recreational opportunity of upland game bird hunting. Opportunities for this type of activity are rare in Segment 2 and, therefore, access to this opportunity in the Clarno area has increased and diversified recreational opportunities in this segment. Off-road vehicle use also occurs in the area and resource damage attributed to off-road vehicle use is becoming an increasingly common occurrence.

Land Ownership and Classification

The BLM administers about half of the river frontage and most of the land near the river in this segment. Lands administered by the BLM are scattered along the river, separated by private land tracts of various sizes. Private lands on the river in this segment are often cultivated and irrigated, especially near Twickenham and Clarno.

The entire segment is designated as a federal Wild and Scenic River. This segment also was designated as a State Scenic Waterway in 1970. The existing State Scenic Waterway classification for this segment is "Scenic River Area." The state guidelines under the existing Oregon Administrative Rules (OAR 736-40-065) describe how lands should be managed under these classifications.

The river serves as a boundary for Sherman, Gilliam, Wasco, Jefferson and Wheeler counties, between RM 95 (about two river miles above Butte Creek confluence with the John Day) and RM 130 (Cherry Creek). Wheeler County has planning and zoning jurisdiction for all lands east of the river, from RM 95 to RM 130 (Cherry Creek). Wheeler County has planning and zoning jurisdiction along both the north and south sides of the river between Service Creek and Cherry Creek.

Wasco County has planning and zoning jurisdiction for private lands on the west side of the river, between RM 95 upstream to Rhodes Creek at RM 122. These lands have been zoned for agricultural use. The purpose of this zone is to protect agricultural uses from encroachment by other, incompatible uses. The lot size minimum for this zone is 80 acres, and there is no administrative mechanism for allowing a variance to this standard.

The Wasco County Comprehensive Plan, Goal 5, acknowledges that the John Day River is a State Scenic Waterway. Because Wasco County has recognized the John Day Scenic Waterway as a Goal 5 resource, they have adopted a special overlay zone entitled the "Natural Areas Overlay." This overlay zone is designed to protect identified natural values along the river by allowing "only uses which will not permanently destroy the natural value."

Wheeler County has planning and zoning jurisdiction on private lands on the east side of the river, between RM 95 and RM 130. These lands have also been zoned for agricultural use. The purpose is to provide areas for the continued practice of agriculture and permit only new uses that are compatible with agricultural activities. Lands

in this zone may be subdivided when lots or parcels created are 160 acres or more in size. The Wheeler County Comprehensive Plan includes a policy that recognizes the existence of the State Scenic Waterway designation. The policy also states that the County will notify OPRD prior to issuing any land use or building permits proposed within a State Scenic Waterway for compatibility review.

Jefferson County has planning and zoning jurisdiction on the west side of the river, from Rhodes Creek at RM 122 upriver to Cherry Creek. These lands have also been zoned for agricultural use. The purpose of this zone is to protect agricultural uses from encroachment by other incompatible uses. The lot size minimum for this zone is 80 acres, and there is no administrative mechanism for allowing a variance to this standard. The Jefferson County Comprehensive Plan acknowledges that the John Day River is a State Scenic Waterway. The county passed an ordinance in May of 1993, stating that it will develop a program to protect cultural and natural resources in the State Scenic Waterway corridor within six months of the completion of the plan. In the meantime, the county will rely on the State Scenic Waterway program and existing standards for stream and rim setbacks of the county's zoning ordinance, to protect resources along the John Day River. Presently, the Jefferson County Plan Policy states that the county will coordinate with OPRD staff when proposals for development are made along the John Day River.

Information and Education

Information bulletin boards are located at Service Creek, Priest Hole, and on private land at Twickenham Bridge. These boards contain boater registration stations, fire regulations, Marine Board regulations, and minimum impact camping requirements. Signs also discourage shooting and garbage dumping, which are common management problems, especially at Priest Hole. BLM personnel and volunteers are present at the Service Creek Recreation Site and Twickenham Bridge on peak days for boat launching to contact boaters and instruct them in minimum impact camping requirements.

Paleontology

This segment is located near the Clarno Unit and the Painted Hills Unit of the John Day Fossil Beds National Monument. Fossil-bearing exposures occur within the river corridor throughout this segment. No formal inventories have yet been conducted within the corridor, but several locations are known to contain, or considered highly likely to contain, significant vertebrate and botanical specimens.

Cultural Resources

River Segment 3 was partially inventoried for cultural resources by Polk (1976). A few prehistoric and historic sites were located during examination of this segment. Cressman (1937, 1950) recorded several pictograph sites and tested a rock shelter on private lands within a portion of this segment. The results of the testing were inconclusive and provided little data. Archaeological work conducted outside the corridor in the Cherry Creek area (USDI-BLM 1986b) revealed intensive occupation occurring after 2,000 years ago. Few inventories have been conducted within the corridor in this segment.

Ethnographically, this segment has been used by both the Tenino group of Sahaptin language speakers and the Northern Paiute who are part of the Numic language group (Ray et al. 1938, Steward 1939). It currently is within the ceded lands of the CTWSRO, although the CTUIR also claim traditional use of the segment (Suphan 1974). Farmer et al. (1973) indicated that an aboriginal trail paralleled the river along this segment and joined another trail near Clarno. The BLM has no knowledge of any Native American Indian religious sites within this particular segment.

This segment contains some interesting historic sites related to transportation and settlement. In the 1860s, the route of The Dalles Military Road passed along the west side of this segment between Cherry and Bridge creeks. Clarno was established in the 1860s by a rancher (Andrew Clarno). A post office was established at this location in the 1870s, but under another place name. The post office was discontinued in 1949. The floodplain zone of this segment has been subjected to farming and ranching activities since this early era.

Water Quantity and Water Quality

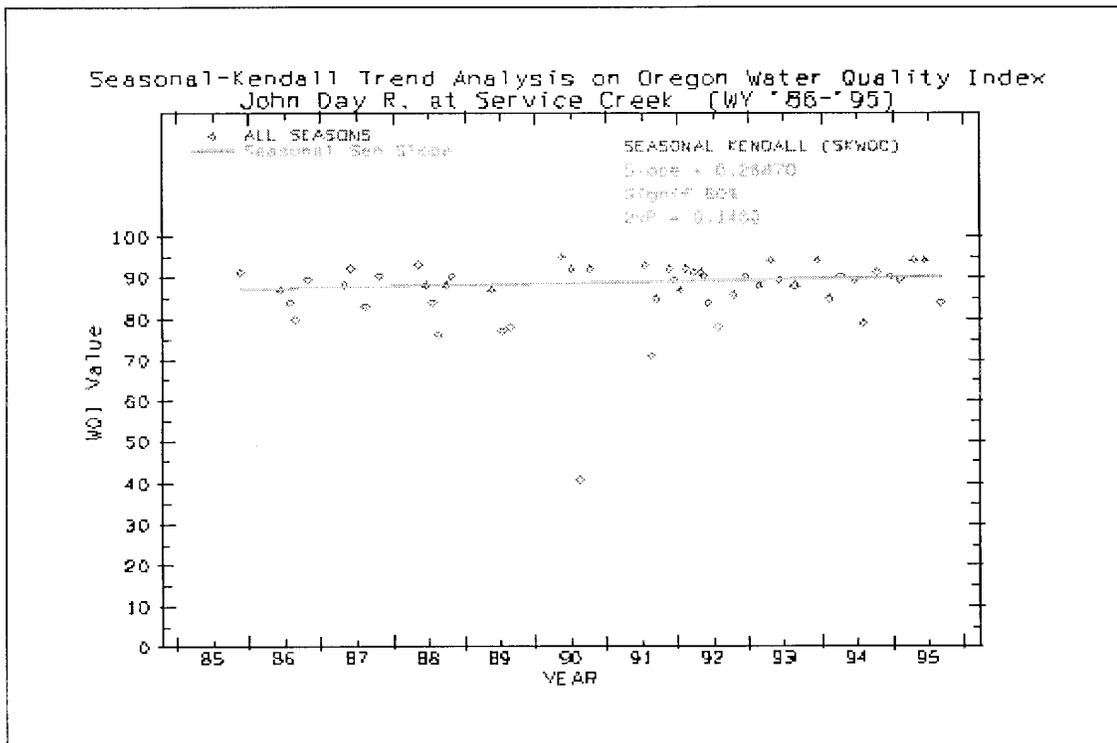
This segment of the subbasin drains an area of about 1,431 square miles, including water from the upper basin. Peak discharge occurs from late-March to early-June, and low flows occur from July through November. Local ground water sources provide some base flows to the river. Major tributaries are Bridge, Muddy, Service, Rowe, and Pine creeks.

Water volume entering this segment is measured by a gauge at Service Creek. Recordings at the gauge, located roughly at the midpoint of the subbasin, provide a record of water production above that point. It indicates that the subbasin above the gauge produces an average of about 1,415,000 acre-feet of water per year (USGS 1999). There is no gauge near Clarno, so the amount of water flowing out of this segment is unknown.

The basin discharge pattern has changed from historic times, in that more discharge now occurs in the winter months, with higher peak flows. High peak flows have great erosive power and can change the stream profile. The maximum discharge, or flood flow, recorded at Service Creek was 40,200 cfs on December 23, 1964. The minimum recorded was 6 cfs on August 23 and 24, 1973.

The ODEQ monitors the John Day River at Service Creek, 28 miles downstream from the confluence of the North Fork. Water quality here is similar to water quality in the North Fork. Since the North Fork contributes 60% of the flow to the John Day, its influence on the water quality parameter of temperature is substantial. Eutrophication during the low flow summer months exacerbates conditions of elevated pH and dissolved oxygen supersaturation (Cude, 2000). Average OWQI scores for the John Day River at Service Creek are "fair" in the summer and "excellent" during the remainder of the year. This site exhibited a significant increase in water quality from 1985 to 1998 (see Figure 2-C)(Cude 2000).

Figure 2-C. Trend Analysis Results for John Day River Near Service Creek



Surface runoff and erosion increase during periods of high flows and in relation to episodic weather events like thunderstorms. As a result, during these periods turbidity, fecal coliform, and sediment transport are elevated. During low flow periods elevated water temperatures reduce dissolved oxygen. This segment was placed on the ODEQ 303(d) list for exceeding state criteria for water temperatures during the summer months (Table 2-W). Since the monitoring data used to determine site water quality is located at the upstream end of this segment some of the temperature condition may be consequent of upstream land management activities or varies in relation to natural background levels. Decreasing water temperatures can result from: 1) radiative (heat) loss from water when the surrounding environment is cooler than the stream (this occurs mainly at night when air temperature is lower); or, 2) input from groundwater or surface flow (such as stream confluences) where the new water input is lower temperature than the water already instream. Instantaneous water temperatures recorded at Service Creek during July and August averaged 22.977 C (73.4° F), and temperatures of samples taken at Cottonwood Bridge about two hours later in the day averaged 23.665 C (74.6° F) for the same dates (Cude 2000-20 data points 1981-1998). During the summer months, there is very little input of water into the system between Service Creek and McDonald Crossing, so decreases in temperature within stream are not likely below Service Creek.

Table 2-W. Percent of Time Water Temperature Exceeded State Water Quality Temperature Standard of 64° for 7-day Running Maximum Temperature at Service Creek

Year	Beginning Date	Ending Date	Percent of Days Exceeded Standard
1993	6/23/93	9/9/93	73
1994	5/12/94	6/18/94	27
1995	7/27/95	9/26/95	98
1997	6/2/97	10/1/97	90
1998	6/16/98	9/07/98	100

The tributaries carry high sediment loads that are elevated during storms or other episodic events. Some of the tributaries are characterized by very fine-textured soils. During periods of heavy rain, these soils are eroded and remain in suspension in the river. This results in elevated turbidity and high levels of suspended solids in this segment.

There are no permitted waste discharges to the streams of this segment. The town of Mitchell has no municipal sewage treatment facilities and relies on individual septic systems.

Ground water quality is unknown for this subbasin due to lack of water quality information. The landfills at Mitchell (Bridge Creek Drainage) and Muddy Creek Ranch could have an effect of introducing pollutants into the ground water. At present, the effect of these facilities on water quality is unknown.

Fish

This segment is part of the middle mainstem subbasin that produces approximately four percent of the John Day basin summer steelhead. As many as 800 adult summer steelhead return annually to spawn. As in Segments 1 and 2, the mainstem in this segment serves primarily as a migration corridor for anadromous runs to spawning and rearing habitat in the upper subbasins (USDI-BLM 1995a). Spawning habitat conditions for steelhead and resident trout exist in Bridge, Service, and Cherry creeks. The BLM manages a large portion of the Bridge Creek watershed and has conducted extensive habitat improvement projects via instream structures and riparian vegetation recovery throughout the system. Production within these streams, however, is limited due to high water temperature and low flows during the summer.

Populations of smallmouth bass and channel catfish are present in this segment of the river. Smallmouth bass, especially, attract anglers from across the nation.

Habitat for salmonid spawning and rearing in the mainstem of the John Day River is limited. The river generally lacks sufficient substrate for spawning and is wide and shallow during periods of rearing. Flow and water temperatures are marginal for salmonid production. During this time, salmonids are typically present within tributaries and do not use the mainstem river as summer habitat. Stream flows between fall and spring, however, are adequate to support migration to tributary spawning and rearing areas and to quality habitat in the upper subbasins. Smallmouth bass reproduction and population numbers do not limit salmonid populations in this area, because smallmouth bass typically occupy different habitat with higher water temperatures than steelhead fry and trout. Warmer water temperatures that limit salmonid presence in the summer tend to promote smallmouth bass populations.

Wildlife

Use of this segment by wildlife is similar to that in Segments 1 and 2, with a few exceptions. Year-long use by Canada geese increases along this segment due to increased forage availability from agricultural lands and the more open nature of the canyon. Irrigated agricultural fields also provide mule deer, elk, and pronghorn antelope with forage high in protein, especially in the late summer and early fall when many native forbs and grass species have lost their nutrients. Year-long use by osprey, valley quail, Western kingbird, and porcupines also increases. In addition, winter use by goshawks, robins, and bald eagles increases in this segment, compared to Segments 1 and 2.

Scenery

The river flows through both rural and semi-primitive settings in this segment. Between Service Creek and Twickenham, the river flows by sandy beaches, juniper flats, and vivid riparian vegetation contrasting with black basalt rock. A small center of agricultural activity occurs where the river valley widens at Twickenham. Agricultural fields are intermittently visible for the next 15 miles down to Cherry Creek (RM 130). In this area, the river flows through colorfully scenic "painted hills," an extension of the geology found in the nearby Painted Hills Unit of the John Day Fossil Beds National Monument. They are composed of multi-colored layers of clay soil with little or no vegetation. Downstream from Cherry Creek, the river begins a 10-mile stretch of meandering curves that wind through a more primitive visual backdrop of steep canyon walls and high, grassy hillsides. Near RM 120, about 11 miles above Clarno, agricultural fields and a few ranch houses become visible along the river. Segment 3, including substantial uplands between Bridge Creek and Service Creek and portions of some tributaries, is classified in the Two Rivers RMP (USDI-BLM 1986) as VRM Class II, in which management activities resulting in changes to the existing character of the landscape may be allowed, provided they do not attract the attention of the casual observer (Appendix O).

Vegetation

Segment 3 averages 11 to 15 inches of precipitation annually. The river drops from 1,640 feet above sea level to 1,380 feet above sea level, and the canyon walls rise to around 3,500 feet above sea level. Soils are generally a clay-loam type with interspersed areas of clay, gravel, and random basalt outcrops. The canyon slopes are similar to Segment 1 (35 to 70%), except for one section between RM 119 and RM 126, where the slopes can vary from 50 to 90%.

Segment 3 is entirely within the Lava Plains ecoregion (Oregon Biodiversity Project 1998). Upland plant communities have been described in ICBEMP as "dry shrub" and "cool shrub" (Quigley and Arbelbide 1997). The vegetation communities are similar to Segment 1. Western juniper is scattered throughout the segment with dense stands occurring in some of the tributary drainages to the John Day River. The most common noxious weed species are diffuse, Russian and spotted knapweeds, yellow starthistle, and dense isolated stands of bull and Canada thistle.

The riparian vegetation and soils (USDA-SCS 1970) are also similar to Segment 1, with one exception; there appears to be an increasing amount of reed canary grass. This introduced species tends to outcompete native species, resulting in a monoculture and reduced habitat diversity. In addition, two extensive willow surveys were completed on public land in this segment and Segment 2 in 1980 and 1995 (USDI-BLM 1996a). In Segment 3, *Salix exigua* (Coyote willow) increased from zero linear miles in 1980, to 6.06 miles in 1995, and the number of acres covered increased from zero to 13.15. For a description of the willow increases on individual allotments in

this segment, refer to Appendix L. An example of existing riparian vegetation on one of the main tributaries to the John Day River in this segment is shown in Appendix M, Photos 15 and 16.

Special status species known to occur in this river segment are *Thelypodium eucosmum* (arrowleaf thelypod) and *Juncus torreyi* (Torrey's rush). Species suspected to occur in the segment are *Carex hystericina* (porcupine sedge), *Mimulus jungermannioides* (hepatic monkeyflower) and *Rorippa columbiae* (Columbia cress).

The functionality of Segment 3 was rated in 1997 using the Proper Functioning Condition Assessment (USDI-BLM 1993, 1998c). The functional rating was "functional-at risk," meaning the riparian zone is in a functional condition, but susceptible to degradation from significant natural events or excessive human-caused influences. The trend rating was "upward," which means the riparian area is improving in its overall condition. The assessment found that the riparian vegetation lacked in diverse age-class distribution and composition of vegetation. Plant species that indicate good riparian, soil-moisture-holding characteristics were well represented, but lacked continuity throughout the segment to rate this characteristic fully functional. In addition, this same lack of continuity existed with species that produce root masses capable of withstanding high flows. Also, there was a lack of vegetation cover present to protect banks and to dissipate flow energy during high water events. The riparian vegetation that is present exhibits high plant vigor. The PFC assessment is not designed to identify the past causes of functional deficiencies in riparian areas, but to ascertain present functionality of the interaction among geology, soil, water, and vegetation. A particular rating is a product of human-caused influences (such as grazing and mining) and natural forces. In addition, the extent of future recovery hinges on management practices and ecological site potentials (Vol. I, Chapter 2, Resource Values, Vegetation and Vol. II, Appendix M).

Agriculture

Agriculture is an important economic use of this segment. Hay is the primary crop grown in the cultivated fields along the river, which are irrigated with water drawn from the river.

Segment 3 contains approximately 97 acres of public lands with water rights (see Table 2-X). These lands are adjacent to approximately 0.75 miles of the John Day River. Ninety five acres are leased for production, generally alfalfa and oat hay. Two acres are utilized for production of cottonwood trees for restoration purposes. Twenty-six acres are scattered parcels incorporated into private agriculture lands and are separated from the river by private property. Approximately 71.5 acres are subject to BLM imposed irrigation restrictions that require terminating irrigation when John Day River flows drop below 390 cfs at the Service Creek Gauging Station (USDI-BLM 1996d).

Table 2 -X. Estimated Public Agricultural Land and Water Use for Segment 3 (Clarno to Service Creek) - 1998

Location River Mile (RM)	Acres per cubic feet per second (cfs)			
	Non-use and/or Instream	Restoration and/or Enhancement	Lease	Total Acres
RM 112	0	0	15.3/0.38	15.3
RM 119	0	0	10.3/0.25	10.3
RM 136	0	0	23.4/0.58	23.4
RM 137	0	2/0.05	46/1.15	48
Total	0	2/0.05	95/2.36	97

Approximate maximum potential water withdrawal based on 1/40 cfs per acre.

Grazing

Segment 3 contains 22 grazing allotments (see Map Plate 2 and Table 3-E). Public land acreage in these allotments vary from 80 to 20,410 acres; public land forage varies from 3 to 1,020 AUMs. Approximately one-third of the 96 river bank miles are public land.

Allotment evaluations have been completed on all but two allotments (#2641 and #2649, neither of which include John Day River riparian areas). Allotment #2649 has public land within the WSR corridor, and #2641 has some private land and no public land in the corridor. Grazing management changes have occurred on 16 of the 22 allotments. The changes have reflected a move away from primarily warm season grazing (late spring and summer), to cool season grazing (winter or early spring) or exclusion in some cases. As in Segments 1 and 2, limiting grazing to seasons when the river flow is high promotes growth of grazed vegetation and enhances the river's ability to serve as an effective barrier to cattle movement (see Grazing discussion for Segment 1).

Current grazing management practices were judged by an interdisciplinary BLM team to be appropriate for protecting and enhancing river values on 94% (30 miles) of public river bank miles in this segment. Implementation of grazing decisions resulting from this plan will enhance ORVs on the remaining 6% of the public river bank miles.

Wilderness

The Spring Basin WSA (5,982 acres) lies to the east of the river and southeast of Clarno in this segment. Although most of the WSA is outside the WSR boundary, a small portion lies within the boundary. The BLM recommended to Congress that this WSA is suitable for designation as Wilderness, but no further legislative action has occurred. Until the wilderness review process is complete, this area will be managed so as not to impair its suitability for designation as Wilderness. Detailed information on the Spring Basin WSA is available from the BLM Prineville District Office. The management of WSAs is discussed in the *BLM Interim Management Policy and Guidelines for Lands under Wilderness Review* (USDI-BLM 1995b).

The BLM completed the Sutton Mountain Land Exchange in 1992. This added 48,000 acres of land in the Sutton Mountain area to public ownership. Most of these acquired lands, as well as 16,500 acres of adjacent public lands, were inventoried for wilderness characteristics. A wilderness inventory analysis concluded that 39,370 of the acres inventoried were found to possess wilderness characteristics and are worthy of further wilderness review. The BLM identified these lands as WSAs through the Sutton Mountain Coordinated Resource Management Plan (CRMP) (USDI-BLM 1996d), a public planning process. A decision was made to identify 29,400 acres as the Sutton Mountain WSA, and 9,970 acres as Pats Cabin WSA, and the BLM began to manage these WSA lands under IMP guidance. Approximately 2,400 acres of the acquired lands adjacent to Pats Cabin WSA, but outside the planning boundary for the CRMP, have yet to be inventoried for wilderness characteristics.

Recreation

Primary recreation opportunities in this segment include fishing, boating, dispersed camping, hunting, hiking, swimming, photography, and wildlife viewing. Fishing for smallmouth bass is very popular, as are scenic float trips, dispersed camping, and deer hunting. Boating generally occurs between April and July, when water levels and fishing conditions are best. Water levels normally drop below adequate boating levels in August, September and early October.

Boating provides the only public access to the river between Service Creek and Twickenham, and from Cherry Creek to Clarno East. Motorized boating is permitted on this segment year-round. Public vehicle access to the river is available between Priest Hole and Cherry Creek and at the Clarno Recreation Site, providing opportunities for vehicle-accessible outdoor recreation activities. Boat launching on public land occurs at Clarno, Priest Hole, Burnt Ranch (undeveloped), and Service Creek. The river in this segment is characterized by long, calm stretches interspersed with numerous Class I and II rapids. There are three Class III rapids (Russo, Homestead and Burnt Ranch). Boating use is summarized in Table 2-Y.

Table 2-Y. Comparison of Boating Use Levels for 1998 in Segment 3

Month	Non-Motorized				Motorized				Total			
	Launches	Boats	People	Use Days	Launches	Boats	People	Use Days	Launches	Boats	People	Use Days
January	1	1	3	3	0	0	0	0	1	1	3	3
February	4	4	8	11	0	0	0	0	4	4	8	11
March	7	10	19	33	1	1	4	4	8	11	23	37
April	26	41	105	256	1	1	4	4	27	42	109	260
May	78	219	499	1,303	0	0	0	0	78	219	499	1,303
June	208	473	1,091	3,488	3	3	8	12	211	476	1,099	3,500
July	135	355	773	1,766	3	3	8	8	138	358	781	1,774
August	30	67	141	301	0	0	0	0	30	67	141	301
September	15	28	57	105	0	0	0	0	15	28	57	105
October	9	13	25	79	1	1	2	10	10	14	27	89
November	1	1	3	3	0	0	0	0	1	1	3	3
December	0	0	0	0	0	0	0	0	0	0	0	0
Total	514	1,212	2,724	7,348	9	9	26	38	523	1,221	2,750	7,386

Travel direction of motorized launches is unknown; therefore, motorized launches at Clarno Bridge with potential travel in Segment 3 are included.

Data does not include administrative trips conducted by BLM, Oregon State Police, County Sheriff, etc.

Based on field checks, approximately 80% of parties register. Multiply the above figures by 1.25 for a corrected estimate of actual use.

Average party size for Segment 3 = 5.3 persons.

Average trip length for Segment 3 = 2.7 days.

Average number of persons per watercraft for Segment 3 = 2.3 persons.

The Service Creek Recreation Site serves as a major launch point for the popular 48-mile float trip to Clarno. A privately owned site adjacent to Twickenham Bridge, 13 miles downstream from Service Creek, has been used as a launch point by the public in the past. However, due to the private landowner's discretion, this site will no longer be available for public use after January 1, 2001. The majority of boaters access the river at Service Creek or Twickenham, but primitive boat access is available at Priest Hole and at Upper Burnt Ranch. Clarno East, 3.5 miles upstream of Clarno, is occasionally used as a take-out point. In 1998, an estimated 3,400 boaters used this river segment, averaging 5.3 persons per group. The average trip length for this segment was 2.7 days, accounting for approximately 9,200 boating use days. This segment of the river is especially popular for one-day or weekend float trips, canoeing, and boaters with limited whitewater experience.

Nine motorized launches were recorded at Clarno in 1998 (one each in March, April, and October, and three each in June and July). Assuming that each of the 9 motorized trips traveled into Segment 3, these trips represent 4 motorized boating use days each in March and April, 12 use days in June, 8 use days in July, and 10 use days in October, totaling 38 motorized use days in Segment 3 in 1998.

The most popular fishing seasons are April through September for smallmouth bass, and the fall months for steelhead. Hunting occurs in the fall, with deer and chukar hunting the most popular. Hunting seasons run from late August through mid-January for waterfowl/upland birds, and from August through November for big game. Hunting in this segment is concentrated where vehicle access is available between Twickenham and Cherry Creek and near Clarno. Low flows do not normally allow for hunting access by boat during the fall and early winter months.

The Service Creek Recreation Site is the most developed recreation site in this segment. It is owned by the Oregon Department of Transportation, and is managed and maintained by BLM under a lease agreement. The site serves as the major launch point for trips to Twickenham and Clarno, and as a take-out point for one-day

trips originating upstream in Segment 4. The site is also used for overnight camping (walk-in sites only), picnicking, fishing, swimming, and by travelers as a highway rest area. Facilities at this site include a primitive boat launch, a boater registration station, parking, vault toilet, picnic tables, and campfire grates.

The only other developed recreation site on public land in this segment is at Priest Hole, where BLM maintains a primitive boat launch and a boater registration station. This site has recently become very popular for dispersed camping, picnicking, fishing, swimming, and tubing. Illegal campfires, shooting, and human wastes are increasing problems. Several undeveloped recreation sites are also popular for recreation activities. Upper Burnt Ranch, which is accessible by foot or four-wheel drive vehicle, is used for dispersed camping, picnicking, fishing, swimming, and for boat access. Recreational use of OHVs at this site is creating ruts, resulting in erosion of red clay soils. Local landowners are frequently called on by recreationists for assistance in freeing vehicles that get stuck at this site. Clarno East is used for camping, picnicking, fishing, and boat access.

In a preliminary survey of sites suitable for dispersed camping within this segment, the BLM identified approximately 51 sites on public land, a few of which may be large enough to accommodate more than one group. In the Twickenham area, a 10-mile section of river with no campsites is available on public land. Several popular campsites are located on private land. Most of the campsites in this segment are in good condition, but some of the more popular sites are subject to bank erosion, soil compaction, loss of vegetation, tree cutting, trash, constructed furniture, fire rings scars, and human waste.

This is the most popular river segment for commercial boating trips, probably because a variety of launch points allows flexibility in scheduling the length and location of trips. In 1998, commercial use of this segment included 118 trips during the time period of January through October, totaling approximately 2,000 customer use days and 900 guide days.

Access

Small and medium-sized blocks of public land, some accessible by vehicle and others by boat, provide a variety of recreation opportunities in this segment. State Highway 218 crosses the John Day River at Clarno. Here boaters can enter or exit the river at the Clarno Recreation Site, which is cooperatively managed by the BLM and OPRD. Clarno Road, a gravel county road, runs south from State Highway 218, paralleling the river on the east side for approximately five miles. The majority of the river frontage along this road is privately owned, but two small sections of public river bank can be reached via the road, including Clarno East, located approximately one mile south of State Highway 218. The last 1/4 mile of county road turns private before intersecting with a public travel route to Spring Basin WSA. Until 1999, the public was allowed to cross the 1/4 mile of private road to access the WSA (5,982 acres) and surrounding public lands, but this piece of private road has recently been closed to public use by the landowner.

Except for Clarno Road, there is no other public road access to the river between Clarno and Cherry Creek, a distance of 20 miles. Between Cherry Creek and Twickenham, a gravel county road roughly parallels the south side of the river for 16 miles, accessing two primitive public access points jointly referred to as Burnt Ranch (RM 132-133), and a primitive vehicle and boat access point at Priest Hole (RM 137). Except for one rough four-wheel drive access point, there is no public road access to the river between Priest Hole and Service Creek (20 miles), although a few private roads are visible from the river. There is a popular river access point on private land at Twickenham Bridge where a paved county road crosses the river. The landowner has allowed boats to be taken out or launched here in the past, but he intends to discontinue this practice on January 1, 2001. The BLM is working to acquire an alternative river access site in the Twickenham area.

Segment 4: Service Creek to Dayville

Location and Characteristics

This river segment lies between the Service Creek/John Day River confluence and the South Fork/mainstem John Day River confluence near Dayville. There are some tourist facilities and two developed public campgrounds. The John Day Fossil Beds National Monument called Sheep Rock Unit is located in this segment. Oregon State Highway 19 and U.S. Highway 26 are located beside the river in this segment. This area is rural with some cultivated fields near the river and high rugged hills off the river, often covered with juniper trees.

The North Fork/mainstem John Day River confluence occurs near the middle of this segment at Kimberly, Oregon. This confluence marks a significant change in the character of the mainstem. From this point downstream, the river often contains enough water to sustain boating during the spring and early summer. From this point upstream, the river rarely contains enough water for boating.

Land Ownership and Classification

Most land along the river in this segment is private, but tracts of BLM-administered land occur frequently enough to provide public river access in many locations. The National Park Service manages the Sheep Rock Unit of the John Day Fossil Beds National Monument. The unit contains about 7 miles of river frontage in the Picture Gorge area.

The federal WSR designation on the mainstem ends at Service Creek and does not extend into this segment. However, the lower 12 miles of this river segment was designated as a State Scenic Waterway (Service Creek to Parrish Creek) in 1988. The State Scenic Waterways classification for this segment is "Recreation River Area."

Wheeler County has zoned lands adjacent to the river between Service Creek and Kimberly for farm use. The purpose of this zone is to provide areas for the continued practice of agriculture and permit only those new uses that are compatible with agricultural activities. Lands in this zone may be subdivided only when lots or parcels created are 160 acres or more in size. The Wheeler County Comprehensive Plan recognizes the existence of the State Scenic Waterway designation and includes the provision that the county will notify OPRD prior to issuing any land use or building permits for development within a State Scenic Waterway.

Grant County has zoned lands adjacent to the river between Kimberly and the John Day Fossil Bed National Monument for farm use. The purpose of this zone is also to preserve the best farm land for agricultural use. This zone is applied to the prime-intensive agricultural lands for farm use, consistent with existing and future needs for agricultural products, open spaces, and resource protection. A lot or parcel of 160 acres is considered a farm unit. A lot or parcel of less than 160 acres can be approved through a conditional use process.

Information and Education

Information bulletin boards are located at the Muleshoe Recreation Site and on private land at the John Day River Bridge in Spray. These boards contain boater registration stations, fire regulations, Marine Board regulations, and minimum impact camping requirements. Signs also discourage shooting and garbage dumping. Public information and education is provided by the National Park Service at the John Day Fossil Beds National Monument, including a visitor center and interpretive displays.

Paleontology

This is the only segment inventoried by BLM for paleontological resources (Hanson and Allen, undated). Several significant vertebrate fossil localities occur in the stretch of the river that passes through the National Park Service's Sheep Rock Unit between Kimberly and Picture Gorge. Other significant vertebrate fossil localities also may occur further downstream in the segment between Kimberly and Spray, which have not been formally inventoried.

Cultural Resources

A small percentage of the public lands in this segment has been inventoried for cultural resources. One prehistoric site and a lithic scatter have been identified on BLM-administered lands in this area. Several pictograph sites occur in Picture Gorge, but have been only partially recorded. These sites are on lands administered by the National Park Service. Based on landforms in the area, additional lithic scatters and pit house villages could be present. However, past agricultural practices and erosional processes may have disturbed any surface evidence.

This segment of the river has been variously occupied and used through time by several different Native American Indian groups, including but not limited to the Sahaptin-speaking Tenino, Umatilla and Cayuse, and the Numic-speaking Northern Paiute (Ray et al. 1938, Suphan 1974). Today, the segment falls within the ceded lands of the CTWSRO, although the CTUIR also claim this segment as a traditional use area. The BLM has no knowledge of any Native American Indian religious sites within this segment.

Historic use of this segment appears to have been principally related to farming and ranching. No historic settlements or travel routes have been recorded.

Water Quantity and Quality

In 1996, the portion of Segment 4 between Service Creek and the North Fork John Day River confluence was placed on the ODEQ 303(d) list for exceeding state criteria for summer water temperatures. The part of Segment 4 from the North Fork John Day River confluence to Dayville was listed on the ODEQ 303(d) list for exceeding state criteria for dissolved oxygen, fecal coliform, flow modification, and summer water temperature.

The hydrologic features of this segment are similar to those in Segment 3. The gauging station at Service Creek is the primary source of flow data for this segment. Extremes for the period of record range from a maximum discharge of 40,200 cfs, to a minimum discharge of 6.0 cfs with a mean annual discharge of 1,960 cfs. Over 70% of the annual runoff occurs from March to June, with peak runoff recorded for April or May (OWRD 1986). Major tributaries entering this segment below Kimberly are: Alder Creek, Kahler Creek, Bologna Creek, Horseshoe Creek, and Parrish Creek. Rock Creek, Holmes Creek, Branson Creek, Dick Creek, and Cottonwood Creek feed this segment above Kimberly.

Water quality in this segment is strongly influenced by discharges from the North, Middle, and South Fork John Day Rivers. Turbidity, erosion, and sedimentation occur during high flows. High water temperature and low dissolved oxygen occur during the low flow periods.

Water quality in this segment is strongly influenced by discharges from the North, Middle, and South Fork John Day Rivers. Turbidity, erosion, and sedimentation occur during high flow. Conversely, elevated water temperature and low dissolved oxygen occur during the period of low flow.

This segment drains a watershed that is about 1,680 square miles. A gauging station located at Picture Gorge has been operable for 61 years. Discharge has ranged from a maximum of 8,170 cfs on December 22, 1964, to a minimum of 1.0 cfs in August and September, 1930. Over 76 percent of annual runoff occurs between February and June, with less than one percent of annual runoff occurring during August. Mean annual flow is 503 cfs. Streams in the subbasin typically stop flowing in the late summer and fall. For example, flows have ceased on Mountain Creek, a tributary to Rock Creek, in 7 out of 13 years (OWRD 1986).

Sedimentation and high water temperature continue to be the water quality parameters that may threatening fish populations in this segment (OWRD 1986).

Fisheries

The river in this segment is generally wide and shallow, with flow and water quality low for anadromous salmonid growth parameters and survival. Specifically, water temperature typically exceed optimum ranges for anadromous salmonid rearing. Good riparian conditions and instream structure are lacking, which limits food production, spawning success, and rearing survival. This segment serves primarily as a migration corridor for

spring chinook and summer steelhead. About 18% of the John Day River spring chinook, as well as 23% of summer steelhead, are produced in subbasins upstream from this segment. Resident populations of rainbow trout, smallmouth bass, and channel catfish exist in this segment. The smallmouth bass production is not as great as downstream areas, due to less favorable habitat conditions, such as water temperatures and low flows.

Wildlife

Wildlife use along this segment is quite similar to Segment 3, with a slight increase in species numbers and diversity due to the increase in woody riparian habitat.

Scenery

Portions of State Highway 19 and U.S. Highway 26 follow the length of this segment, and both routes are recognized as State Scenic Byways for their outstanding scenery. This river segment is located in a setting of deep narrow valleys with varied colors and vegetation. The basalt cliffs enclosing the river at Picture Gorge are an outstanding example. The National Park Service (NPS) manages much of the land in Picture Gorge. The National Park Service management places high priority on preserving the scenic quality of the area while accommodating visitor use. Scenery in the remainder of the river segment includes mostly rural and pastoral settings. Livestock grazing is a common land use of the area, and hay fields often are seen on private lands along the river. Homes, outbuildings, the highway, and farm-related developments (such as fences and water pumps) can occasionally be seen from the river. Segment 4, including substantial uplands between Kimberly and Dayville, and portions of some tributaries, are classified in the Two Rivers RMP (USDI-BLM 1986) and the John Day RMP (USDI-BLM 1985) as VRM Class II, in which management activities resulting in changes to the existing character of the landscape may be allowed, provided they do not attract the attention of the casual observer (Appendix O).

Vegetation

The precipitation in this segment varies by location. The portion from Service Creek to Spray receives an average of 12 to 24 inches annually; and Spray to Dayville receives 10 to 12 inches, as described in ICBEMP (Quigley and Arbelbide 1997). The river elevation rises from 1,640 feet to 2,340 feet above sea level, and the canyon walls rise to 3,700 feet above sea level. Most upland soils are stony and well drained, and the hill slopes tend to be steep (40 - 80%), with the steepest slopes occurring in the Picture Gorge area (60 - 90%).

This segment is entirely within the Lava Plains ecoregion (Oregon Biodiversity Project 1998). Upland plant communities have been described in ICBEMP as "dry shrub" and "cool shrub" (Quigley and Arbelbide 1997). The most common noxious weed species are diffuse, Russian and spotted knapweeds, yellow starthistle, and isolated patches of purple loosestrife.

The riparian plant communities are dominated by sedge and rush species, with groups of Siberian elm, ponderosa pine, clumps of willow and mockorange, clematis and reed canary grass. Upstream from Kimberly, cottonwoods and agricultural fields increase in number.

The only special status species known to occur in this river segment is *Thelypodium eucosmum* (arrowleaf thelypody). Species suspected to occur in the segment are *Carex hystericina* (porcupine sedge), *Juncus torreyi* (Torrey's rush), *Mimulus jungermannioides* (hepatic monkeyflower) and *Rorippa columbiae* (Columbia cress).

A Proper Functioning Condition Assessment was completed for Segment 4 in 1997 (USDI-BLM 1993, 1998c). The segment was divided into two sections. The functional rating for the section from Service Creek to Kimberly was "functional-at risk," meaning the riparian zone is in a functional condition, but susceptible to degradation from significant natural events or excessive human-caused influences. The trend rating was "upward," which means the riparian area is improving in overall condition. The assessment found the riparian vegetation lacked in diverse age-class distribution and composition of vegetation. Plant species that indicate good riparian, soil-moisture-holding characteristics were well represented, but lacked continuity throughout the segment to rate this characteristic fully functional. The vegetation that produces root masses capable of withstanding high flows was rated as "functional." However, there was a lack of vegetation cover present to protect banks and to dissipate flow energy during high water events. The observed riparian vegetation did not exhibit the high plant vigor necessary

for a functional rating. In addition, the assessment indicated this part of the segment would benefit from the presence of large woody material to capture bedload, help develop floodplains, and dissipate energy during high water. The material was not present, however, in sufficient quantities to be beneficial, and the riparian area was not an adequate source of this material for the near future. A PFC assessment is not designed to identify the past causes of functional deficiencies in riparian areas, but to ascertain present functionality of the interaction among geology, soil, water, and vegetation. A particular rating is a product of human-caused influences (such as grazing and mining) and natural forces. In addition, the extent of future recovery hinges on management practices and ecological site potentials (see Vol. I, Chapter 2, Resource Values, Vegetation and Vol. II, Appendix M).

Segment 4 was divided into two sections. The functional rating for the section from Kimberly to Dayville, was “functional-at risk.” The trend, however, was “not apparent,” which means it could not be determined if functionality of the riparian zone is improving or declining. The assessment rating found riparian vegetation on the borderline, between lacking and not lacking in diverse age-class distribution and composition of vegetation. The same borderline rating existed between plant species that indicate good riparian, soil-moisture-holding characteristics and vegetation that produces root masses capable of withstanding high flows. There was adequate vegetation cover to protect banks and to dissipate flow energy during high water events, and the riparian vegetation exhibited high plant vigor. Large woody material was not present in sufficient quantities to be beneficial.

Agriculture

Agriculture traditionally has been the principal industry of this river segment. Cultivated fields are common on private lands along this segment. They are used primarily for growing hay and are irrigated by water from the John Day River.

Grazing

There are 21 BLM-administered grazing allotments along river Segment 4 (see Map Plate 2, Table 3-E, and Appendix L).

Recreation

Recreation opportunities available in this segment include driving for pleasure, dispersed and developed camping, picnicking, fishing, boating, hunting, wildlife viewing, swimming, tubing, and nature study. Public access is available at numerous locations along State Highway 19 and U.S. Highway 26, although many of these public tracts are not marked on the ground. Boating is feasible below Kimberly, and boating access is available at the Muleshoe Recreation Site, the “wooden bridge” (RM162), Shady Grove Recreation Site, a highway right-of-way at the Kimberly Bridge, and from a private launch in Spray. Many visitors are attracted to the Sheep Rock Unit of the John Day Fossil Beds National Monument. The river in this segment is characterized by mostly calm water with occasional riffles and Class I rapids.

Boating use in this segment consists mostly of day trips of varying lengths and locations between Kimberly and Service Creek. Although information collected from boater registration stations is not complete in this segment due to the many possible launch points, 55 groups registered in 1998, accounting for 284 boating use days. Motorized use is permitted on Segment 4, although no motorized use days were registered.

Bank and boat fishing are popular for both smallmouth bass and steelhead, as is hunting for chukar and deer. Some hiking occurs in the John Day Fossil Beds National Monument, but no other public hiking trails are present in this segment. Areas in the vicinity of the John Day Fossil Beds National Monument contain outstanding fossils of national and international significance. Collection of vertebrate fossils on public lands is not permitted, but visitors can still enjoy the experience of exploring for and viewing these glimpses of the past.

Developed camping is available at the Muleshoe Recreation Site, located two miles east of Service Creek. Facilities at this location include picnic tables, campfire grates, vault toilets, a bulletin board, a primitive boat launch, and a boater registration station. A day use area is available at the Shady Grove Recreation Site, about five miles east of Spray, and includes a picnic table, vault toilets, and a primitive boat launch. A private

recreation site at the John Day River Bridge in Spray allows boat launching for a fee and includes a boater registration station. Developed recreation sites managed by the NPS and BLM are popular and well used, as are many of the undeveloped sites on public land.

An inventory of dispersed river campsites has not been completed for this segment, since it is primarily used for day trips. However, it is estimated that there are 36 undeveloped areas along the river that could be used for camping, 16 of which are on public land.

Commercial permittees reported 13 trips on Segment 4 in 1998, accounting for 123 boating use days. These occurred primarily in August and September, when low water levels make it time consuming to negotiate long sections of river as in Segments 2 and 3.

Access

State Highway 19 parallels the river in this segment, from Service Creek until it meets U.S. Highway 26. U.S. Highway 26 parallels the river for five miles to the end of the segment at Dayville. This river segment intersects several public land parcels, including over four miles of NPS land within the Sheep Rock Unit of the John Day Fossil Beds National Monument. Public boat access is available at the Muleshoe Recreation Site, at the "wooden bridge" at RM 162 (undeveloped), at the Shady Grove Recreation Site, and at the Kimberly Bridge. River access is available from private land for a fee at the John Day River Bridge in Spray.

Segment 5: Dayville to Headwaters

Location and Characteristics

Segment 5 lies between the South Fork/mainstem confluence and the mainstem headwaters in the Malheur National Forest. The John Day River originates in ponderosa pine-covered mountains and flows into the John Day Valley of grass and sagebrush, passing the towns of Prairie City, John Day, Mount Vernon, and Dayville. Livestock grazing and growing hay are the primary agricultural uses in this segment.

This segment and its tributaries comprise the upper mainstem John Day River subbasin, draining an area of approximately 1,070 square miles. Subbasin elevations start above 9,000 feet and drop to 2,230 feet, and range from forest and range land in the Blue Mountains to lower bench lands and irrigated valleys. Major tributaries to this segment include Dixie Creek, Strawberry Creek, Canyon Creek, and Beech Creek. The South Fork, a separate subbasin, marks the boundary between Segments 4 and 5.

Land Ownership and Classification

The headwaters of Segment 5 originate in the Malheur National Forest and flow eight miles to the National Forest boundary. The river then flows through mostly private lands for the rest of this segment. A few small tracts of BLM-administered land are scattered among the private lands, but these tracts do not involve river frontage. The OPRD operates the 21-acre Clyde Holliday State Park, located on the river, seven miles west of the town of John Day on U.S. Highway 26. There are no State Scenic Waterways or Wild and Scenic River designations in this segment.

All of this river segment is located in Grant County, which has planned and zoned lands adjoining the river for exclusive farm use from Dayville to RM 276 and for forest use from RM 276 to the headwaters.

Lands zoned for forest use in this segment are designated Forest 80 (160), which is applied to the highest and best-producing forest lands. Its purpose is to conserve and protect forest lands for commercial growing and harvesting of timber and to protect other forest uses, such as watersheds, wildlife habitat, scenic and recreational values, and livestock grazing. In an F-80 (160) zone, the minimum lot size for new farm or forest parcels is 80 acres and the total number of home sites cannot exceed an overall density of one dwelling for every 160 acres.

Land zoned for farm use is designated either EFU-40 or EFU-80. The purpose of this zone is to preserve the best farm land for agricultural use. This zone is applied to the prime intensive agricultural lands for farm use consistent with existing and future needs for agricultural products, open spaces, and resource protection. A lot or parcel of 160 acres or greater is considered a farm unit. A lot or parcel of less than 160 acres can be created as per the numerical value provided after the letters EFU (80) or (40), if approved through a conditional use process.

Information and Education

Public information and education within Segment 5 is primarily provided at the Clyde Holliday State Park.

Energy and Minerals

Mining is a common use in the upper portion of Segment 5. Placer mining occurs on Canyon Creek, upstream from the mouth, and there is potential for moderate-sized operations to mine the bench gravel. Most lode mines have ceased operation.

Cultural Resources

Because of the small amount of public land in this segment, limited cultural resource inventory work has been done. No prehistoric sites have been recorded on public lands within this segment. Few, if any, sites would be expected based on the landforms present on public lands within this segment. However, several sites have been documented north of Long Creek Ranger District and south of Bear Valley Ranger District on USFS-managed lands in the subbasin. Prehistorically, the upper basin was a transition area between peoples of the Great Basin and the Columbia Plateau.

This segment of the river has been variously occupied and used through time by several different Native American Indian groups, including but not limited to the Sahaptin-speaking Tenino, Umatilla and Cayuse, and the Numic-speaking Northern Paiute (Ray et al. 1938, Suphan 1974). Today, this area is within the ceded lands of the CTWSRO, although the CTUIR and the Burns Paiute also claim this area as a traditional use area. The BLM has no knowledge of any Native American Indian religious sites within this segment.

Gold mining is historically important to this area. The discovery of gold in the 1860s promoted settlement of the area, especially at Dayville, Canyon City and Prairie City.

Kam Wah Chung State Park, located in the city of John Day, is a museum preserving the site building and supplies of a nineteenth-century Chinese pharmacy.

Water Quantity and Quality

Segment 5 and its tributaries contribute about 246,600 acre-feet annually to the John Day River system. Peak discharge from the subbasin generally occurs between March and early June, and the lowest flows occur during August and September.

Water quality tends to be "fair" in the upper subbasin during most of the year (Cude 2000). An exception is reported for the late summer months (approximately June through September) when water temperatures are elevated. Irrigation return flow is a major source of nutrient non-point source pollution. Cattle feedlots along the river could potentially be identified as point sources of pollution. Cattle grazing, road building, and timber harvesting have altered the watershed by compacting soils and reducing vegetative cover, increasing soil erosion potential, decreasing precipitation infiltration and storage, and increasing runoff. The most developed area in the basin is the upper John Day River valley, from Dayville to Prairie City. There are no municipal sewage point source discharges to the streams of the subbasin, although Mount Vernon does have a discharge permit.

The part of Segment 5 from Dayville to Reynolds Creek was listed on the ODEQ 303(d) list as exceeding state criteria for dissolved oxygen, bacteria, flow modification, and summer water temperature. Some livestock feeding operations along the stream could be identified as point sources of pollution when reviewed by ODEQ. The rest of Segment 5 was listed for summer water temperatures for bull trout.

Water quality generally exhibits satisfactory chemical, physical, and biological quality. Higher than normal turbidity and temperatures occur in relation to high and low streamflows, respectively. Streams with low elevation headwaters are more likely to have elevated water temperatures. Depending on soils, geology, and land use, some tributaries exhibit erosion and sedimentation problems. High bacterial levels downstream from John Day threaten the use of the segment for swimming (OWRD 1986).

Fisheries

The most common anadromous fish in this segment are summer steelhead, spring chinook salmon, and Pacific lamprey. Resident fish include bull trout, rainbow (redband) trout, mountain white fish, and westslope cutthroat trout in tributaries.

Mining, road building, logging, livestock grazing, and other resource uses have contributed to stream sedimentation and turbidity, causing fish habitat to be degraded. Channelization of the river for agriculture and repair of the 1964 flood damage has reduced habitat diversity, causing a major reduction in fish habitat. Livestock grazing and road building also have contributed to a decrease in streamside shading, contributing to elevated summer stream temperatures that limit fish production, growth and distribution. The optimum water temperature for salmonid fish habitat in the John Day River is 55° F, with a maximum daily average temperature of 60° F. However, water temperatures average 68° F daily in normal years (years with normal to average climate and stream flow). Instream flows in August and September often are too low to support healthy fish populations. The BLM monitors water temperature in this segment at the National Forest boundary.

Wildlife

Wildlife diversity in this segment is somewhat improved over diversity in the lower river segments, due to increased cottonwood stands and other riparian tree and shrub species. Raptor use along this segment increases dramatically, due to the availability of perches and prey species, such as Townsend's ground squirrels and mice. Redtail hawks are commonly found yearlong. Rough-legged hawks, goshawks, Coopers hawks, migrants such as pine grosbeaks, Oregon juncos, mountain bluebirds, and robins are frequently present in the area.

Bald eagle use in this segment is high due to presence of cottonwood stands for nocturnal roost sites and an increase in food supply. Several roost sites have been documented as consistently used, although it appears that use of particular trees may not be critical due to the availability of additional trees.

The agricultural lands and native range in this segment are used heavily by mule deer throughout the year. The most concentrated use of agriculture lands occurs in late fall and early winter. Native winter range has the most concentrated use in winters with increased snow accumulations at the higher elevations.

Scenery

Most of this segment is in a rural setting. The river begins in the forested Blue Mountains, but soon enters a wide, flat, agricultural valley bordered to the south and north by mountains. To the south, the peaks of the Strawberry Range are an impressive backdrop, especially when snow-laden. The valley itself is mostly comprised of irrigated, green pasture-lands and livestock-grazed hills of grass, sagebrush, and juniper. The river passes through four small communities, John Day being the largest.

Segment 5, from Dayville to 7 river miles upstream of Prairie City, is classified in the John Day RMP (USDI-BLM 1985) as VRM Class II, and from this point upstream to the Forest boundary as VRM Class III. Within the VRM Class II area, which includes substantial uplands east of John Day, and portions of some tributaries, management activities resulting in changes to the existing character of the landscape may be allowed, provided they do not attract the attention of the casual observer. Within the Class III area, management activities that result in changes to the existing character of the landscape may be allowed, but should not dominate the view of the casual observer (Appendix O).

Vegetation

The precipitation in Segment 5 increases from 12 to 24 inches annually between Dayville and the Blue Mountain Hot Springs area. Beyond the hot springs, precipitation increases to greater than 24 inches as described in ICBEMP (Quigley and Arbelbide 1997). River elevation rises from 2,340 feet to around 5,800 feet above sea level at the headwaters. The majority of this segment consists of mountain foothills rising gradually (25 - 40%) from a broad valley bottom to elevations of 4,000 to 5,000 feet above sea level. Below the Deardorff Creek area, the river generally flows through cultivated fields. Above Deardorff Creek, the canyon narrows and slopes become steeper (30 - 45%) with some slopes reaching 80%. Near the headwaters, the drainage narrows greatly and the surrounding slopes reach elevations of 7,000 feet or more. The soils are generally well drained, gravelly loamy sands and gravelly clay loams with slight erosion hazard.

The lower part of Segment 5 lies within the Lava Plains ecoregion, and the portion between Prairie City and the headwaters is in the Blue Mountains ecoregion (Oregon Biodiversity Project 1998). Upland plant communities have been described in ICBEMP as "dry shrub" and "cool shrub" (Quigley and Arbelbide 1997).

The wide meadows along this segment are historic floodplains, used primarily for agriculture and ranching activities. Much of the original riparian vegetation of cottonwoods and willows has been replaced by meadow grasses and alfalfa. Some areas along the river, such as Dayville and Prairie City, still retain large cottonwood and willow stands.

A Proper Functioning Condition Assessment was completed in 1997 (USDI-BLM 1993, 1998c). This assessment was limited to the portion of this segment from Dayville to John Day. The functional rating was "functional - at risk," which means the riparian zone is in a functional condition, but susceptible to degradation from significant natural events or excessive man caused influences. The trend rating was "upward," which means the riparian area is improving in overall condition. The assessment rating found the riparian vegetation on the borderline between lacking and not lacking in diverse age-class distribution and composition of vegetation. The same borderline rating existed between plant species that indicate good riparian, soil-moisture-holding characteristics and vegetation that produces root masses capable of withstanding high flows. There was adequate vegetation cover present to protect banks and to dissipate flow energy during high water events, and the riparian vegetation exhibited high plant vigor. The assessment indicated this part of the segment would benefit from the presence of large woody material to capture bedload, help develop floodplains, and dissipate energy during high water; however, the material was not present in sufficient quantities to be beneficial, and the riparian area was not an adequate source of this material for the near future. A PFC Assessment is not designed to identify the past causes of functional deficiencies in riparian areas, but to ascertain the present functionality of the interaction among geology, soil, water, and vegetation. A particular rating is a product of human-caused influences (such as grazing and mining) and natural forces. In addition, the extent of future recovery hinges on management practices and ecological site potentials (see Vol. I, Chapter 2, Resource Values, Vegetation and Vol. II, Appendix M).

Agriculture and Grazing

The private land along this segment is primarily used for livestock grazing and hay production. The few small scattered parcels of BLM-administered land in this segment are not located on the river, but are used primarily for livestock grazing. Lands in the uppermost portion of this segment on the National Forest are predominantly used for livestock grazing, timber harvest, and recreation.

There are three BLM-administered grazing allotments on Segment 5 (see Map Plate 3, Table 3-E, and Appendix L).

Recreation

Little public recreation occurs on this segment due to the lack of public land. Private lands offer some recreation opportunities such as hunting, fishing, gold panning, and swimming for friends and family of the landowners. Some hunting and fishing also may occur in the upper reaches, on the parcels of USFS land or within the state land parcel near Dayville. The OPRD operates Clyde Holliday State Park, located seven miles west of John Day on U.S. Highway 26. This park offers 30 campsites with electric hookups, restrooms and showers, a hiker/biker primitive camping area, dump station, and an 8-acre day use area with over a 0.25 mile of river frontage. The OPRD also manages the historical museum at Kam Wah Chung State Park in John Day.

Access

Public river access is limited in this segment due to the extensive private land adjacent to the river. U.S. Highway 26, however, follows the river for 53 miles from Prairie City to Dayville. Highway 26 intersects a small parcel of public land about seven miles east of Dayville (RM 220). The Clyde Holliday State Park provides limited access to the river. A paved county road follows the river through private land for 10 miles southeast of Prairie City before entering about 4 miles of mixed USFS and private lands. A paved USFS road (#14) follows the river to near the headwaters. This road and the river are mostly bordered by USFS land for 14 miles, but they do intersect a few parcels of private land.

Segment 6: North Fork - Kimberly to Monument

Location and Characteristics

This segment lies between the mainstem/North fork John Day River confluence (at Kimberly) and the community of Monument, a distance of 16 miles. The river valley in this segment is very wide with much of the bottomland in cultivated fields. State Highway 402 parallels the river here for 14 miles.

There are several farms and ranches along the river and large fruit orchards near Kimberly. There are three BLM recreation sites on the few tracts of public land in this segment that provide river access .

Land Ownership and Withdrawals

Land along the river in this segment is predominantly private. The BLM administers a total of about 3 miles of river frontage in this 16-mile segment. The BLM-administered lands primarily occur near Kimberly, where two BLM campgrounds are located.

All of this river segment is located in Grant County and is planned and zoned for farm use to preserve the best farm land for agricultural purposes. This zone is applied to the prime-intensive agricultural lands consistent with existing and future needs for agricultural products, open space, and resource protection. A lot or parcel of 160 acres or greater is considered a farm unit. A lot can be created as per the numerical value provided after the letters EFU (20), if approved through a conditional use process.

Information and Education

Information bulletin boards are located at Big Bend, Lone Pine, and Monument recreation sites, and a boater registration station is located at Monument.

Cultural Resources

This segment has a very small amount of public land within the river corridor. Several small cultural resources inventories have been conducted within this segment, but no sites were found. Given the land forms occurring on public lands within the river corridor, expectations are low for discovering significant prehistoric cultural resources. Farmer et al. (1973) indicate a prehistoric trail route passing along the north side of the river in this segment.

This segment of the river has been variously occupied and used through time by several different Native American Indian groups, including but not limited to the Sahaptin-speaking Tenino, Umatilla and Cayuse, and the Numic-speaking Northern Paiute (Ray et al. 1938, Suphan 1974). Today, this segment falls within the ceded lands of the CTWSRO, although the CTUIR and the Burns Paiute also claim this segment as a traditional use area. The BLM has no knowledge of any Native American Indian religious sites within this segment.

Historic use of this segment appears to have been principally related to farming and ranching. No historic settlements are recorded for this segment, although a post office was established at Monument in 1874. The 1879 Government Land Office plat maps indicate a road extending between Kimberly and Monument, possibly following the older Indian trail. Its designation is unknown.

Water Quantity and Quality

The North Fork subbasin encompasses an area of about 2,500 square miles in Morrow, Umatilla, Union and Grant counties. The North Fork John Day River flows westward from the Blue Mountains for over 100 miles before entering the mainstem John Day River at Kimberly (RM 184). Subbasin elevations range from about 1,900 feet near the mouth, to over 8,000 feet in the Blue Mountains.

The North Fork contributes over 60% of the average annual discharge of the John Day basin. Average annual discharge at Monument is 945,900 acre-feet (USGS 1999). Peak discharge generally occurs between March and early June, with lowest flows generally during July, August, and September.

The North Fork has the best chemical, physical, and biological water quality in the John Day basin. Water quality is adequate for most beneficial uses, though this segment of the river can be subject to temperatures that exceed ODEQ standards. These conditions may be partially attributed to historic and present land management practices such as logging, road construction, irrigation, and improper livestock grazing that occur in upstream segments or local tributaries. For example, observations and water quality samples collected by ODEQ from Rudio and Cottonwood Creeks indicate the presence of elevated temperatures, low dissolved oxygen, low flows, siltation, bank erosion, and debris accumulation in these streams. River Segment 8 presently has no mining claims within a quarter mile of the John Day River. Historically, there have been many hundreds of claims within the Umatilla and Wallowa-Whitman National Forests, and all but a very small number were dropped in the late 1980s and early 1990s. The residual effects of mining practices on the geomorphology of the North Fork John Day River are minimal.

Segment 6 is included on the ODEQ 303(d) list for high summer water temperatures. According to the North Fork John Day Agricultural WQMP Draft (February 22, 2000), the subbasin has numerous sites with hot water (geothermal) springs, but total flows and the impact to stream temperatures are not fully understood. The ODEQ suspects improved protection of the upper part of the North Fork subbasin has led to the increase in North Fork John Day River water quality (Cude 2000).

Figure 2-D. Seasonal-Kendall Trend Analysis on Oregon Water Quality Index, North Fork John Day River at Kimberly.

The upper reaches of most of the North Fork subbasin are located within the Umatilla and Malheur National Forests. Within these lands, forest canopy, soils, slope, elevation, and land use help determine how much water is produced in the subbasin. The average annual water yield for the subbasin above Monument is 378 acre-feet per square mile. Average annual water yield is considerably greater in the upland forest areas than for the rest of the subbasin.

Fish

The North Fork subbasin is the major producer of wild spring chinook and summer steelhead in the John Day basin. The subbasin contains approximately 72 miles of spring chinook spawning and rearing habitat and 700 miles of steelhead habitat. Approximately 58% of the total basin spring chinook population and 43% of the total summer steelhead population are produced in this drainage. In recent years, as many as 1,555 adult spring chinook and 8,000 adult summer steelhead have returned annually to the subbasin to spawn. In addition, the lower North Fork is the migratory route for runs traveling to and from the Middle Fork subbasin. The North Fork drainage also supports resident fish populations. Smallmouth bass reside in the North Fork below RM 22.6 and resident trout are found throughout the subbasin.

Steelhead, resident trout, and smallmouth bass populations provide a substantial recreational fishery for anglers. Annually, about 10,000 angler use days are spent fishing for steelhead on the North Fork. Trout and bass fishing generate another 2,500 to 5,000 angler use days each year.

Major steelhead-producing streams in this segment include Cottonwood and Rudio creeks. Elevated stream temperatures in the summer may reduce the ability of these streams to support steelhead rearing.

Wildlife

Wildlife habitat diversity in this segment is quite high due to riparian habitat condition and surrounding agriculture fields, with species use being similar to that in Segment 5.

Scenery

This river segment provides a rural setting with farm and ranch houses, barns, orchards and cultivated fields near the river. The river valley here is wide, and the adjacent hillsides are covered with grasses, rock outcrops, and scattered juniper trees. Many people discover this area while driving for pleasure on nearby State Highway 19, which follows the mainstem of the John Day.

Segment 6, including substantial uplands, is classified in the John Day RMP (USDI-BLM 1985) as VRM Class II, in which management activities resulting in changes to the existing character of the landscape may be allowed, provided they do not attract the attention of the casual observer (Appendix O).

Vegetation

The annual precipitation in this segment averages 12 to 24 inches as described in ICBEMP (Quigley and Arbelbide 1997). The river elevation rises from 1,820 feet to around 2,000 feet above sea level. Most of this segment is characterized by agricultural and pasture land rising gradually (3 - 10%) from the river and reaching canyon slopes (45 - 75%) that are 3,200 to 3,500 feet above sea level. The soils are generally well drained, gravelly loamy sands and gravelly clay loams with slight erosion hazard.

This segment lies within the Lava Plains ecoregion (Oregon Biodiversity Project 1998). Upland plant communities have been described in ICBEMP (Quigley and Arbelbide 1997) as “dry shrub” and “cool shrub.”

Land adjacent to the river is used primarily for agriculture and ranching activities. The riparian conditions vary widely, some areas have an extensive overstory of willow, alder, and water birch with an understory of grasses, sedges, and rushes. Other locations have little vegetation, consisting mainly of rock and gravel shorelines. Other vegetation associated with the riparian areas include clovers, clematis, horsetail, rose, bluegrass, and cottonwoods. A Proper Functioning Condition Assessment has not been completed for Segment 6.

The only special status species known to occur in this river segment is *Thelypodium eucosmum* (arrowleaf thelypody). Species suspected to occur in the segment are *Juncus torreyi* (Torrey's rush), *Mimulus jungermannioides* (hepatic monkeyflower) and *Rorippa columbiae* (Columbia cress).

Agriculture and Grazing

Livestock grazing and growing hay in fields along the river are the principal economic uses of this river segment. Lands just off the river, both public and private, are used for livestock grazing during the spring and summer. Livestock, primarily cattle, are fed in concentrated feed lot operations during the winter. These operations occur along the river where cattle are fed the hay grown in the area during the summer. There are 16 BLM-administered grazing allotments on this segment (see Map Plate 4, Table 3-E, and Appendix L).

Recreation

Public recreation opportunities within this segment are limited to the few tracts of BLM administered lands on the river and driving for pleasure on State Highway 402 and other public roads. The public lands provide the opportunity to boat, fish, camp, hunt, view wildlife, swim, and enjoy picnics. The BLM manages two developed campgrounds at Lone Pine and Big Bend, and one day-use site at Monument. Primitive boat ramps are available at Big Bend campground, and at the Monument River Access Park, which serves as a take-out point for day and overnight boating trips originating at various points upstream. Vandalism is a problem at these sites, particularly at Big Bend and Monument.

This river segment has received relatively low public recreation use in the past, but use is increasing. Primary recreational activities include fishing, and camping. The campgrounds in the area receive the most use during

the fall hunting season when hunters use them as base camps to access other public lands in the area. Boating in this segment is primarily associated with fishing and occurs from April through early-July, with use levels very low. No commercial use was reported in this segment during 1998.

Access

State Highway 402 in Grant County closely follows this river segment for 14 miles, from Kimberly to Monument. It intersects two parcels of BLM-administered land in which the Big Bend and Lone Pine campgrounds are located. Big Bend has a primitive boat launch. The balance of river frontage in this segment is privately owned. A river access park is located at Monument.

Segment 7: North Fork - Monument to Camas Creek

Location and Characteristics

This very remote river segment stretches 41 miles between Camas Creek near Dale, downstream to Monument. There is a primitive road adjacent to most of this segment, but occasionally it is impassable in inclement weather and often passable only by four-wheel-drive vehicle. The river flows through some of the finest scenery in Oregon, with abundant wildlife and interesting white water. The river valley is bordered by steep rugged hills covered with park-like stands of ponderosa pine, grass-covered clearings and rock outcrops. The riparian zone and side canyons are forested with ponderosa pine and Douglas fir trees.

There are a few dwellings and commercial structures near the communities of Monument and Dale, with a few ranches in the mid-portion of the segment.

Land Ownership and Classification

There are 41 river miles in this segment. The lands along approximately 26 river miles (63%) are privately owned, approximately 14 miles (34%) are administered by BLM, and only about one mile (2%) is administered by the State of Oregon. The ODFW has acquired a public access easement that includes the graveled road which follows the river from Camas Creek to Potamus Creek (17 Miles) and the lands between the road and the river.

Most of this segment is designated as a State Scenic Waterway. This designation begins at RM 20.2, which is about 3.5 miles upstream from Monument, and continues upstream to the boundary of the North Fork John Day Wilderness (RM 76) in the Umatilla National Forest. The State Scenic Waterway classification for this segment is proposed as "Accessible Natural River Area."

Lands adjoining the river are planned and zoned by Grant County for use as rangeland from RM 20.2 to approximately RM 40. The zone designation is "Multiple Use Range" (MUR-40 [1601]) and is applied to agricultural and non-productive forest lands, managed primarily for range and grazing use. A lot or parcel of 160 acres or more is considered a farm unit in this zone. A lot or parcel of less than 160 acres, but not less than 40 acres, can be approved as a farm unit through a conditional use process. The total number of dwellings allowed in the zone are not to exceed an overall density of one unit for every 160 acres.

Between RM 40 and RM 51, the lands adjoining the river are planned and zoned for forest management, with a Forest 80 (160) zone designation. This zone is applied to the highest and best-producing forest lands. Its purpose is to conserve and protect forest lands for commercial growing and harvesting of timber and to protect other forest uses such as watersheds, wildlife habitat, scenic and recreational values and livestock grazing. In an F-80 zone, the minimum lot size for new farm or forest parcels is 80 acres. The total number of principal and secondary home sites cannot exceed an overall density of one dwelling for every 160 acres.

The remaining upstream segment of the river (above RM 51) is adjoined by lands planned and zoned by Umatilla County for grazing, farm use, and big game winter range. There are two zones that affect the use of these lands. The primary zone designation is Grazing/Farm (GF). The overlay zone designation is Critical Winter Range (CWR). The purpose of the GF zone is to protect grazing lands and other uses such as agricultural cultivation,

watersheds, wildlife habitat and scenic values. In a GF zone, the minimum lot size is 160 acres and parcels less than 160 acres may be allowed through a conditional use process. The density of dwellings allowed in this zone cannot be more than one dwelling for every 160 acres.

The purpose of the overlying CWR zone is to conserve and protect important elk and deer winter range. The dwelling unit density is limited to a maximum of three dwellings within a radius of one-half mile of any proposed dwelling. All requests for dwellings or land divisions that will result in eventual placement of a dwelling are referred to the ODFW for review and recommendation.

Information and Education

There are no public information and education efforts in this segment.

Cultural Resources

No formal inventories of cultural values have been conducted on public lands in this segment. In 1992, however, an informal examination of selected public lands within the corridor did discover one small pit house village. Much of the public land within this corridor exhibits landforms not conducive to a high probability for significant cultural resources.

Segment 7 has been variously occupied and used through time by several different Native American Indian groups, including but not limited to the Sahaptin-speaking Tenino, Umatilla and Cayuse, and the Numic-speaking Northern Paiute (Ray et al. 1938; Suphan 1974). Today, the segment falls within the ceded lands of the CTWSRO, though the CTUIR and Burns Paiute also claim this segment as a traditional use area. The BLM has no knowledge of any Native American Indian religious sites in this segment.

Historical use of public lands within the corridor has been limited to some farming as evidenced by an occasional irrigation feature found on the flats next to the river. All historic structures located along this segment are on private lands.

Water Quantity and Quality

For a general discussion of water quantity and quality in the North Fork John Day River, see Segment 6.

The river flows from an elevation of 2,700 feet at the confluence of Camas Creek, to 2,000 feet at Monument. Flow in this segment is augmented by Fox, Big Wall, Ditch, Stony, Potamus, and Camas creeks, and the Middle Fork John Day River.

Records indicate flows below 10 cfs on the North Fork tributaries, but only Fox Creek experiences periods of no flow.

Observations and water quality samples collected by ODEQ from Fox, upper Big Wall, Ditch, and Potamus Creeks are indicative of elevated temperatures, low dissolved oxygen, low flows, siltation, bank erosion, and debris accumulation as parameters, which may reduce aquatic habitat quality. These conditions can be partially attributed to improper livestock grazing, channelization, logging practices, road construction, and irrigation withdrawals.

Segment 7 is included in the ODEQ 303(d) list because it has exceeded ODEQ standards for temperature during the summer (approximately July and August).

Fish

For a discussion of water and fisheries in the North Fork John Day River, see Segment 6 .

Major steelhead producing streams in this segment include Deer, Wall, Potamus, Ditch, Mallory, and Camas creeks.

Wildlife

Wildlife on this segment is similar to that on Segment 6, with elk and Lewis' woodpeckers being notable additions. Bald eagle use increases in this segment with several documented wintering nocturnal roost sites.

Scenery

This segment contains diverse scenic values that include a wide variety of vegetation, color and interesting land forms. It is noted for its extremely steep hillsides covered with a mosaic of ponderosa pine, grassy meadows, wildflowers, rock outcrops and abundant wildlife.

The middle portion of this segment, between RM 25 and RM 50, is a primitive setting with only a few human-made structures and dirt roads. A rural setting with farms, fields, and livestock exists around the community of Monument. Timber harvesting is occurring in the upper segment where a gravel county road facilitates log-hauling. The primitive road that follows this segment is frequently visible from the water, but does not generally attract attention unless it is being used by a vehicle.

Two distinct landforms dominate the landscape within this segment. From Monument to Potamus Creek (RM 40), the river (elevation 2,100 feet) flows through a wide valley with adjacent mountain peaks between 3,000 and 3,800 feet in height. This area is mostly rangeland, with steep hillsides containing stands of ponderosa pine. Upstream from Potamus Creek, the river corridor narrows and the hills rise to as much as 4,400 feet. Ponderosa pine stands are more dense than those at lower elevations, especially on the north-facing slopes.

Segment 7, from Monument upstream to the confluence with the Middle Fork John Day, is classified in the John Day RMP (USDI-BLM 1985) as VRM Class II; and from this point upstream to Dale, as VRM Class IV. Within the VRM Class II area, management activities resulting in changes to the existing character of the landscape may be allowed, provided they do not attract the attention of the casual observer. Within the Class IV area, which includes substantial uplands, major modifications of the existing character of the landscape are allowed, but every attempt should be made to minimize the impact of activities (Appendix O).

Vegetation

The average annual precipitation is 12 to 24 inches in this segment (Quigley and Arbelbide 1997). The river elevation rises from about 2,000 feet at Monument, to 2,715 feet above sea level at the confluence with Camas Creek. The canyon is generally narrow in this segment, with slopes (40 - 65%) rising to around 4,400 feet above sea level.

Segment 7 lies within the Blue Mountains ecoregion (Oregon Biodiversity Project 1998). Upland plant communities have been described in ICBEMP (Quigley and Arbelbide 1997) as "dry shrub" and "cool shrub." Upland plant communities adjacent to the river consist of a ponderosa pine and Douglas fir mix with some sites predominately ponderosa pine. Western juniper and mountain maple are both present. Sagebrush and bitterbrush are prevalent with various grasses, including cheatgrass. Weed species present are Dalmation toadflax, bull thistle, and Scotch thistle.

In the riparian zone, various willow species, including coyote willow, are present (USDI-BLM 1996b). A variety of other woody species is present including ninebark, dog wood, hawthorn, water birch, chokcherry, cottonwood and some alder. Rose, serviceberry, and syringa are present in the lower part of Segment 7. Sedges, rushes and reed canary grass are found throughout the segment. A Proper Functioning Condition Assessment has not been completed for Segment 7.

Agriculture

There is no commercial cultivation of crops in this segment.

Grazing

There are 12 BLM-administered grazing allotments along river Segment 7 (see Map Plate 4, Table 3-E, and Appendix L).

Recreation

Limited public lands and a remote location have traditionally resulted in low recreation use of this river segment, but during the last few years the scenic quality, low use, and good fishing have become known to many more people, and use has increased steadily. The 17-mile primitive road from U.S. Highway 395 to Potamus Canyon provides public access to the north bank of the river. Recreational opportunities along this stretch include driving for pleasure, fishing, dispersed camping, and picnicking. Boating use in this segment is increasing dramatically. While there are no developed launch points, boaters use the many areas, both public and private, with low banks to access the river. Downstream from Potamus Canyon, where there is no public easement, there is a potential for trespass problems. The developed Monument River Access Park in Segment 6 often serves as a take-out point. Water levels are generally sufficient for floating between March and mid-June, although most people find the weather in March too harsh for enjoyable boating. The river in this segment is characterized by a rocky channel with shallow, fast-flowing water and many Class 1 and 2 rapids.

Boating use of this segment includes one to three day trips at various locations, primarily occurring in May and June. Due to a lack of developed launch points or boater registration stations, reliable use data is not available for this segment. Motorized boating is permitted in Segment 7, but it is uncertain how much motorized use occurs.

Fishing for trout, steelhead, and smallmouth bass, and hunting for deer and elk are considered to be good in this segment, but use is low, due in part to the small amount of public lands. Other than the 17-mile public easement, the large percentage of private land limits fishing and hunting on much of the segment. The BLM is currently seeking to acquire lands along 13 miles of river in the upstream portion of this segment under the proposed Northeast Oregon Assembled Land Exchange. Acquisition of these lands would increase public recreation opportunities along an additional stretch of the river.

There are no developed facilities within this river segment. Past surveys indicate that there are approximately 53 dispersed sites that have potential for camping, approximately 19 of which are on public land.

Commercial use occasionally occurs in this segment, but in 1998 there were no commercial trips reported.

Access

There are six miles of county road from Monument to Wall Creek. This road passes through 1.5 miles of BLM-administered land, providing river access. A privately owned dirt road crosses private land and several tracts of BLM-administered land from Wall Creek to Potamus Creek (approximately 15 miles). This is a limited season road due to wet weather conditions and is not a public access route. The ODFW has acquired a public access easement along a graveled road that follows the river closely from Potamus Creek east to Camas Creek (17 Miles) and provides easy access to the river, as well as the lands between the road and the river.

Segment 8: North Fork - Camas Creek to Headwaters

Location and Characteristics

This segment covers the upper stretch of the North Fork, from its confluence with Camas Creek to its headwaters in the North Fork John Day Wilderness. Much of this segment lies in Grant County, with the last seven miles flowing through Umatilla County. Mountainous forest land comprises most of the surrounding area in this segment.

Land Ownership and Classification

About four miles of river is bounded by private land. The majority of land in this segment is within the boundaries of the Umatilla National Forest, although the headwaters of this segment are located within the Wallowa-Whitman National Forest.

Final John Day River Plan and EIS

The North Fork John Day River, from its headwaters to its confluence with Camas Creek, was designated a Wild and Scenic River in 1988. A WSR plan is in place and is being administered by the Umatilla National Forest. The upper portion of this segment flows through the North Fork John Day Wilderness. This segment also is designated as a State Scenic Waterway, beginning at the Wilderness boundary at Big Creek and ending downstream at RM 20.2 near Monument. The State Scenic Waterway classification for this segment is "Accessible Natural River Area." The state guidelines for managing private land within this State Scenic Waterway is in Chapter 4.

A USFS-proposed Cougar Meadows Research Natural Area also encompasses a portion of the river drainage. The Elkhorn Drive National Scenic Byway parallels part of the upper reach of the river.

The section of this segment from Camas Creek to RM 68 is located in Umatilla County. The primary county zone designation for this segment is Grazing Farm (GF), the purpose of which is to protect grazing lands and other uses such as agricultural cultivation, watersheds, wildlife habitat and scenic values. The minimum lot size is 160 acres in a GF zone; parcels less than 160 acres may be allowed through a conditional use process. The density of dwellings allowed in this zone cannot be more than one dwelling for every 160 acres. The other zone in this segment is Critical Winter Range, the purpose of which is to conserve and protect important elk and deer winter range. The dwelling unit density in this zone is limited to a maximum of three dwellings within a radius of 0.50 mile of any proposed dwelling. All requests for dwellings or land divisions that will result in eventual placement of a dwelling are referred to the ODFW for review and recommendation. The remainder of the segment is in Grant County. Except for private inholding of about 250 acres, the Grant County portion is administered by Umatilla and Wallowa Whitman National Forests.

Recreation is the major use of this river segment. The river flows through or past several areas of special designation such as a Wilderness and National Scenic Byway. Livestock grazing also takes place. Downstream from the Wilderness boundary, some timber harvest occurs as well. Historically, mining has been an important economic activity in the subbasin and exploration activities continue.

Information and Education

Public information and education within this segment is provided at USFS camping areas and trailheads.

Energy and Minerals

There are scattered mining claim located in upper reaches of this segment.

Cultural Resources

The North Fork corridor has been used by Native American Indian groups of the southern Columbia Plateau and the Northern Paiute of the Great Basin. The drainage is included within the ceded boundaries of both the CTUIR and the CTWSRO. The CTUIR have provided information indicating that they have an extensive array of documented usual and accustomed sites for fishing, hunting, camping, root digging, berry picking, and other cultural and traditional uses. The CTWSRO are said to have pursued "usual and accustomed" activities in this area as well.

Gold mining is a long and well-established activity along the North Fork and it continues to this day. It was the primary activity that first brought substantial numbers of people to the Blue Mountains in the 1860s, and evidence of this gold rush still exists along the river. Gold occurs in the sand and gravel deposits along the river. Many of the mounds of hand-stacked boulders and thousands of feet of ditches and flumes are testimony to the 1860s gold rush that produced an estimated five million dollars. Additional evidence of this rich history includes various structures for habitation and use, such as mines and prospect holes. Other minerals such as silver, copper, lead, zinc, chromite, and manganese also have been recovered in small quantities.

Peavy Cabin, just outside the Wilderness boundary, is eligible for the National Register of Historic Places. It was built around 1934 by the Dean of the School of Forestry of Oregon State University, who conducted experimental forestry studies on a 40-acre tract of surrounding forest. It is currently used as a Forest Service administration site. The historic value of the North Fork drainage is considered an outstandingly remarkable value by Congress and by the North Fork John Day Wild and Scenic River Resource Assessment.

Water Quantity and Quality

See Segment 6 for a general discussion of water in the North Fork John Day.

The river flows from an elevation of about 7,400 feet in the headwaters, to 2,700 feet at the confluence of Camas Creek. Precipitation in this segment occurs mostly as snow, averaging about 24 inches a year. However, accumulation can exceed 40 inches annually at higher elevations in the Blue Mountains. The elevations range from over 8,000 feet in the Blue Mountains to about 2,500 feet near Dale. Major tributaries to the North Fork in this segment include Desolation and Granite Creeks.

With the exception of elevated late summer water temperature, most of the subbasin streams of this segment are considered to be in good condition with generally satisfactory chemical, physical and biological ratings (OWRD 1986). Present and historic management practices such as cattle grazing, timber harvesting, road construction, mine exploration in the headwaters and roadless areas significantly influence watershed conditions. Leaching of toxic mine effluent into Granite Creek is a localized problem that is currently being mitigated by the ODFW, USFS and BPA through a fish habitat restoration project. Several government agencies have been working to try to lessen the impacts of past dredging. A portion of the river east of Dale, Oregon was worked with a dragline and floating washplant in the late 1940s and early 1950s, producing several thousand ounces of gold. Total production of placer gold involved approximately 2-3 million cubic yards of gravel worked. The natural floodplain functions (such as channel meander and pools) have been reduced as a consequence of the placement of dredge tailing piles in the floodplain. No major mining has taken place on the river since the early 1950s and the current level of mining is limited to handwork, small-scale placer exploration, and small suction dredges. Portions of the river in this segment have been identified as having high potential for soil erosion, which coincides with a high degree of stream sedimentation.

All of Segment 8 is listed on the ODEQ 303(d) list for summer water temperatures for bull trout. From Granite Creek to the headwaters, the North Fork John Day River is listed on the ODEQ 303(d) list for habitat modification. The mainstem from Granite Creek to the headwaters did not meet PACFISH pool frequency objectives. Zero of 17 tributaries in this reach met PACFISH objectives for pool frequency.

Fisheries

The John Day River has the largest spawning populations of wild spring chinook and summer steelhead remaining in the Columbia River System. The North Fork subbasin is the major producer of wild spring chinook salmon and summer steelhead in the John Day basin. Approximately 58% of the total basin spring chinook, as well as approximately 43% of the steelhead, are produced in the North Fork.

The importance of the fish and associated habitat present in the upper North Fork made it a high priority for inclusion in the Oregon Wilderness Act of 1984. Additionally, fish have been found to be an outstandingly remarkable value by Congress and by the North Fork John Day Wild and Scenic River Resource Assessment. There are more fish spawning sites inside the designated Wilderness than outside. This is due to the cold, clear, highly-oxygenated water flowing over excellent spawning gravel, plus the adequate amount of large woody material creating diverse fish habitat in the river. The large area of river drainage under Wilderness protection contributes to the maintenance of cold water temperatures in the lower North Fork. Inside the Wilderness, the 1992 chinook index count was the highest on record, at 28 redds per mile. The Granite Creek system, including Clear and Bull Run Creeks, produces 20% of the total John Day basin spring chinook and is the most important wild spring chinook spawning and rearing tributary in the North Fork drainage.

This segment and its tributaries contain many miles of spawning and rearing chinook habitat. Chinook runs are native to the John Day basin and have never been supplemented with hatchery stock. The run contributes to commercial, sport and tribal harvests. Commercial harvest occurs outside the basin, typically in salt-water. Sport harvest has been closed in the basin since 1976, and tribal harvest has been very limited. The long term trend for spring chinook production is flat in the North Fork subbasin. Populations in Granite Creek have declined dramatically, especially since 1974. Habitat impacts within the Granite Creek watershed include heavy mining activity since the mid-1970s, along with several acid mine waste pond blowouts and logging activity including road construction and clearcutting (ODFW 1995b). In addition, part of the decline may be attributable to poaching and increased demands resulting from the three dams on the Columbia River that must be navigated

by migrating smolts and returning adults. Habitat improvement projects, however, have been underway since the late-1980s in an attempt to counteract these problems.

The North Fork subbasin also includes important steelhead producing streams, including Granite, Trout, Meadow Brook, Trail, Olive, Clear, Bull Run, Camas, Beaver, and Big creeks. Summer steelhead production also has declined slightly to lows similarly to those observed in the late-1970s; however, the North Fork population appears to be returning to expected equilibrium abundance levels (Chilcote 1998).

The North Fork contains one of the few remaining healthy bull trout populations in the state. An important subspecies of rainbow trout (redband trout) also exists in the North Fork.

Granite Creek also supports one of the last major populations of native bull trout (previously known as Dolly Varden) and a viable rainbow trout population, including the westslope cutthroat. The bull trout is listed on the USFS Region 6 and State Sensitive Species List, and is in Category 2 according to the USFWS.

Other major species that historically occupied this drainage include Pacific lamprey, sculpin, and mountain whitefish. Less is known about their current population sizes and distribution, although whitefish generally are abundant throughout western North America. Whitefish and Pacific lamprey have not been an important commercial or sport harvest species, but have contributed to tribal harvests.

Overall, the spawning, rearing and holding habitat for anadromous and resident salmonid fish is good throughout this river corridor. There is a fair amount of granitic spawning gravels and cobble, and boulder-size substrate, the latter contributing to the habitat for invertebrate fish food. Sufficient finer substrate conditions exist due to the granitic parent material in the headwaters. There is a plentiful amount of large woody debris in the river which helps to diversify habitat and create pools. Streams in the upper North Fork drainage generally have good channel structure, riparian and instream cover, and water quality and quantity.

Wildlife

The wildlife population is diverse and thought to be stable. The North Fork John Day River drainage serves as a major migration route for big game species. Approximately 2,500 Rocky Mountain elk use the drainage to migrate from their summer range in the Elkhorn Mountains to their winter range in Bridge Creek Wildlife Management Area. Approximately 1,000 mule deer utilize the drainage for a similar migration route. A small population of whitetail deer resides in the dense, brushy habitat found at lower elevations. Documented sightings of black bear, cougar, bobcat, and wolverine have been made in the drainage. By the number and frequency of sightings, it is thought that both the black bear and bobcat populations are moderate. Less is known about the others, but populations most likely are low. Aquatic oriented mammals such as mink and beaver frequent the river. It is probable that river otters also reside in the corridor.

Bald eagles, golden eagles, and ospreys have been observed near the lower boundary of this section and may well be found within this segment. A variety of woodpeckers is found in the river corridor, including pileated woodpeckers, an indicator species of old growth habitat. Goshawks and great gray owls also utilize the area.

In general, the Wilderness exhibits excellent wildlife habitat and the rest of the corridor tends to be in fair condition. In the upper reaches, a 20,000-acre sheep allotment has been vacant for many years, having last been grazed by domestic livestock in the 1950s. The natural wet meadows in the Wilderness now provide high quality habitat for big game, hawks, owls, and small mammals.

Impacts from recreation, timber harvest, mining, road building, and fire suppression have degraded portions of the river corridor, generally outside of the Wilderness. Some of the flat, open meadows and riparian areas have been subject to vegetation removal and compaction by recreational activities. The amount of dead and dying trees, due to insect infestations and recent fires, have created very good habitat for a variety of woodpeckers and great gray owls. The burned areas also provide a diversity of habitat that is excellent for foraging deer and elk. Wildlife is considered to be an outstandingly remarkable value by Congress and the North Fork John Day Wild and Scenic River Resource Assessment.

Scenery

Scenery along the North Fork John Day WSR was identified as an outstandingly remarkable value by Congress and in the subsequent Resource Assessment completed by the USFS. The headwaters of the North Fork John Day are located in a scenic alpine lake basin in the glaciated Elkhorn Mountains, within the Baldy Creek Unit of the North Fork John Day Wilderness. Above 6,000 feet in elevation, the river flows through subalpine fir, which changes as the elevation drops, to stands of lodgepole pine, interspersed with mixed conifers, spruce and western larch. Several large meadows and smaller wetland areas provide diverse scenery and outstanding wildlife habitat. An old-growth aspen stand along the river corridor is a notable plant community feature.

Further downstream, the river flows through a second Wilderness unit, the North Fork John Day Unit, which is characterized by rock outcrops, steep sided slopes, and rimrock topography, with scattered fingers of trees. Below Horse Canyon, there is a sheer rock cliff area confining the river for about 0.75 of a mile. Forest Road #73, which parallels the North Fork John Day River outside of the Wilderness, is included in the National Forest Scenic Byways program. Outside the Wilderness, there is evidence of past gold mining including large piles of dredge tailings and logging activities.

Scenery management guidelines, or Visual Quality Objectives (VQO) were established for Segment 8 by the Umatilla National Forest in North Fork John Day WSR Plan (USDA-FS 1993). "Wild" sections of the WSR corridor are assigned the Preservation category, except for some limited recreation facilities located outside of the Wilderness, which are assigned the VQO Retention category. All portions of the "Scenic" and "Recreational" segments are assigned the VQO Retention category. The VQO Preservation category allows ecological changes only, whereas the VQO Retention category allows management activities, provided they are not evident to the casual forest visitor.

Vegetation

This segment receives over 24 inches of precipitation annually as described in ICBEMP (Quigley and Arbelbide 1997). The river elevation rises from 6,300 feet at the headwaters, to approximately 2,715 feet above sea level at the confluence of Camas Creek. The river canyon is predominately narrow and heavily forested; all but a few miles of river and adjacent land is managed by the U.S. Forest Service. A management plan for this segment was developed by the Umatilla National Forest. Copies of the management plan may be obtained by contacting the Umatilla National Forest Supervisor's office in Pendleton, Oregon, or the North Fork John Day Ranger District.

The river segment lies within the Blue Mountains ecoregion (Oregon Biodiversity Project 1998). Upland plant communities have been described in ICBEMP (Quigley and Arbelbide 1997) as "dry forest" type at lower elevations, changing to a "moist forest" type above 4,000 feet.

The upper reaches of this segment are characterized by stands of lodgepole pine interspersed with mixed conifer, as described in the North Fork Environmental Assessment (USDA-FS 1993). Englemann spruce and western larch are present near the river below 6,000 feet; above this elevation, subalpine fir occur. A deciduous component of alder and willow is present along some reaches of the river. Farther downstream, rock outcrops and rimrock topography becomes more prevalent, which provides habitat for entirely different plants. Ponderosa pine, Douglas fir, and western larch become dominate. One known special status species exists (*Botrychium minganense* [grapefern]).

A Proper Functioning Condition Assessment has not been completed for this segment.

Wilderness

The USFS manages the North Fork John Day Wilderness located in the upper reaches of the North Fork John Day River.

Recreation

This segment of the North Fork is primarily bordered by public land managed by the USFS, and offers many recreational opportunities, both within and outside of a Wilderness setting. The heaviest recreational use in the river corridor occurs in the summer and fall seasons, and is primarily associated with camping and big-game hunting. Fishing along the banks of the North Fork also is very popular. Steelhead, and resident trout provide a substantial recreational fishery for anglers. Only during the spring runoff period are the last few miles of this segment occasionally floated by rafts, canoes, or kayaks continuing downstream into Segment 7. Within the North Fork John Day Wilderness Area, much of the river is paralleled by trails for both hiking and horseback riding. Some snowmobiling occurs during the winter months. Recreational gold panning is another activity pursued by visitors.

A number of campgrounds have primitive or limited development, and dispersed camping in open areas and flat spots along the river is popular. Big game hunters frequent these areas during the fall in search of a high quality hunt.

The USFS administers the commercial use of this river segment.

Access

The portion of this river segment outside of the Wilderness is easily reached by gravel roads. The Elkhorn Drive National Scenic Byway, which is adjacent to a portion of the North Fork John Day Wild and Scenic River, is the main route by which visitors enter the entire area. Several trails lead to the Elkhorn Crest National Recreation Trail. This trail follows the crest of the glaciated Elkhorn Mountains and affords spectacular views of the North Fork John Day River headwaters. A USFS all-weather road (#41) follows the North Fork upstream for 11 miles from Highway 395. Most of the road runs through National Forest land, providing good access. The road number changes to #42 and becomes a dirt road for about seven miles, where it is adjacent to the river. From the end of the dirt road, a foot trail follows the river through the Wilderness for approximately 14 miles, where a side trail then diverts up Granite Creek about three miles to a trailhead. The main trail continues to follow the North Fork northeast through the Wilderness to a trailhead on the Blue Mountain Scenic Byway. The Elkhorn Drive Scenic Byway then parallels the river before veering north away from the river. A primitive road continues up the river, providing access to the headwaters of the North Fork of the John Day River.

Segment 9: Middle Fork John Day River

Location and Characteristics

The Middle Fork of the John Day River is located entirely within Grant County, draining a subbasin of approximately 806 square miles. The Middle Fork originates in the Blue Mountains within the Malheur National Forest. It flows about 75 miles northwest from its source before entering the North Fork at RM 32.2. The subbasin has highly variable terrain with elevations ranging from 8,100 feet in the headwater areas to about 2,200 feet near the mouth. The canyon is generally narrow in this segment, with slopes (20 - 70%) rising to around 3,600 feet above sea level at the lower end and around 7,000 feet near the headwaters.

The vast majority of river frontage of the Middle Fork is privately owned. These lands are used primarily for livestock grazing. Past land management practices along this segment include use of heavy equipment to channelize the river (especially on private lands), mining for gold with dredges, and road construction. Much of the natural riparian vegetation was removed in some areas by these actions. Recovery is occurring slowly.

Recreation use occurs primarily along the uppermost 30 miles of this river in the National Forest. Peak use periods are the spring and summer for fishing and the fall for hunting. Use of this area is generally light, but increasing.

The largest community near the Middle Fork is Long Creek, with a population of 245. Other communities closer to the river include Ritter, Galena, Susanville, Austin, and Bates. The U.S. Highway 395 passes north to south through the western portion of the subbasin, and U.S. Highway 26 goes through the southeastern headwater area. In addition, an improved road parallels the Middle Fork for most of its length.

Land Ownership and Classification

The vast majority of river frontage of the Middle Fork is privately owned, even though the first 30 miles are located within the Malheur National Forest. Lands along the river in the National Forest are primarily privately owned “inholdings.” These private lands are used primarily for livestock grazing. After leaving the National Forest, the river flows another 45 miles to its confluence with the North Fork. Land along this portion of the river is almost totally privately owned. The BLM administers several small tracts that total about 2 miles of these 45 river miles. There are four BLM grazing allotments in this segment.

The Middle Fork is a designated State Scenic Waterway, from its confluence with the North Fork to Crawford Creek Bridge (RM 71).

Lands adjoining the river between RM 27 and RM 33, and from Crawford Creek bridge downstream to Big Creek (RM 39), are zoned by Grant County for forest management. The zone designation is Primary Forest (F-80 [160]), which is applied to the highest and best producing forest lands. The zone is intended to protect forest lands for commercial growing and harvesting of timber and to conserve and protect watersheds, wildlife habitat, scenic and recreational values. The minimum lot size for new farm or forest parcels is 80 acres in this zone. The total number of principal and secondary home sites cannot exceed an overall density of one dwelling for every 160 acres.

Lands adjoining the river between Big Creek (RM 39) and RM 33, and the lower segment of the river from RM 27 to the Middle Fork and North Fork confluence, are zoned for use as rangeland. The zone designation is Multiple Use Range (MUR-40 [160]). This zone is applied to agricultural and non-productive forest lands which are managed primarily for range and grazing use. A lot or parcel of 160 acres or more is considered a farm unit in this zone. A lot or parcel of less than 160, but not less than 40 acres, can be approved as a farm unit through a conditional use process. The total number of dwellings allowed in the zone are not to exceed an overall density of one unit for every 160 acres.

Information and Education

Public information and education within this segment is primarily provided by the USFS at developed campgrounds and dispersed camping areas in upper reaches of the subbasin.

Paleontology

There are no known paleontological resources within this segment.

Cultural Resources

This segment has little public land within the river corridor. The majority of these lands have been inventoried recently as part of the Northeast Oregon Assembled Land Exchange (USDI- BLM 1998e). No prehistoric sites were located, and only one historic feature (past bridge abutments) was noted.

This segment of the river has been variously occupied and used through time by several different Native American Indian groups, including but not limited to Sahaptin-speaking Plateau groups and the Numic-speaking Northern Paiute (Ray et al. 1938, Suphan 1974). Today, this segment falls within the ceded lands of the CTWSRO, although the CTUIR and the Burns Paiute also claim this segment as a traditional use area. The BLM has no knowledge of any Native American Indian religious sites in this segment.

Historic use of this segment appears to have been principally related to farming and ranching. Mining was an early use in the upper stretch of this segment and has continued sporadically since that time.

Water Quantity and Quality

The stream gradient of the Middle Fork John Day River averages 40 feet per mile, but steeper gradients are characteristic of the river's upper reaches and tributaries. Long Creek is the major tributary draining to the Middle Fork. Other tributaries include Big, Vinegar, Bridge, Camp, Clear, and Squaw creeks.

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The Middle Fork has been monitored by USGS station 14044000 located at Ritter since 1929. Mean annual discharge recorded at Ritter is 186,464 acre-feet. This accounts for about 25 percent of the estimated flow of the North Fork. Based on the Ritter gauge, peak discharge generally occurs between March and early June, with low flows recorded for August and September (OWRD 1990).

Water quality in the Middle Fork subbasin generally exhibits satisfactory chemical, physical, and biological quality (OWRD 1986). Elevated water temperature is the most serious concern throughout the subbasin. Occasionally, the stream temperature is elevated to a point that may threaten optimum use of the reach by cold water fisheries. This segment is listed on the ODEQ 303(d) list on the basis of summer water temperature and flow modification from Crawford Creek to the mouth.

Generally, sediment and erosion problems are not serious, although localized streambank erosion does occur along some meander channels (OWRD 1990).

Most tributaries of the subbasin drain higher elevations and the effective shade consists of taller riparian vegetation.. Therefore, high water temperature does not represent a long-term problem. The Middle Fork, itself, exhibits high water temperatures that threaten optimum use of the reach by cold-water fish. Temperatures that are higher than optimum for salmonid production will continue to occur as a result of natural low flow regimes and irrigation withdrawals. Mining and dredging activities have disturbed the riparian vegetation along the main river, and placement of dredge spoils has limited the rate of revegetation along the main channel. The vegetation appears to have recovered from most of the disturbance caused by historic mining activities. The BLM monitors water temperatures in this segment at the Malheur National Forest boundary and at the mouth. Some tributaries exhibit elevated fecal coliform counts during summer months, that are probably a resultant of use of the surrounding area for season long cattle grazing. Water-contact recreation or use of these streams for domestic purposes poses potential health risks.

Fish

Streams in the Middle Fork drainage generally have good channel structure, riparian and instream cover, and water quality and quantity.

The Middle Fork subbasin produces 24% of the total spring chinook and 30% of the total summer steelhead populations in the John Day basin. Currently, as many as 770 adult spring chinook and 6,000 adult steelhead migrate annually into the subbasin to spawn.

Habitat for salmon and steelhead has improved in recent years, primarily because of the removal of a diversion dam and the Bates Sawmill, which were blocking fish passage and causing water pollution. Consequently, anadromous fish production, particularly spring chinook, has increased as fish now are able to use another tributary in the upper Middle Fork system. Approximately 30 miles of spawning and rearing habitat for spring chinook are available in the Middle Fork between Armstrong and Summit Creeks. An estimated 295 miles of spawning and rearing habitat also are available in the Middle Fork and tributaries to support steelhead production.

The Middle Fork also supports a productive trout fishery. In past years, the resident trout population was supplemented with 3,000 legal hatchery rainbows. This activity was stopped in 1984. All stocking activities (such as with fingerlings) were discontinued in 1994. Trout and steelhead provide 2,000 to 3,000 and 300 to 500 annual angler use days, respectively, on the Middle Fork.

Bull trout are found in Big, Granite, Boulder and Clear creeks.

Wildlife

Wildlife diversity on this segment is high, due to the variety of vegetative structure found here. Common species include beaver, river otter, robins, kingfishers, mule deer, elk, great blue herons, killdeer, garter snakes, spotted sandpipers, rattlesnakes, Pacific tree frogs, redbelt hawks, prairie falcons, chuckar, Lewis woodpeckers, raccoons, and great horned owls. Bald eagles use the area, with several nocturnal winter roost sites documented.

Scenery

This segment exhibits broad scenic values including a great variety of vegetative communities and dramatic landforms. Most of the Middle Fork flows through private lands used primarily for grazing, with occasional ranches, barns and range developments visible. Much of the riparian vegetation has been removed and replaced by pasture in the vicinity of these rural uses. Some portions of the river have had the channel altered by heavy equipment. The upland areas vary from dense, tree-covered mountain settings in the upper portion, to alternating grass and juniper-covered hills in the lower portion.

The visual character of this river subbasin changes as one moves downstream. From Crawford Creek bridge (RM 75) downstream to Vinegar Creek (RM 65), the terrain adjoining the river is generally hilly with elevations ranging from 5,000 feet to 4,000 feet. This part of the basin includes clearings with irrigated fields and grazing in the river floodplain. The surrounding hills are forested, with mixed stands of pine and fir, white fir, Douglas fir and larch.

The terrain in the stretch below Vinegar Creek to Big Creek (RM 39) is visually more dramatic than the terrain above Vinegar Creek. This part of the river corridor is a broad valley between mountain ridges, 10 miles apart. These ridges include the Greenhorn Mountains northeast of the river that reach elevations of 8,000 feet. The mountains, southwest of the river, generally range from 4,000 feet to 6,000 feet in height with the exception of Dixie Butte which is almost 8,000 feet.

The river corridor from Big Creek to the Middle Fork/North Fork confluence narrows considerably. This part of the segment is more arid than the upper part. Vegetation here includes grasses and shrubs with a scattering of trees near the creek bottoms. The river bank and terraces contain willows, water birch, and ponderosa pine that provide beauty, color and texture to the landscape.

Segment 9, including substantial uplands, is classified in the John Day RMP (USDI-BLM 1985) as VRM Class II, in which management activities resulting in changes to the existing character of the landscape may be allowed, provided they do not attract the attention of the casual observer (Appendix O).

Vegetation

Average annual precipitation in this segment varies from 12 inches at lower elevations to greater than 24 inches at the higher elevations (Quigley and Arbelbide 1997, USDA-FS 1990).

This segment lies within the Blue Mountains ecoregion (Oregon Biodiversity Project 1998). Upland plant communities have been described in ICBEMP (Quigley and Arbelbide 1997) as “dry shrub” and “cool shrub” in the lower elevations and the National Forest river segment as “dry forest” and “moist forest.”

The upland vegetation communities adjacent to the river, below 3,600 feet, consist mostly of ponderosa pine overstory, but with some sites having a mix of ponderosa pine with either white pine, lodgepole pine or western juniper (USDI-BLM 1998b). The understory is dominated by pinegrass in the denser tree stands. In the more open areas, bunchgrass, cheatgrass and some sagebrush occur. The associated riparian zone consists primarily of an overstory of coyote willow, a mix of other willow species, water birch, dogwood, ninebark, and a herbaceous component of sedges, rushes, reed canary grass and miscellaneous riparian grasses. Rock/gravel bars are common in this segment.

A Proper Functioning Condition Assessment has not been completed for Segment 9.

Grazing

There are three BLM-administered grazing allotments along river Segment 9 (**see Map Plate 5, Table 3-E, and Appendix L**).

Recreation

Recreation opportunities are primarily limited to the National Forest lands located on the river. There are a few widely dispersed, undeveloped recreation sites in this area which provide public river access for fishing, camping, hunting, and hiking, but no inventory of campsites has been made. Water levels usually are not sufficient for boating in this segment. Two developed campgrounds (Middle Fork and Deer Horn) are managed by the USFS.

Public recreation opportunities are limited downstream from the National Forest due to private land and limited public access.

Access

The Middle Fork flows through a canyon with no vehicle access for the first 10 miles upstream from the North Fork confluence. This section flows through mostly private land with two small sections of public land near the confluence. A paved county road follows the river through private land for the next three miles to Ritter Hot Springs. From Ritter to U.S. Highway 395 (10 miles), the paved county road follows the Middle Fork through private land, except for two small parcels of public land. A all-weather county road extends from U.S. Highway 395 for 11 miles to the USFS boundary. It passes through three small parcels of BLM-administered land. From the USFS boundary, there is an all-weather road (County #20) for the remaining length to Austin Junction, with many good public access points to the river on USFS land. The Middle Fork and Deer Horn Campgrounds are two National Forest river access points. Part of this section flows through private land with access to the river by permission only. U.S. Highway 26 parallels the river through USFS land from about three miles east of Austin Junction to the source of the river, near Blue Mountain Summit.

Segment 10: South Fork - Mainstem Confluence to County Highway 63

Location and Characteristics

The South Fork flows northward from its headwaters in the Ochoco and Aldrich Mountains and drains an area of approximately 607 square miles, entering the mainstem John Day at Dayville.

This 35-mile segment lies between the mainstem/South Fork John Day River confluence and County Highway 63, near the community of Izee, Oregon. Most of the subbasin is located in Grant County.

This segment flows through a narrow canyon with high steep hillsides. The hillsides and riparian areas are forested, with frequent rock outcrops.

The South Fork road follows the river for the full length of this segment. It has an all-weather surface and is open year-round.

This river segment does not contain enough water for boating, but is popular for fishing, hunting and camping.

Land Ownership and Classification

Most land along the river in this segment is administered by the BLM, with tracts of private land scattered throughout its length. The USFS administers about one mile of river frontage. The ODFW also manages tracts of land along the river.

Most of this segment (from Smokey Creek to County Highway 63) is included in the federally designated North Fork of the John Day Wild and Scenic River and is classified as "Recreational." The WSR portion of the South Fork is administered by the BLM through interagency cooperation with other federal, state, and local government agencies.

The portion of this segment between the north boundary of Phillip W. Schneider Wildlife Area to County Highway 63 was designated a State Scenic Waterway in 1988. The State Scenic Waterway classification for this segment is "Accessible Natural River Area."

Portions of the Aldrich Mountain WSA are included within the federal WSR boundaries. The WSR boundaries also include a small portion of the Black Canyon Wilderness managed by the USFS. A 50-mile BLM National Back Country Byway follows the South Fork from Dayville upstream to the Malheur National Forest boundary. Within this segment, there are approximately 20 acres of commercial forest land classified as fragile restricted, and approximately 100 acres classified as withdrawn.

A proposed addition to the Oregon State Recreation Trails System would pass through the river corridor on an east-west route near the Murderer's Creek drainage. Murderer's Creek Wild Horse Herd Management Area, administered jointly by the USFS and the BLM, is adjacent to a portion of the river and consists of 143,000 acres. In addition, the 26,000-acre Phillip W. Schneider Wildlife Area adjoins a portion of the river and is a cooperative federal, state, and private effort managed by the ODFW.

The lands adjoining the river from Dayville upstream to County Highway 63 are zoned by Grant County for use as rangeland. The "Multiple Use Range" (MUR-40 [160]) zone is applied to agricultural and non-production forest lands of Grant County managed primarily for range and grazing use. A lot or parcel of 160 acres or more is considered a farm unit in this zone. A lot or parcel of less than 160, but not less than 40 acres can be approved as a farm unit through a conditional use. The total number of dwellings allowed in the zone is not to exceed an overall density of one unit for every 160 acres.

The county Significant Resource Overlay Zone extends from the north boundary of the Phillip W. Schneider Wildlife Area, upstream to RM 33. The purpose of this zone is to protect significant mineral resources, scenic areas, natural areas and fish and wildlife habitat in Grant County, and to permit development which is compatible with such protection. This zone is applied to those sites worthy of protecting against conflicting uses. Grant County will consult with OPRD when a use or activity is proposed.

Information and Education

Public information and education within this river segment is primarily provided by ODFW within the Phillip W. Schneider Wildlife Management Area.

Paleontology

In the northern end of this segment, a few interbasalt casts of tree roots and trunks are present. There is potential for significant marine invertebrates to occur at the southern end of the segment, though none are known from within the corridor.

Cultural Resources

Cultural resource inventories have been conducted on a limited portion of the public lands in this segment, mostly with negative results. However, landforms along the corridor suggest that there is a moderate probability for locating significant archaeological sites. This segment of the river has been variously occupied and used through time by several different Native American Indian groups, including but not limited to the Sahaptin-speaking Tenino, Umatilla and Cayuse, and the Numic-speaking Northern Paiute (Ray et al. 1938, Suphan 1974). Today, this area is within the ceded lands of the Confederated Tribes of the Warm Springs. Both the CTUIR and the Burns Paiute claim this area as a traditional use area for fishing, hunting and gathering. The BLM has no knowledge of Native American Indian religious sites within the corridor. Izee Falls, however, has been identified by several tribal groups as a traditional use area for fishing.

Historic use of this segment of the South Fork has been primarily for homesteading, farming, or ranching. Logging in this segment was relatively brief. The Ellingson lumber mill was established at RM 31 in 1946 and operated until 1967. The mill was dismantled in 1969.

Water Quantity and Quality

In this segment, the river flows from about 3,860 to about 2,300 feet above sea level. The gradient over the 60 mile course of the river is about 47 feet per mile. Murderers Creek, Black Canyon Creek, and Deer Creek are the major tributaries in Segment 10. Average annual discharge at the mouth is an estimated 100,000 acre-feet.

Subbasin discharge is greatest during the winter months. Discharge generally peaks in late April, coinciding with maximum snowmelt runoff, and is lowest in September. During the low flow period of July through October, the demands for irrigation, fish maintenance, and water quality are greatest.

Surface water quality in these segments is generally satisfactory for chemical, physical, and biological quality. The primary water quality concern for this segment is sediment loading which is elevated during periods of high flow. Conversely, elevated water temperature is characteristic of periods of low flow. High sediment loading occurs in association with storm runoff events and coincide with both spring thaw and summer thunderstorms. Timber removal, road construction, stream channel disturbance, improper livestock grazing, and natural conditions also contribute to sediment loading in the system.

Finally, moderately severe sheet, gully and streambank erosion in the headwater areas of the upper South Fork contribute to the high levels of sediment transport.

Water temperatures as high as 77 degrees F have been recorded in the South Fork subbasin near Izee. Elevated water temperatures are a resultant of low streamflows, lack of streamside shade and the broad shallow nature of the river. Improper livestock grazing, channelization, and application of herbicides to control noxious weeds in the upper watershed have reduced the vegetation needed for streambank stability and shading the water. High water temperatures are conducive to the growth of disease-causing bacteria.

As a result of high summer water temperatures, this segment is included in the ODEQ 303(d) list.

Fisheries

Resident trout populations generate 3,000 to 5,000 angler user days annually, with a sport catch of up to 10,000 fish. Prior to 1994, wild rainbows were supplemented each year with stocking of legal-size and fingerling rainbows. Trout have not been stocked in the basin since 1994. Historically, the subbasin never supported a spring chinook population.

Fish resources in this segment are considered to be an outstandingly remarkable value by the BLM. Fish production in the South Fork is maintained by good water quality and habitat diversity, particularly in the middle reaches. Segment 10 fisheries values can be characterized into three reaches: the upper reach above Izee Falls, the middle reach within the canyon, and the lower reach below Smokey Creek. All three reaches exhibit good riparian vegetation and good fisheries habitat diversity. The reach above Izee Falls maintains good water quality and fisheries habitat for native trout. No anadromous habitat is present due to the impassable falls at river mile 27.5. Sunflower, Indian, Flat, Lewis, Corral, and Venator Creeks enter the South Fork above Izee Falls. These streams are important to the maintenance of wild trout populations in the subbasin. At times during the summer, this reach produces larger amounts of sediment from upland areas when local, intense thunderstorms occur over bare soils. No individual factor is solely responsible for producing conditions which lead to erosion and sediment loading. Soil types and geology, along with vegetative removal such as improper livestock grazing, timber removal, and road construction, have all contributed to the present situation. Sediment loading affects fish when deposition results in fine materials becoming embedded in spawning gravels and by filling pools used for rearing.

The middle reach between Smokey Creek and Izee Falls exhibits good water quality, fish habitat and riparian condition. This reach is characterized by a deep canyon which runs south to north, with vegetation ranging from ponderosa pine and juniper to willow and cottonwood. This reach is more confined than the lower reach due to the geology of the area. Several streams, such as Smokey, Wind, Black Canyon, Murderers and Deer Creeks, enter the South Fork along this stretch and provide additional habitat for resident and anadromous salmonids.

In the lower reaches of the subbasin below Smokey Creek, where the river leaves the strict confines of the canyon, the floodplain broadens. As a result, the stream channel widens and water temperatures increase. In this reach, farm practices and stream channel disturbance (dredge and fill activities) have affected fish habitat. Fish production declines in this stretch due to these factors. High water temperatures which deplete dissolved oxygen content become the most significant limiting factor to fish production and salmonid survival in this reach of the South Fork.

Wildlife

The vegetative condition along this segment provides a great diversity of wildlife habitats and species. This segment of the John Day River probably has the highest diversity of wildlife species, due to the riparian vegetative condition and diversity. Much of this segment, managed within the BLM/ODFW Phillip W. Schneider Wildlife Area, is critical mule deer and elk winter range. Species commonly found along this segment are Lewis' woodpeckers, ash-throated flycatchers, Pacific treefrog, violet-green swallows, house wrens, mountain bluebirds, and lesser goldfinches. Year long residents are beaver, mule deer, elk, California bighorn sheep, red-tail hawks, Stellar jays, kingfishers, kestrels, magpies, blue grouse and California quail. Bald eagles utilize the area in winter with several documented winter nocturnal roost sites recorded along the river. Goshawks and Clark's nutcracker also commonly occupy the area during winter.

The Murderer's Creek Watchable Wildlife corridor begins about five miles south of Dayville and extends about 20 miles along the South Fork of the John Day River. Watchable Wildlife is a BLM program designed to increase opportunities to photograph, study, or simply watch wildlife on federal land that the BLM administers.

Scenery

The South Fork John Day River contains a wide variety of vegetation, color, and interesting landforms. Scattered ponderosa pines and an occasional Douglas or white fir intermix with juniper, sagebrush, and native bunchgrasses to create a distinct vegetative pattern on the steep canyon slopes. Lined with a colorful assortment of streamside vegetation, the river's edge makes a picturesque centerpiece to the rugged scene. In the upper reaches of the river, relatively level agricultural land forms a more pastoral setting.

The river canyon is geologically scenic as well. Exposures of columnar jointing and feeder dikes are very impressive at places along the river, particularly between Smokey and Oliver Creeks, and in the gorge near Black Canyon Creek.

Segment 10, from Dayville upstream to near the confluence of Sunflower Creek, is classified in the John Day RMP (USDI-BLM 1985) as VRM Class II, from Sunflower Creek to Indian Creek as VRM Class IV, and from Indian Creek to County Road 63 as VRM Class III. Most areas include substantial uplands and portions of tributaries. Within the VRM Class II area, management activities resulting in changes to the existing character of the landscape may be allowed, provided they do not attract the attention of the casual observer. Within the Class III area, management activities resulting in changes to the existing character of the landscape are allowed, but should not dominate the view of the casual observer. Within the Class IV area, major modifications of the existing character of the landscape are allowed, but every attempt should be made to minimize the impact of activities (Appendix O).

Vegetation

In Segment 10, the average precipitation varies from 12 to 24 inches annually (Quigley and Arbelbide 1997). The river elevation rises from 2,300 feet, at the confluence with the mainstem, to 3,860 feet above sea level at the County Road 63 bridge. The canyon is narrow in this segment with slopes (25 - 65%) rising to between 4,000 and 4,500 feet above sea level, the highest reaching around 5,900 feet.

This segment lies within two ecoregions. The section from the confluence to about RM 25 is in the Lava Plains ecoregion and from RM 25 to the County Road 63 bridge is in the Blue Mountains ecoregion (Oregon Biodiversity Project 1998). Upland plant communities have been described as "dry shrub" and "cool shrub" (Quigley and Arbelbide 1997).

The riparian plant communities are well represented with an overstory of coyote, Mckenzie and whiplash willows (USDI-BLM 1992b). Other woody riparian species include dogwood, alder, water birch, cottonwood, chokecherry and elderberry. Shrub and vine species are represented by syringa, clematis, rose, snowberry, gooseberry and poison ivy. The herb component contains horsetail, goldenrod, sweet clover, water hemlock, speedwell and thistle. Dominate along the segment is a sedge/rush group along with reed-canary grass and to a lesser extent, red top grass and Kentucky bluegrass. Examples of existing riparian vegetation are shown in Appendix M, Photos 17 through 22.

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In upland plant communities, scattered ponderosa pines dominate the overstory (USDI-BLM 1992b). Also present are Douglas fir, Western juniper and sagebrush. The grass portion contains tall wheatgrass, bluegrass, bluebunch wheatgrass, Great Basin wildrye, and cheatgrass.

One special status species is known to exist in Segment 10, *Astragalus diaphanous* var. *diurnus* (milkvetch). *Rorippa columbiae* (Columbia cress) and *Thelypodium eucosmum* (arrowleaf thelypody) are suspected to occur in the segment.

A Proper Functioning Condition Assessment was completed in 1997 (USDI-BLM 1993, 1998c). The assessment rating was "Proper Functioning Condition" for the riparian zone. The trend rating was "upward", which means the riparian area is still improving in its overall condition, even though it is presently functional. All seven components of the vegetative section of the assessment rated as functional. The vegetation had a diverse age-class distribution and composition of plants. The species present indicated good riparian soil moisture holding characteristics and production of root masses capable of withstanding high flows. In addition, there was adequate vegetation cover present to protect banks and dissipate flow energy during high water events and the riparian vegetation did exhibit high plant vigor. This segment benefits from the presence of large woody debris to capture bedload, help develop floodplains and dissipate energy during high water. The existing riparian plant communities are an adequate source of this material. A PFC Assessment is not designed to identify the past causes of riparian functional deficiencies, but to ascertain the present functionality of the interaction among geology, soil, water, and vegetation. A particular rating is a product of man-caused influences such as grazing and mining, and natural forces. In addition, the extent of future recovery hinges on management practices and ecological site potentials (Vol. I, Chapter 2, Resource Values, Vegetation and Vol. II, Appendix M).

Forestry

Forest lands within the WSR boundaries are classified as commercial and generally suitable for forest harvest and management. Certain areas on the river, however, have been withdrawn from consideration for harvest. Timber harvest in the remainder of the corridor is subject to restrictions that protect scenery and water quality.

Forest management on the east side of the river is guided by a BLM forest management plan which outlines forest practices for the next 10 years. There are no planned forest management practices for lands within the river corridor.

Past timber management activities have had no long-term impacts to scenery, wildlife habitat or water quality. The timber east of the river and upstream from Izee Falls has been subjected to previous harvesting. Timber removal has been by partial cutting (removal of 50-70% of the overstory) and commercial thinning (removal of selected trees over 10 inches diameter breast height to a 24 to 36 feet spacing).

Grazing

Segment 10 has seven grazing allotments. One allotment (#4038) falls outside the designated portion of this segment (see Map Plate 6 and Table 3-E). Public land acreage in allotments in this segment vary from 2,213 to 17,315 acres; public land forage varies from 600 to 2,000 AUMs. There are approximately 35 river miles (70 river bank miles), one half of which are on public land (state or federal). For details regarding management of the allotments, refer to Appendix L.

Allotment evaluations have been completed on all but two allotments in this segment (#4124 and #4119). Grazing management changes have occurred on three of the seven allotments. The changes have been moving from primarily grazing during the warm season (late spring and summer), to cool season grazing (winter or early spring) or exclusion in some cases.

Photo points originally were established to monitor range conditions in the early 1980s. These photos and other vegetative inventory data show that grazing conditions along the river were poor in the early 1980s. Since that time, grazing management has been adjusted, and vegetative conditions have improved to fair or good and are continuing to improve. Grazing exclusion and restrictive grazing have met with great success in improving riparian vegetation on state-owned lands of the lower South Fork and Murderer's Creek.

Current grazing management practices were judged by an interdisciplinary BLM team to be appropriate for protecting and enhancing river values on 100% (34.4 miles) of the public river bank miles in this segment.

Wilderness

The Ochoco National Forest manages the Black Canyon Wilderness. One trailhead for this Wilderness is located about RM 14. The Aldrich Mountain Wilderness Study Area (9,395 acres) is located on the opposite side of the river from the Black Canyon Wilderness. This area is managed by the BLM and has been studied for possible wilderness designation by Congress. The BLM recommendation to Congress was that it is not suitable for wilderness designation because of the poor boundary configuration (making management difficult) and incompatible uses on adjacent lands. Congress will make the final Wilderness decision for this area.

Recreation

The South Fork John Day River offers the visitor excellent opportunities for sightseeing, camping, fishing, swimming, picnicking, hiking, and hunting. Other forms of dispersed recreation such as photography and wildlife watching also can be enjoyed by visitors. The South Fork Backcountry Byway offers opportunities for scenic drives and mountain biking. The river's rustic character provides the visitor with a feeling of isolation and remoteness despite its road accessibility. The Black Canyon Wilderness (USFS) provides hiking trails and back-packing opportunities. Cross-country hiking is available in the Aldrich Mountain WSA. The water flows in this segment are generally insufficient to support boating. The rugged geologic formations of the canyon offer excellent sightseeing opportunities.

At this time, there are no recreational developments along the river. However, there are 228 undeveloped sites that could be used for camping in Segment 10, 104 of which are on public land. Since many of these sites are located along the river edge, riparian vegetation is frequently impacted by recreational vehicles. Fishing trips are usually one-day in length, and camping and hunting trips during the summer and fall months are an estimated to be between two to four days in length. The BLM does not currently administer any commercial use permits within this segment.

The BLM is currently seeking to acquire several parcels of land adjacent to the river under the proposed Northeast Oregon Assembled Land Exchange. Acquisition of these lands would increase public recreation opportunities in this area.

Access

A county road follows the South Fork through approximately four miles of private land from Dayville upstream, then through six miles of mixed state and BLM land ownership. The road is maintained by the BLM from about RM 11 to the County Highway 63 junction. There is good access to the river for hiking, camping, and fishing on the public land portions.

Segment 11: South Fork - County Highway 63 to Headwaters

Location and Characteristics

This river segment extends about 24 miles from County Highway 63 to the headwaters. It differs from Segment 10 in that it is not contained in a narrow canyon and the stream character is normally slow, wide, and shallow, with little riparian vegetation present from the National Forest boundary to segment 10.

This is a rural, agricultural area where the paved county highway follows the river upstream for about nine miles. At that point, a good gravel road follows the river for another eight miles to the National Forest boundary and continues into the forest. Approximately seven miles of the South Fork headwaters flow through land managed by the USFS.

Some private pastures along the river are used as winter feed lots for livestock. These areas are devoid of vegetation and are likely to contribute sediment and other pollutants into the river as the result of overland runoff.

Land Ownership and Classification

The 17 miles of this segment, between the south end of Segment 10 and the Malheur National Forest boundary, is designated as a WSR. The road paralleling this portion of the river is part of the National Backcountry Byway that begins in Segment 10. The BLM administers about .3 mile of river frontage in three widely separated parcels in this segment. The upper seven miles of this segment within the Malheur National Forest is not designated Wild and Scenic.

Grant County has zoned land adjoining the river as "Multiple Use Range" (MUR 40 [160]) from County Road 63 upstream to RM 37, and as "Primary Forest" (F-80 [160]) from RM 37 to the National Forest boundary. The F-80 [160]) zone is intended to protect forest lands for commercial growing and harvesting of timber and to conserve and protect watersheds, wildlife habitat and scenic and recreational values. The lot size minimum in this zone for new farm or forest parcels is 80 acres, and the total number of principal and secondary home sites cannot exceed an overall density of one dwelling for every 160 acres.

Information and Education

Public information and education within this river segment is primarily provided by the USFS.

Paleontology

South of Izee, the South Fork has cut through a Jurassic sequence of marine volcanoclastics. This sequence of the Suplee, Nicely, Hyde, Snowshoe, Trowbridge and Lonesome formations, contain ammonites, bivalves and rhyconellid brachiopods. No exposures, however, are known to occur within the river corridor.

Cultural Resources

The only known cultural resource inventory for Segment 11 was done in conjunction with the burying of a telephone cable along the highway. No cultural sites or artifacts were found. Land forms within the corridor suggest moderate potential for discovering significant cultural resources.

Prehistorically, Segment 7 was utilized by Native American Indian groups from both the Columbia Plateau and the northern Great Basin (Ray et al. 1938). This segment is within the ceded land boundary of the CTWSRO, although the Burns Paiute claim to have traditional and ongoing use in the area (Suphan 1974). The BLM has no knowledge of Native American Indian religious sites within this segment.

Historic use of this segment of the South Fork has been primarily for homesteading, farming, or ranching.

Water Quantity and Quality

See Segment 10 for Water Quantity and Quality on the South Fork John Day River.

Headwater areas of the upper South Fork have severe to moderately severe sheet, gully and streambank erosion, with resultant high levels of sediment transport. The most severe problems are in the Lewis Creek, Corral Creek, and Flat Creek areas.

Fish

See Segment 10 for fisheries discussion of entire South Fork John Day River.

Wildlife

Wildlife use of this segment differs from the use in Segment 10, because the canyon opens up. The structure and diversity of riparian habitat decreases and is somewhat confined by agriculture fields. Many wildlife species that use riparian habitat are restricted by these conditions. Irrigated agricultural fields in this segment provide mule deer, elk, and pronghorns with forage high in protein, especially in the late summer and early fall when nutrients in many native forb and grass species decrease. Species commonly observed within this segment are mule deer, red-tail hawks, Townsend's ground squirrels, American kestrels, American robins, house wrens, swallows, mallards, and beaver.

Scenery

Most of this river segment is in a rural setting of tree-covered hillsides and a wide valley bottom containing livestock and occasional ranch structures. Some lands along both sides of the river are divided into pastures by wire fences.

Segment 11, including substantial uplands, is classified in the John Day RMP (USDI-BLM 1985) as VRM Class III. Management activities resulting in changes to the existing character of the landscape may be allowed, provided they do not dominate the view of the casual observer (Appendix O).

Vegetation

The average annual precipitation in this segment varies from about 12 inches at the lower elevations, to above 24 inches at the higher elevations (Quigley and Arbelbide 1997). The river elevation ranges from approximately 5,200 feet above sea level at the headwaters, to 3,860 feet at the County Highway 69B bridge. The canyon bottom averages over 1,300 feet in width until the juncture with Donovan Creek, where it narrows considerably. The slopes at the lower end of this segment are mostly moderate (10% to 30%) and rise to between 4,500 and 5,000 above sea level. However, above Donovan Creek, the slopes become steeper (20% - 60%) and rise to about 5,600 feet above sea level.

This segment lies almost entirely in the Blue Mountains ecoregion, although the section between Antelope and Venator Creeks lies within the Lava Plains ecoregion (Oregon Biodiversity Project 1998). Upland plant communities have been described as "dry shrub" and "cool shrub" in ICBEMP (Quigley and Arbelbide 1997).

The river flows primarily through agricultural fields from County Road 63 bridge to Donovan Creek. Most of the natural riparian vegetation has been replaced by pasture grasses. Much of the segment has either downcut below the original floodplain or been channelized by mechanical means. Little of the historic riparian vegetation is present, although willows can be found. From Donovan Creek to the headwaters, the river is within the Malheur National Forest. The Malheur National Forest has been conducting riparian inventories which will be released upon completion of their next forest plan. A Proper Functioning Condition Assessment has not been completed for this segment.

Three special status species are suspected to occur in this segment; *Rorippa columbiana* (Columbia cress), *Thelypodium eucosmum* (arrowleaf thelypody) and *Astragalus diaphinous* var. *diurnus* (milk vetch).

Agriculture

The WSR portion of this segment (below the National Forest) is used for livestock grazing. The lands along the river are almost totally privately owned. They provide an important location for local ranches to hold and feed their livestock over the winter months (see Table 3-E).

Grazing

Segment 11 contains five active grazing allotments and one that extends into Segment 10 (see Map Plate 6 and Table 3-E). Public land acreage by allotment in this segment varies from 2023 to 3637 acres and public land forage varies from 292 to 927 AUMs. There are approximately 24 river miles (48 river bank miles) in this segment, 1.4 river bank miles (3%) of which are public land. For detail regarding management of the allotments, refer to Appendix L.

No allotment evaluations have been completed on the five allotments, because a land exchange has slated these public lands for disposal.

Recreation

Outside the National Forest portion of this segment, public recreation opportunities are limited to driving for pleasure on the National Backcountry Byway. A lack of public land precludes hiking, fishing, and picnicking. Bicycling could be accommodated on the road. There is a total of 11 undeveloped campsites on this segment, only one of which is on public land. More public outdoor recreation opportunities are available in the National Forest portion of this segment. This area is not designated as a WSR, but the land along the river is open to public use. Water and riparian conditions in the National Forest are good, providing wildlife habitat and a pleasant outdoor recreation setting. The water flows in this segment are insufficient to support boating.

Access

The river is adjacent to paved County Highway 63 for approximately 10 miles. The county road changes to gravel and continues upstream along the South Fork to the USFS boundary, a distance of seven miles. These 17 miles of county road travel mostly through private ranch land and access to the river is limited. At the USFS boundary, the gravel road becomes USFS Road 47 for approximately eight miles. It continues along the South Fork to its headwaters, mostly on USFS land, where good public access to the river is available.

Chapter 3 - Desired Conditions, Alternatives, and Impacts

Introduction

A range of alternatives was developed in accordance with the National Environmental Policy Act (NEPA) to represent different combinations of resource conditions and management actions that would address issues described in Chapter 1. As discussed in Chapter 1, uses along the John Day River are governed by multiple federal, state, and local authorities. The alternatives in this section are described with little distinction between the specific authorities that would implement individual elements of an alternative. Following the final decision, each agency will take the necessary steps to implement their own decision (see Chapter 1). Specific discussion of the effects on other agencies, their plans, and policies is included in Chapters 1 and 5.

How This Chapter is Organized

This chapter is basically organized into four sections (Desired Conditions of Resources, Description of Alternatives, Summary of Immediate Impacts, and Monitoring). The description of desired conditions is provided for resources that are river values in the five segments (1, 2, 3, 10, and 11) located within the Wild and Scenic River. The interdisciplinary planning and the interagency core teams agreed there was consensus concerning the desired conditions for the John Day WSR. Some issues resolved in the following discussion do not have desired conditions. This occurs because the issues are not directly linked to river values and resolutions may be mandated by law (such as Native American uses), or actions are necessary for administration of the river corridor (such as education and information). In both of these situations, the planning partners agree that protecting Native American uses and providing the appropriate level of education and information would serve to protect and enhance the resource values associated with the WSR and non-designated segments.

The second section, description of the alternatives, includes proposed actions and standards for future management decisions. The alternatives are presented in three groupings of actions or standards, as described below.

Continuing Existing Management - Existing management was considered to be the only viable alternative for several areas of management concern (such as the legally defined role of tribal governments in river management and the processes for ensuring Native American interests are considered when making management decisions).

Continuing Existing Management and Additional Actions - This second group of actions can best be described as “continue existing management but do more of it.” The intent of the additional actions emphasize the commitment of the BLM and its planning partners to resolve important issues and protect and enhance outstandingly remarkable values while building upon existing management.

Issues Resolved by Alternatives - These include:

- How should scenic quality be managed?
- How should vegetation be managed to protect and enhance ORVs (with a focus on grazing alternatives on BLM-managed lands and use of irrigated agricultural land managed by the BLM)?
- How should recreation be managed to protect and enhance ORVs?
- How should mining be managed while still protecting and enhancing ORVs?
- How should land ownership, classifications, and use authorizations be organized?

When necessary, Alternatives A-D (except for Scenic Quality, which has only a single alternative; and Boating Use Levels and Motorized Boating, which have five alternatives) are considered for each issue. Even where a range of alternatives is considered to resolve management issues and protect and enhance ORVs, some existing management direction may remain in place as Actions Common to All Alternatives. Alternatives B-D are presented in a sequence that generally (but not always) reflects a trend from least to greatest change from existing management.

Each Action Alternative (B, C, D, and E) is designed to protect and enhance ORVs. Actions proposed are guided by existing laws and regulations, including the Wild and Scenic Rivers Act (WSRA). Where conflicts occur in direction it is assumed that the WSRA takes precedence. Because Alternative A represents existing management, some elements of Alternative A have preceded WSR designation. When this is the case, protecting and enhancing ORVs may not have been the primary concern of management. On the other hand, some existing management direction (such as recent allotment management plans) has been developed with a concern for protecting and enhancing ORVs.

Following the section on “Issues Resolved by Alternatives” is a summary of the immediate impacts of the alternatives.

The last section in Chapter 3 is a review of monitoring necessary to ensure implementation takes place and that goals and objectives are met.

Proposed Decisions

Whenever “Continuing Existing Management with Additional Actions” constitutes the only alternative considered, these are the Proposed Decision. When issues are resolved by an alternative or multiple alternatives, the planning partners chose a Proposed Decision. This environmental impact statement does not identify a single alternative that resolves all issues. Instead, the planning partners selected the Proposed Decisions by issue and sometimes by segment. Table 3-A identifies the Proposed Decisions identified by the planning partners. To compare the Proposed Decision with other alternatives for a given issue, see Table 3-D and the section entitled “Issues Resolved by Alternatives” later in this chapter.

Table 3-A. Proposed Decisions for Issues with Multiple Alternatives

Issue	Key Elements				
	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E
Scenery			X		
Management consistent with RMP classifications, except change classifications to VRM I in WSAs, and Class III on the North Fork and at sites of existing and proposed recreation development.					
Vegetation					
Forestland	X		X		
Grazing		X			
Agricultural Lands			X		
Apply existing John Day RMP guidelines for management of riparian areas to all public land in Segments 7 and 10. Timber removal only to reduce risk of catastrophic timber losses due to insect infestation, disease or wildfire. Utilizes variety of management strategies to protect and enhance ORVs including use restrictions, rest, and riparian exclusion. Identifies 25.6 acres of public land for disposal in exchange for more suitable lands within river corridor. Commits 359 acres of public lands with associated water rights to non-commodity uses, including food and cover crops or restoration of natural vegetation. Ten-year phased implementation.					
Recreation					
Boating Use Levels			X		
Allocation				X	
Motorized Boating	Seg. 1			Seg. 2	Seg. 3
Dispersed Recreation			X		
Developed Recreation	Seg. 11	Seg. 1 - 3	Seg. 10		
Public Access		X			
Commercial Use		X			
Minerals		X			
Land Ownership, Classifications, and Use Authorizations		X			
Base future decisions on LAC. Seg. 1, No overall launch targets. Segments 2 and 3, overall launch target equal 70% of public land campsites within 15 miles of major launch points. Common pool; first come first served, if similar system established on Deschutes River. Segment 1 - Closed May 1 through Sept. 30. Segment 2 - Closed all year. Segment 3 - Closed May 1 through September 30. Future decisions based on LAC. Segment 1: No action. Segment 2&3: Create user map of campsites that can best sustain human use. Designate dispersed camping area on west bank near Clarno. Segments 10 and 11: Identify preferred dispersed camping areas, install signs and parking barriers. Segment 1: Add boat ramp and boater registration station at Rock Creek and provide picnic tables at Cottonwood. Provide parking for Oregon Trail Monument. Segment 2: Add launch lane and pay phone at Clarno. Segment 3: Install toilet at Priest Hole, add primitive launch at Lower Burnt Ranch, and develop public launch site at Twickenham. Segment 10: In approximately 10 years, from ROD, develop campground near Ellingson Mill. Segment 11: No action. Segment 1: Clarify status of access to Oregon Trail Monument. Segment 2: Improve BLM road on west bank of river from Clarno to Clarno Homestead; close area past Clarno Homestead to vehicles during first 10 days of pheasant hunting season. Segment 3: Provide public access to river near Twickenham; eliminate motorized access to existing Burnt Ranch site, while improving access to Lower Burnt Ranch site. Segments 10 and 11: Improve ditches and culverts, and gravel the surface of South Fork Road. No limit on # of outfitter guide permits. After initial moratorium, issue new permits and transfers at discretion of Authorized Officer, based on needs assessment. Transfers according to BLM policy. Increase permit requirements, minimum use requirements, and application fees. Conduct independent random audits of permit records. Mining activity must meet screening regulations prescribed in Chapter 4 (State Scenic Waterway Regulations). No surface occupancy for leasable minerals; stipulations to protect river values, no new sites for production of salable minerals on BLM lands. Developed facilities closed to leasing and salable minerals and withdrawn from entry for locatable minerals. Existing guidance, plus pursue additional potential acquisitions to enhance ORVs (all acquisitions would require a willing seller). Amend land use authorization of newly acquired WSA lands in Segments 2 and 3 to WSA status.					

Desired Condition for Public Lands

Fish

Provide diverse aquatic habitat, including sufficient water quantity and adequate water quality, to sustain wild populations of native and desirable non-native (smallmouth bass) fish species. Population goals for summer steelhead and spring chinook salmon are sustained or exceeded to provide for species integrity, and sport and tribal harvest. Maintain a “quality fishery” for smallmouth bass in Segments 1, 2 and 3.

The John Day River provides aquatic habitat for runs of wild anadromous steelhead trout and spring chinook salmon. The river provides adequate water quantity to allow anadromous fish passage upstream and into tributaries, and to dilute any pollutants present in the river to a level not harmful to fish. The river provides spawning areas where adequate flows and spawning gravels exist and are available to spawning anadromous fish during spawning times. Water quality is sufficient to provide optimal temperatures, pH, dissolved oxygen and other trace chemicals needed for development of hatching and rearing fish.

Salmon and steelhead escapement in the basin meets population targets of 7,000 adult spring chinook and 45,000 adult steelhead trout. Bass population numbers and age structure support a “quality fishery” in the John Day River in Segments 1, 2, and 3.

The river provides sufficient flows, and riparian vegetation provides structure when submerged, to facilitate bass spawning and rearing.

Aquatic habitat within the John Day River meets the goals of PACFISH, the Interim Strategy for Managing Anadromous Fish-Producing Watersheds on Federal Lands in Eastern Oregon and Washington, Idaho, and Portions of California (USDA-FS and USDI-BLM, 1995). The following is taken from PACFISH:

The goals establish 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 ecosystems 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 an 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; and
 - C) Help achieve rates of surface erosion, bank erosion, and channel migration characteristic 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.

Wildlife

The diversity of wildlife habitat and the resulting wildlife species diversity, which includes special status species, are protected and enhanced.

The river corridor 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. Wildland and prescribed fire are an integral part of maintaining diverse landscapes in this habitat type. Western juniper dominance is limited to those areas where fire frequency is limited by site productivity.

Non-native and/or wild sheep, goat and pig populations are managed in such a manner as to not pose a threat to native wildlife species and their habitats.

Riparian habitat is characterized as having a diversity of shrub/tree species and age classes to provide habitat structure for those species using this habitat type, providing the site can support this type of vegetation. 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.

Wildlife food and cover plots provide a diversity of habitat to support and enhance upland game bird populations, and to provide additional recreational opportunities associated with hunting and viewing upland game birds.

Forested habitats are healthy, disease and insect resistant, and have a variety of structural stages. Fire is an integral part of this habitat type, and management is focused on keeping this habitat type diverse and healthy. Noxious weed populations are controlled in all habitat types to reduce the threat to wildlife habitat and populations.

Human disturbance to wildlife and wildlife habitat are not detrimental to populations or wildlife species viability.

Water Quantity and Quality

Instream flows meet interim minimum flow goals (Table 2-J) or a level (determined through further analysis) sufficient to support outstandingly remarkable values and accommodate beneficial uses.

Water quality meets state standards or is in balance with basin capabilities, satisfies obligations of the Clean Water Act, and is adequate to protect and enhance ORVs, especially anadromous salmonids.

The John Day River meets or exceeds the flow guidelines (Diak flows) established in the OWRD report of 1990. Upland and riparian conditions provide groundwater storage and delayed release sufficient to maintain late season flow. Peak flow remains below historic peaks. Water quantity is sufficient to protect and enhance ORVs.

Water quality complies with the criteria specifically listed by ODEQ in OAR 340-41-0605. Water temperature does not exceed 50 °F (10 °C) where the designated beneficial use is for Oregon Bull Trout habitat. Segments where salmonid fish rearing is a designated beneficial use, surface water temperatures do not exceed 64°F (17.8°C).

Large portions of the contributing watersheds are outside the control of the partners in this plan. Cooperation with other landowners within the basin enables both public and private land managers to take actions that reduce the introduction of pollutants and improve water quantity and temperature. Water quality levels are sufficient to protect and enhance the health and survival of wildlife and aquatic species.

Paleontology

Paleontological resources are preserved, protected and made available for viewing, education and research purposes, as appropriate.

The area within the river corridor and entire basin is nationally and internationally important due to the exposure of 40 million years of datable geologic sequence, which provides a rare glimpse of changing ancient ecology, geologic structure and mammal evolution. These conditions offer researchers unique opportunities to test evolutionary theories. Fossil localities within and adjacent to this corridor segment have important interpretive and educational values.

In Segments 1, 2, and 3, vertebrate and botanical fossils occurring in exposures of the Clarno and John Day Formation offer ecological perspective not available in other parts of the John Day basin. This is due to the relatively recent exposure of fossil-bearing strata that has resulted from the erosion of harder, overlaying rock.

Cultural Resources

The integrity of cultural resources (both historic and prehistoric) is preserved and protected. These resources are made available for cultural, educational and/or research purposes, as appropriate.

In Segments, 1, 2, and 3, prehistoric and historic cultural resources on public lands have the potential to provide insights into past human land use patterns within a restricted geographic setting (the lower John Day River canyon). This geographic area played an important role in development of both prehistoric and historic cultures in northern and central Oregon.

Limited information is available concerning historic and prehistoric resources in Segments 10 and 11. The geography, however, suggests that there is moderate potential for discovering significant prehistoric or historic sites/features. It is likely that prehistoric and historic travel routes crossed this segment.

Scenery

Natural landscapes are preserved and maintained. Further development of modified landscapes is avoided or minimized. Modified landscapes are restored to natural character where opportunities allow.

The designated river corridor for the Lower John Day River is largely primitive and undeveloped, containing a diversity of land-forms, vegetation, and unique features. As it slices through a high basalt plateau, the river winds alternately through gentle farm valleys, 1,000-foot high basalt cliffs, and steep rugged hills. Lush green riparian vegetation at the river edge contrasts with golden hills of grass, sagebrush, and juniper. 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.

Vegetation

Plant communities, biological soil crusts and special status plant species are providing aspects of habitats, visuals, and communities that support watershed function, healthy ecosystems, other river values, and human uses.

Rangeland vegetation includes a mosaic of multiple-aged shrubs, forbs, and native perennial grasses. Desirable non-native grasses and forbs may be present on previously degraded sites where rehabilitation or restoration has taken place. Shrub overstories are present in a variety of spatial arrangements and scales across the landscape level, including large contiguous blocks, islands, and corridors. Shrub overstories are present in predominantly mature, late-successional stages. Plant communities not meeting “desired future conditions” show upward trends in condition and structural diversity. Desirable plants continue to improve in health and vigor. New infestations of noxious weeds are not common across the landscape, and existing large infestations are declining. Populations and habitat of rare plant species are stable or continue to improve in vigor and distribution.

Upland soils have sufficient biological soil crust development and vegetation cover to support infiltration (equal to or less than a 25 year, 5-hour event) and minimize soil erosion. Physical and chemical soil properties are adequate for vegetation growth and hydrological function appropriate to the specific soil type, landform, and climate.

Large portions of the landscape have a protective soil cover of deep-rooted plants, biological soil crusts, and litter that support proper hydrologic function.

Western juniper dominance is limited to rock outcrops, ridges, mesas, or other sites where moisture, soils and natural fire conditions result in appropriate conditions. Western juniper generally occurs in low densities in association with vigorous shrub, grass, and forb species, consistent with site potential. Historic juniper sites retain old growth characteristics. Quaking aspen communities occupy their historic range and are stable or improving in vigor.

Wildland and prescribed fire play an active role in defining the composition of vegetation and limit the dominance of woody species.

Forest stands in Segment 7 would contain mixed conifers. Since these stands are primarily located on north-facing slopes, they would contain ponderosa pine as well as Douglas fir and white fir. In time, all species would attain age classes ranging from 150-300 years.

In Segment 10, forest stands would be dominated by ponderosa pine with some areas containing Douglas fir and white fir. Other areas of Segment 10 would contain ponderosa pine with juniper and grasses in the understory. Generally, ponderosa pine ages would range from 100-300 years while Douglas fir and white fir ages would range from 80-200 years.

In both segments, some areas of dense vegetation (seedlings, brush, grasses) would be present and would provide wildlife habitat, support hydrologic function, stabilize soils, and protect and enhance visual and recreation values. In other areas, older stands of larger (greater than 20 inches dbh) ponderosa would provide suitable habitat for some wildlife species and provide conditions less favorable for catastrophic fires.

Riparian areas and stream habitat conditions have improved as a result of protection and management. Watersheds are stable and provide for capture, storage, and safe release of water appropriate to soil type, climate, and landform. Most riparian/wetland areas are stable and include natural streamflow and sediment regimes related to contributing watersheds. Soil supports native riparian/wetland vegetation to allow water movement, filtration, and storage. Riparian/wetland vegetation structure and diversity are significantly progressing toward controlling erosion, stabilizing streambanks, healing incised channels, shading water areas, filtering sediment, aiding in floodplain development, dissipating water energy, delaying floodwater, and increasing recharge of ground water appropriate to climate, geology, and landform. Stream channels are narrower, water depth and channel meanders are increasing, and floodplains are developing. Stream channels and floodplains are making significant progress in dissipating energy at high-water flows and transporting and depositing sediment as appropriate for geology, climate and landform. Riparian/wetland vegetation is increasing in canopy volume (height and width) and in healthy uneven-aged stands of key woody plants, increasing in herbaceous ground cover, and shifting toward late succession. Surface disturbances inconsistent with the physical and biological processes described above have been reduced. Disturbances from roads, dispersed campsites, and inappropriate livestock use are decreasing as vegetation and soils recover naturally. There is no downward trend in riparian condition and function.

Recreation Opportunities

A variety of boat-in, drive-in, and walk-in recreation experiences are provided, including motorized and non-motorized boating on specific segments, and wheelchair accessible opportunities in developed sites. Commercial outfitters provide public service based on assessed need.

Within the river corridor, low-density dispersed recreation occurs in semi-primitive sections (Segment 2 and a portion of Segment 3), with medium-density developed recreation concentrated in roaded natural and rural areas. Naturalness and the opportunity for solitude and a primitive, unconfined recreation experience is maintained within WSAs. User impacts on resources are periodically monitored, and management actions to protect resources are taken such as site closures, site rehabilitation and where appropriate, site development. Use is managed using a combination of approaches including on and off-site information, education, enforcement and, if needed, limits on use. Appropriate boating use levels are based on the availability and condition of campsites and the user's perception of crowding at key locations such as river access points, rapids, and within WSAs. As boating use approaches identified maximum use levels, as determined through a Limits of Acceptable Change planning and monitoring process, sequenced management actions to control use are implemented at designated locations along the river. Periodic monitoring is conducted to assess site impact and user perception. Future development of recreational facilities is limited to existing developed areas (recreation nodes) and new areas that replace sites closed for resource protection.

The John Day River offers excellent opportunities for boating, fishing and hunting. Visitors and residents also enjoy camping, picnicking, sightseeing, swimming, photography, rock-hounding, and viewing wildlife and cultural sites. Boating opportunities of beginning to intermediate skill levels range from one-day trips to week-long excursions through a scenic and mostly primitive landscape. The John Day River offers a rare opportunity to boat 235 continuous river miles, 147 miles of which are Wild and Scenic. Most boating use is concentrated between April and July when weather and water flows are optimal. Superior steelhead and smallmouth bass fishing has brought the lower John Day River national acclaim. Hunting opportunities for big game, waterfowl and upland game birds are available. Three WSAs are located along the lower John Day River and provide the opportunity for a primitive and unconfined recreation experience

Issues Resolved by Continuing Existing Management

After review of existing management standards and guidelines, it was determined that continuing existing management was appropriate for resolving certain issues (see Table 3-B).

Table 3-B. Issues Addressed by Continuing Existing Management

Riparian and Aquatic Habitat Restoration
Fish
Wildlife
Native American Uses

Riparian and Aquatic Habitat Restoration

Most riparian/wetland areas are stable and include natural streamflow and sediment regimes related to contributing watersheds. Soil supports native riparian/wetland vegetation to allow water movement, filtration, and storage. Riparian/wetland vegetation structure and diversity are significantly progressing toward controlling erosion, stabilizing streambanks, healing incised channels, shading water areas, filtering sediment, aiding in floodplain development, dissipating water energy, delaying floodwater, and increasing recharge of ground water appropriate to climate, geology, and landform.

Riparian and Aquatic habitat restoration includes direct actions such as bioengineering and the introduction of large woody material or other structural materials to improve riparian or instream habitat. And the outplanting of riparian shrub and tree species into compatible locations. Other activities, such as management of grazing, that may impact riparian conditions are addressed in the appropriate sections of this document.

The 1997 Technical Report of the Interagency Wild and Scenic Rivers Coordinating Council (IWSRCC) states: “Construction and maintenance of minor structures for the protection, conservation, rehabilitation, or enhancement of fish and wildlife habitat are acceptable, provided they do not have a direct and adverse effect on the values of the river, including the free-flowing nature. Structures should be compatible with the river’s classification, allow the area to remain natural in appearance, and harmonize with the surrounding environment.” Activities involving ground disturbance require further consultation with the ODFW, Oregon Division of State Lands, and OPRD, State Scenic Waterways Division. There are no specific projects of this type planned or described in this plan. Any future proposed projects of this nature on public lands would be subject to public review and appropriate federal, state and tribal consultation. In addition, prescriptions within the WSR segments would be designed and evaluated for concurrence with IWSRCC guidance.

The current program of riparian outplanting would continue. The BLM maintains a cottonwood stock nursery in the Clarno area where seed stock from throughout the basin had been planted and cataloged. Each year, cuttings from this stock are taken for planting in suitable areas throughout the basin to enhance riparian productivity, diversity and structure, and to eventually provide a seed source for natural propagation of cottonwood throughout the basin. In addition, other species of riparian shrubs and trees are planted throughout the basin with the same goals and objectives.

Fish

Provide diverse aquatic habitat, including sufficient water quantity and adequate water quality, to sustain wild populations of native and desirable non-native (smallmouth bass) fish species. Population goals for summer steelhead and spring chinook salmon are sustained or exceeded to provide for species integrity, and sport and tribal harvest. A “quality fishery” is maintained for smallmouth bass in Segments 1, 2 and 3.

The Endangered Species Act (ESA), Clean Water Act, Strategy for Salmon (Collete and Harrison 1992a, b), and Interim Strategies for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California (USDA-FS and USDI-BLM, 1995) provide public land management direction for the protection and enhancement of the fisheries resources of the John Day River, particularly anadromous salmonids. Ongoing implementation of conservation measures by federal, state, county, tribal, and private entities has resulted in notable improvement of fish habitat within the John Day basin. The ODFW manages the John Day River system for “wild” fish production and administers harvest regulations.

Summer steelhead and spring chinook salmon production goals have been jointly established by the ODFW, Confederated Tribes of the Warm Springs Reservation of Oregon (CTWSRO), and Confederated Tribes of the Umatilla Indian Reservation (CTUIR). These goals are 17,038 and 7,124, respectively. Modification of these production goals would be based on analysis by these designated managers.

The ODFW manages smallmouth bass in Segments 1, 2, and 3 for a “quality fishery.” This means that at least 20% of the catch is greater than or equal to 12 inches. Upstream of Segment 3 the river is managed as a “basic yield fishery,” allowing anglers to harvest a variety of sizes.

Alternatives for managing public land vegetation, grazing, and agricultural lands, and water quantity and quality would be utilized to protect and enhance fisheries resources. Direct fisheries habitat restoration actions would follow guidance identified under Riparian and Aquatic Habitat Restoration and would be subject to public review, and appropriate federal, state, and tribal consultation.

Wildlife

The diversity of wildlife habitat and the resulting wildlife species diversity, which includes special status species, are protected and enhanced.

Existing management for wildlife habitat is described in the Two Rivers RMP, the John Day RMP, other supplemental coordinated RMPs, habitat management plans, environmental assessments, and the ESA. This existing guidance would continue to implement the following management:

- 1) Improve and maintain vegetative condition to benefit livestock and 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.

Formal and informal consultation with the U.S. Fish and Wildlife Service will be initiated on all proposed actions that may affect any Federally listed threatened or endangered species. No activities will be permitted in threatened, endangered, or sensitive species habitat that would jeopardize the continued existence of such species. Threatened and endangered and special status species habitat will continue to be monitored, maintained, and/or improved.

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.

Public land use by non-native and/or wild sheep, goats, and pigs is not authorized, and the BLM supports 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.

Wildlife habitat would continue to be managed to provide for wildlife species and habitat diversity. Crucial habitats would be monitored for forage production, habitat condition changes, and overall effectiveness of improvements. Existing improvements that relate to wildlife habitat would be maintained. Habitat management plans would be written for selected areas of wildlife habitat and specific wildlife objectives would be included in all activity plans. Seasonal restrictions would continue to be applied to mitigate impacts of human activities on important seasonal wildlife habitat.

In order to protect California Bighorn Sheep, no active domestic sheep permits are allowed on BLM allotments in Segment 2, nor would conversion of permits from cattle or horses to sheep (domestic or non-native) be allowed in the future.

Native American Uses

Nearly all of the lands within the John Day basin were ceded to the U.S. Government by the Confederated Tribes of the Warm Springs Reservation of Oregon through the treaty with the Tribes of Middle Oregon on June 25, 1855. Reserved treaty rights provide for continuation of subsistence activities within the ceded land boundaries, as well as providing for tribal member access to usual and accustomed fishing locations that lie outside of the ceded lands. The treaty reserves to the Indians the right for fishing at usual and accustomed locations, and the privilege of hunting, gathering roots and berries and grazing their stock on unclaimed land in common with U.S. citizens.

Cultural resources are of great significance to the people whose ancestors have used the land for countless generations in prehistoric and historic times. The interests of the tribes include the protection of Indian burials and other sacred sites, as well as the perpetuation of traditional activities such as hunting, fishing and root gathering. This long-standing use of natural resources has resulted in lifeways that are integral to the maintenance of the tribe's culture and which cannot be fully conveyed in federal policy.

The BLM and other federal agencies have a trust responsibility to Native American Indian tribes. This responsibility derives from the historical relationship between the federal government and Native American

Indian tribes as expressed in treaties and other components of federal Indian law. The trust responsibility requires BLM to conduct its activities consistent with the obligations set forth in treaties, federal court decisions, federal legislation, and in various secretarial and executive orders. Although the exact extent of BLM's trust responsibility with regard to tribes' off-reservation rights and privileges has not been defined, BLM recognizes that meaningful consultation with the tribes is essential to carrying out this trust responsibility.

Listed below are some of the many components of the relationship between the BLM and Native American Indian tribes in the context of Native American Indian uses:

- Ratified Treaties of 1855
- American Indian Religious Freedom Act (1978)
- National Environmental Policy Act (1966)
- Secretarial Order 3206 (1995)
- Secretarial Order 1326 (1996)

In addition, Executive Order 13007 directs federal bureaus and offices to consult with tribal representatives in early planning stages to identify religious values of American Indian people that could be affected by proposed actions on federal lands.

Finally, a Memorandum of Understanding (MOU) has been signed between the Oregon/Washington BLM and CTUIR. The agreement addresses the appropriate level and timing for consultation, as well as other coordination issues with the Umatilla tribe and the BLM. The BLM will also pursue a similar MOU with the CTWSRO and the Burns Paiute tribe.

Continuing existing management would require different levels of consultation between the federal agencies and the appropriate tribal groups. Improving relations and understanding between the BLM and the tribes would be stressed at all levels.

Issues Resolved by Continuing Existing Management with Additional Actions

This section describes actions that resolve issues and protect and enhance river values by continuing existing management. Continuing existing management would be based on the John Day and Two Rivers RMPs, as amended. The current land use laws, policies, and directions would apply on private lands. All additional actions are consistent with and build on existing management direction. Table 3-C summarizes the "Issues Resolved by Continuing Existing Management with Additional Actions."

Table 3-C. Issues Addressed by Continuing Existing Management With Additional Actions

Existing Management	Additional Actions
Water Quantity and Water Quality	
Continue existing management.	Improve cooperative planning and management; target Diack flows.
Paleontological Resources	
Continue existing management.	Provide additional coordination, protection, and enhancement.
Cultural Resources	
Continue existing management.	Provide additional coordination, protection, and enhancement.
Public Information and Education	
Continue existing management.	Increase programs for communicating information and providing educational opportunities for the public.
Law Enforcement and Emergency Services	
Continue existing management.	Increase cooperation.

Water Quantity and Quality

Instream flows meet provisional minimum flow goals (see Table 2-J) or a level determined through further analysis sufficient to support outstandingly remarkable values and accommodate beneficial uses.

Water quality meets state requirements, satisfies obligations of the Clean Water Act, and is adequate to protect and enhance outstandingly remarkable values, especially anadromous salmonids.

Existing Management

As the designated administering agency, BLM is required by Section 7 of the Wild and Scenic Rivers Act (WSRA) to review all federally assisted water resource projects within designated segments to ensure that such projects would not have “a direct and adverse effect” on the values for which these WSR segments were established. The BLM is also required to review federally assisted or approved projects above or below these designated segments to ensure that such projects would not “invade the area or unreasonably diminish the scenic, recreational, and fish and wildlife values present in the area . . .” Because these reviews are legally mandated by the WSRA, BLM would complete the reviews under all alternatives

There are currently many independent and cooperative efforts underway to improve water quantity and quality in the John Day basin. These would be continued under existing management. The following paragraphs describe

the regulatory context of water quantity and quality management, and provide examples of the types of independent and cooperative projects that are being implemented to improve water quantity and quality in the basin.

Protection of instream flows in the John Day River system relies on two mechanisms—instream water rights, and John Day River State Scenic Waterway (SSW) flows. Instream water rights for fish have been issued for some segments of the John Day River system. These rights are subject to senior priority appropriations and do not actually ensure that flows are present for fish protection during critical life cycle stages. When flows are available, however, existing instream rights protect that flow from junior priority consumptive use. The Oregon Water Resources Department (1986) has identified desired flow levels to protect recreation, fish and wildlife in the John Day River and its forks. State Scenic Waterway flows are not water rights, rather, flow levels included by the OWRD in its calculations of water availability for future consumptive uses. Like instream water rights, SSW flows do not ensure live flow in the river during low flow times, but they do serve as a goal to strive for through better resource management.

The Clean Water Act requires the ODEQ to establish water quality standards, evaluate conditions relative to these standards, and develop strategies for water bodies not in compliance with established standards. The complex nature of fulfilling this task has necessitated coordinated efforts among management entities to address this issue at the watershed scale. The primary agencies directing this effort are the ODEQ and Oregon Department of Agriculture in association with the Oregon Department of Fish and Wildlife, Oregon Department of Water Resources, BLM, US Forest Service, Natural Resources Conservation Service, Soil and Water Conservation Districts, Tribal Governments, Watershed Councils, and private land owners. Existing ODEQ policy requires that a Water Quality Management Plan be formulated for all water quality limited rivers and streams in Oregon (ODEQ 1997). The ODEQ is scheduled to establish total maximum daily loads (TMDLs) for the Middle Fork, North Fork, Upper, and Lower John Day River subbasins in the years 2002, 2003, 2004 and 2005, respectively.

Further protection and enhancement of water quantity and quality at the basin scale would be achieved through ongoing directives and programs such as the Strategic Plan for Managing Oregon's Water Resources 1999-2001 (OWRD 1999), Water Resources Department - John Day Basin Program (OAR 1998), Oregon Conservation Reserve Program (Ringer 1998), Accelerating Cooperative Riparian Restoration and Management (USDA-FS, USDI-BLM, and USDA-NRCS 1997), Environmental Quality Incentives Program (USDA-NRCS 1996), Interim Strategies for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California (USDA-FS and USDI-BLM 1995), and Strategy for Salmon (Collette and Harrison 1992a, b).

In recent years, state and federal resource management agencies have engaged in cooperative and coordinated efforts at the watershed scale to improve riparian and aquatic conditions. The following are examples of recent efforts that would individually or cumulatively protect and enhance water quantity and water quality, and fisheries.

- Establishment of instream water rights.
- Water sharing agreements between private landowners, OWRD and ODFW.
- Push-up dam removal and diversion modification (such as infiltration galleries).
- Irrigation efficiency projects - conversion from flood to sprinkler or gated pipe.
- Riparian fencing projects.
- Fencing and spring developments to implement grazing systems that improve and maintain riparian and upland vegetation.
- Fish screening of irrigation systems.
- Off-channel or headwater check dams.
- Juniper and noxious weed control.
- Prescribed burning.
- Wildlife food and cover seeding.
- Riparian plantings.

These activities may be implemented by individual landowners and agencies, or through various levels of coordination of individuals, watershed councils, and local, state, federal, and tribal governments.

Additional Actions

A new action would adopt recommended flows identified in the John Day River Scenic Waterway Flow Assessment (see Table 2-J) as provisional instream flow goals for the John Day River Plan. These flow levels were identified to support recreation needs (OWRD 1986), and meet or exceed optimal flows for anadromous fish (Lauman 1977).

The managing agencies would use a two-pronged approach to achieve these flow goals and meet state water quality requirements. First, the agencies would continue their present individual and cooperative efforts to improve instream flows and water quality in the John Day River basin as described in Alternative A.

Second, the John Day River co-managers (BLM, State of Oregon, and CTWSRO) would coordinate to identify, prioritize, and facilitate actions that would help achieve the identified flow goals and state water quality requirements. The information sharing process would be open to tribal, local, state, federal, business/industry, recreational, and conservation/environmental representation to:

- Develop basin-wide priorities and recommendations for water quantity and quality improvement projects and practices.
- Provide guidance and technical assistance to cooperative individuals and groups, such as Watershed Councils.
- Coordinate funding sources to assist in implementing identified projects.
- Modify long-term goals and specific management practices based on results of monitoring, new information, or meaningful changes in conditions.

Alternatives for management of grazing, agricultural lands, and recreation have been formulated to protect and enhance river values. The effects of these actions on water quantity and quality are addressed in Chapter 5 (Environmental Consequences).

Paleontological Resources

Paleontological resources are preserved, protected and made available for viewing, education and research purposes, as appropriate.

Existing Management

The management of fossil resources on public lands in the John Day basin is directed by existing laws, regulations, and agreements, including the Federal Lands Policy and Management Act (FLPMA), National Environmental Policy Act (NEPA), BLM manual sections 8270 and 8270-1, the BLM OR/WA strategy document for managing vertebrate fossil resources (Martin 1995), and an interagency agreement to co-manage fossil resources with the National Park Service (NPS), John Day Fossil Beds National Monument. Through these directives, fossils are divided into different classifications with each treated in a different manner. Of the various groups, vertebrates, normally the rarest of fossil groups, may be collected only by bona fide scientific researchers and institutions under permit authority. Collection of vertebrate fossils, or any fossils commercially, without a permit constitutes unauthorized use; violations may be dealt with under appropriate statutes. Common invertebrates and most botanical fossils may be collected for noncommercial purposes without a permit. Limited quantities of petrified wood may also be collected for noncommercial purposes under terms and conditions consistent with the preservation of significant deposits as a public recreational resource. A permit for collection of petrified wood is required for single specimens over 250 pounds, for removal of more than 25 pounds per day per person and for removal of more than 250 pounds per year. A special commercial permit must be obtained for collection of petrified wood for sale.

Existing management would continue in accordance with current laws, policy and agreements to protect and enhance paleontological resources and to prevent unauthorized disturbances. This means reactive inventory, recording and evaluation on a project specific level, maintenance of files and maps, monitoring on an irregular basis for unauthorized disturbances and locality condition, periodic public outreach and education efforts, and consulting with the NPS at the John Day Fossil Beds National Monument on all proposed actions that might affect fossil resources.

Additional Actions

Manage paleontological resources in the same manner as Alternative A, except also include the following tasks that would contribute to protection and enhancement of paleontological resources and the prevention of unauthorized disturbances:

- Conduct inventory and cyclic prospecting at all potential fossiliferous exposures
- Coordinate with the NPS and other outside entities to conduct appropriate scientific research on identified localities within the corridor
- Develop and implement appropriate interpretive/public outreach/educational techniques
- Pursue development of partnerships with external entities to accomplish any or all of the above.

Cultural Resources

The integrity of cultural resources (both historic and prehistoric) are preserved, protected, and made available for cultural, educational and/or research purposes, as appropriate.

Existing Management

Management of cultural resources consists of applying protection and preservation measures in accordance with treaty trust responsibilities, federal law (including Section 106 of National Historic Preservation Act [NHPA] 1966, Executive Order 11593, Archaeological Resources Protection Act [ARPA] 1979 amended), and BLM policy. For example, on a project-specific level, a common approach is to consult with appropriate tribal groups, identify any potentially eligible historic properties within the Area of Potential Effect (APE), evaluate potential effects, and then make recommendations as to the proper disposition. Also, there are specific laws that deal with Native American religious freedom and graves protection. On larger planning efforts, however, protection and preservation measures incorporate not only basic compliance methods but include broader management strategies, as well. Examples might include such actions as increased site monitoring and law enforcement patrols to discourage vandalism and check site conditions, increased involvement by tribal groups (beyond that required by law) in on-the-ground management actions, development of partnerships to gather information about or protect key resources, general or site-specific interpretation, and public outreach/education efforts. Previously recorded sites in some portions of the river are monitored on an annual or biennial basis. Some portions of the river receive less frequent monitoring, especially where information is lacking.

Cultural resources would continue to be managed in accordance with current laws, policy and agreements for the protection and enhancement of cultural resources, and to prevent unauthorized disturbances. This means reactive inventory, recording and evaluation on a project-specific level, maintenance of files and maps, monitoring for ARPA violations and site condition on an irregular basis, periodic outreach and education efforts, and consulting with appropriate tribal groups on specific proposed actions.

Additional Actions

Additional actions would include the following tasks (not necessarily in order) that would contribute to protection and enhancement of cultural resources and prevent unauthorized disturbances:

- Re-recording known sites.
- Evaluating sites for appropriate BLM Use Categories/National Register eligibility.
- Conducting 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.

Information and Education

Existing Management

The current level of information and education includes efforts to educate the public in “Leave No Trace” outdoor ethics and respect for private property rights, controlling the spread of noxious weeds, reducing the threat of wildfire, and general information and regulations pertaining to use of public lands. This information is disseminated through information boards at major access points, responses to written and telephone information requests, outfitter and guide meetings, and visitor contact with BLM employees and volunteers stationed in the office, on public lands, and on the river. Presentations to schools and interest groups are conducted by request. The BLM would continue the current policy of not seeking out advertising opportunities or media coverage that is intended to bring more users to the John Day River.

Additional Actions

The BLM would increase the level of information and education that is disseminated to the public compared to existing management. In addition to continuing the actions listed in Alternative A, the BLM would 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 would be constructed on the South Fork John Day Backcountry Byway to educate the public about wildlife, riparian, and weed management programs. Where trespass is a problem, the BLM would install ownership identification markers between BLM, state, and private lands to clearly identify land ownership and reduce trespass potential.

Law Enforcement and Emergency Services

Existing Management

Guidance for law enforcement and emergency services on public lands includes: federal guidance from FLPMA and the Code of Federal Regulations, State guidance from Oregon State Law including Oregon Administrative Rules, Oregon Revised Statutes, Oregon Vehicle Code, Criminal Code of Oregon, ODFW Regulations and Fire Regulations, as well as county regulations and department policy and guidelines for each agency.

Under this alternative, the BLM would maintain the existing level of law enforcement coverage. This consists of law enforcement personnel conducting one to two on-river patrols each season to enforce BLM regulations concerning use of public lands, and responding to requests for law enforcement assistance from non-law enforcement BLM personnel whenever possible.

Additional Actions

The BLM would improve coordination with state and local agencies by organizing a work group comprised of representatives of agencies providing law enforcement and emergency services along the John Day River. The purpose of the group would be to set common goals and determine how each player can best contribute to these goals. Common goals and implementation strategies would be sought in areas such as radio communications, law enforcement on public lands, search and rescue efforts, and emergency response along the John Day River. The BLM would encourage joint emergency service training exercises for agencies, fire districts, outfitters and private individuals.

Issues Resolved by Alternatives

The following discussion describes a range of alternative actions for resolving issues associated with vegetation management, recreation, commercial use, and minerals. Table 3-D displays the key elements, indicators, and themes of each alternative as it applies to these management concerns.

Table 3-D. Issues Addressed by Multiple Action Alternatives (Proposed Decision in Bold)

Issue	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Scenery	Manage scenery consistent with VRM classifications in current RMPs; Class II within all WSR segments, most non-designated segments, and portions of some tributaries.	Allow continued use, maintenance and expansion of existing BLM recreational facilities within river corridor, including boat ramps and parking lots. Designate and manage such facilities as VRM Class III islands within river corridor VRM Class II designation. New recreation sites within corridor would be designated and managed consistent with VRM Class III.	VRM classifications in John Day RMP for portions of Segment 7, on North Fork John Day River, would be reclassified from VRM IV to VRM III to provide greater VRM protection. This would apply to current BLM lands, as well as any acquired lands until John Day RMP is amended or revised.		
Vegetation		Same as Alternative A, except change classification in WSAs to VRM I to be consistent with updated BLM guidance.			
Special Status plants	Continue existing management to protect and enhance ORVs.				
Weeds	Continue existing management to protect and enhance ORVs.				
Fire	Continue existing management to protect and enhance ORVs.				
Forestlands	Continue existing management.	Same as Alternative A, plus substitute John Day RMP guidelines for management of riparian areas for existing management guidelines for upland areas within the planning area in Segments 7 and 10.			

Table 3-D. Issues Addressed by Multiple Action Alternatives (Proposed Decision in Bold)

Issue	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
<p>Grazing</p>	<p>Continue existing management by applying varying management practices that emphasize riparian oriented management that protects and enhances river values. Some allotments do not meet this goal (see Table 3-E.)</p>	<p>Manage grazing to protect and enhance ORVs. 105 Bank miles managed grazing. Season not to exceed 2 months, primarily late winter early spring. In pastures with riparian areas within designated corridor that are currently grazed in spring, grazing authorized only when flows exceed 2,000 cfs to aid in protection of riparian vegetation. For such pastures that are currently winter grazed, the 2000 cfs restriction is an interim measure (see Monitoring in Chapter 3). Establish compliance, utilization and trend standards for continued grazing. If grazed riparian areas within designated corridor are not improving at same rate as similar ungrazed areas within 10-15 years, exclude grazing permanently. <u>72</u> Bank miles riparian exclusion (fence or natural barriers) <u>18</u> Bank miles rest at least 3 years.</p>	<p>Restrict grazing to outside of riparian areas to protect and enhance ORVs 194 bank miles of riparian enclosure.</p>	<p>Restrict grazing to outside of Wild and Scenic River Boundary to protect and enhance ORVs 193 bank miles of riparian enclosure. 65,845 acres of upland and riparian area excluded from grazing.</p>	<p>No Alternative E</p>

Table 3-D. Issues Addressed by Multiple Action Alternatives (Proposed Decision in Bold)

Issue	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Agricultural Lands	Continue Existing Management	Modify existing management as necessary to protect and enhance river values. Commercial agriculture permitted on BLM land.	Manage land with emphasis on protecting and enhancing terrestrial wildlife values and restoring perennial vegetation. Phase out commercial agriculture on BLM lands.	Manage land to protect and enhance instream values and restore native vegetation. Phase out irrigation of BLM managed lands.	No alternative
Acres Irrigated for Commodity Use	221 to 385	195	0 in 10 years	0 in 20 years	
Potential Acres Irrigated for Non-Commodity Use	0-164± (Not all acres would be irrigated every year.)	164± (Not all acres would be irrigated every year.)	359±.* Acres irrigated as needed to establish perennial vegetation. Number of acres irrigated would be reduced by stage of restoration and need for hardwood stock or wildlife food and cover.	0 in 20 years	
Acres Restored to Perennial Vegetation	0-164	0-164	Approx. 300- 359 acres (long term goal). Approx. 60 acres of total agriculture lands would be kept in wildlife food and cover crops.	359± (All acres would be restored to native vegetation under this alternative.)	
Acres disposed	0	26± (assumed to be used for irrigated Agriculture)			
Recreation					
Boating Use Levels	Continue existing LAC monitoring to inform future decision making				
Interim	No restrictions on number of launches, encourage launches during off-peak periods	Segment 1: Same as A Segments 2 and 3: Target Launches at 1998 levels.	Segment 1: Same as A Segments 2 and 3: Target launches equal 70% of campsites within 15 miles of launch points.	Segment 1: Same as A Segments 2 and 3: Target launches equal historical average of peak period daily launches.	Launch target same as C except: Segments 1 and 2: March: Target of 1 motorized boat launched per day. April: Target of 2 motorized boats launched per day.
Long Term	No restrictions planned Allocation not needed	Future decisions based on LAC study, mandatory launch limits may Historical Proportions	Annual common pool lottery system	be imposed. Common Pool, first-come first served, if similar system established on Deschutes River.	
Allocation System					

Table 3-D. Issues Addressed by Multiple Action Alternatives (Proposed Decision in Bold)

Issue	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Motorized Boating	Continue existing LAC monitoring to inform future decision making; continue existing closure to personal watercraft use (jet skis). Segments 10 and 11: Open	Segment 1 - Closed to motorized use May 1 to October 1. Segment 2: Closed to motorized use May 1 to October 1. Segment 3: Open to motorized river travel all year	Segment 1: Closed March 1 to December 1 Segment 2: Closed March 1 to December 1. Closed year round if WSAs are designated Wilderness. Segment 3: Closed April 1 to October 1, except for small electric motors (40 pound thrust or less).	Segment 1 and 3: Motorized boating not permitted. Segment 2: Motorized boating not permitted.	Segments 1 and 2 : Motorized boating permitted only December 1 to end of April. Segment 2: Close year round below Clarno rapids if WSAs are designated Wilderness. Segment 3: Closed May 1 to October 1. (The dates for this segment have been modified since the draft.)
Dispersed Recreation	Encourage dispersed use in areas that can best sustain impacts of camping. Future Management decisions would be based on LAC study. Decisions made on case by case basis	Segment 1- No actions. Segments 2 & 3: Create user map identifying campsites that best sustain impacts of camping. Segment 2: Create a designated area on west bank near Clarno Creek for dispersed camping. Segments 10-11: Identify preferred camping areas and install signs and parking barriers to protect vegetation.	Same as Alt. B	Same as Alt. A, except close existing facilities at Rock Creek.	Maintain Clarno.
Developed Recreation	Segment 1 Segment 2	Same as Alt. A, except add boat ramp and boater registration station at Rock Creek and provide picnic tables at Cottonwood. Provide parking and maintain Oregon Trail interpretive site (west side).	Same as Alt. B	Same as Alt. A, except close existing facilities at Rock Creek.	Maintain Clarno.

Table 3-D. Issues Addressed by Multiple Action Alternatives (Proposed Decision in Bold)

Issue	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
<p>Developed Recreation (continued)</p> <p>Segment 3</p> <p>Segment 10</p> <p>Segment 11</p>	<p>Maintain Service Creek and Priest Hole facilities.</p> <p>No developed sites</p> <p>No developed sites</p>	<p>Same as Alt. A, except install toilet at Priest Hole. Also replace Twickenham sites with primitive launch at Lower Burnt Ranch and developed site at Twickenham.</p> <p>Same as Alt. A.</p>	<p>Same as Alt. B plus make improvements to Clarno East, develop Lower Burnt Ranch into camping area with signs, information board, parking barriers, and toilet.</p> <p>In approx. 10 years from ROD, develop campground near Ellingson Mill with toilet, tables, information board, signs, and parking barriers.</p>	<p>Same as Alt. A, except discourage use at Clarno East and close the existing Burnt Ranch site to vehicles.</p> <p>No actions proposed</p>	
<p>Public Access</p>	<p>Segment 1: Clarify status of access to Oregon Trail Monument (west side). Segment 3: Acquire public access to river near Twickenham. Segments 10 and 11: Improve ditches and culverts on the South Fork Road.</p> <p>Continue existing management</p>	<p>Eliminate motorized access to existing Burnt Ranch site (maintain trail for foot access)</p> <p>Segment 1: Same as Alt. A.</p> <p>Segment 2: Same as Alt. A, except improve BLM road on west bank of the river from Clarno to Clarno Homestead. Also close area past Clarno Homestead to vehicles during first 10 days of pheasant hunting season.</p> <p>Segment 3: Provide access to Lower Burnt Ranch dispersed use area.</p> <p>Segments 10 and 11: Same as Alt. A, plus gravel surface of South Fork Road.</p>	<p>Segment 1: Same as Alt. B, plus seek to acquire public access to Tumwater Falls and the confluence of Hay Creek and the John Day River</p> <p>Segment 2: Same as Alt. B, plus seek public access easement to the river via Butte Creek Road. Seek to acquire public access on East bank from Clarno to Clarno Rapid.</p> <p>Segment 3: Same as Alternative B.</p> <p>Segments 10 and 11: Same as Alternative B.</p>	<p>Segment 1: Close BLM river access point at Rock Creek.</p> <p>Segment 2: Seasonally close BLM road on the west bank to vehicle traffic past the Clarno Homestead.</p> <p>Segment 3: Same as Alternative B except do not provide motor vehicle access to Lower Burnt Ranch. Discourage use of Clarno East as boating access point.</p> <p>Segments 10 and 11: Same as Alternative A.</p>	

Table 3-D. Issues Addressed by Multiple Action Alternatives (Proposed Decision in Bold)

Issue	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Commercial Use	Continue existing Management. Case by case review. No limit on number of permits and permits are transferrable.	<p>Decisions concerning commercial services would fully consider type of service, consistency with management goals and objectives, the ability of applicants to provide service, opportunity to make a profit, public safety, and BLM workload. Determinations made through a needs assessment process. Moratorium on new permits and transfers until launch numbers are finalized in approximately 3 years. Increase minimum use requirements.</p> <ol style="list-style-type: none"> Increase permit requirements for training in river rescue, Leave No Trace, and Interpretation. Charge a non-refundable application fee to verify that application requirements are met. Conduct independent random audits of permit records. No Administrative limit on number of permits. After initial moratorium, permits transferable according to BLM policy. 	Permit numbers adjusted on basis of needs assessment. Permit transfers allowed to applicants meeting needs-assessment criteria.	Limit number of permits to 34. Permits not transferrable. Available permits granted based on needs assessment and competitive prospectus. Concession permits based on needs assessment may be issued and would be in addition to 34 permits	
Minerals	Continue Existing Management	<p>Same as Alt. A, except the following would provide additional protection of river values:</p> <ol style="list-style-type: none"> No surface occupancy restriction for leasable minerals in Grant County within plan area. Adopts State Scenic Waterway rules (Ch. 4). Where permitted, mining would be subject to stipulations to protect river values. On BLM lands, new sites for production of salable minerals would not be permitted within State Scenic Waterways or Wild and Scenic Rivers. Facilities, such as established campgrounds and launches, would be closed to leasing and salable minerals and withdrawn from entry under the Mining Law of 1872 for locatable minerals. 	Close BLM-managed lands in Wild and Scenic River Segments and State Scenic Waterway segments to leasing and salable mineral activity and withdraw locatable minerals from entry under the Mining Law of 1872 to eliminate possibility that mining within Wild and Scenic River boundary could adversely impact river values.		
Land Ownership, Classifications, and Use Authorizations	Continue Existing Management	Same as Alt. A and identify parcels suitable for acquisition to protect and enhance river values and to facilitate administration. Amend land use authorization of newly acquired WSA lands in Segments 2 and 3 to WSA status.		Same as Alternatives B and C, plus seek to acquire additional lands to facilitate Alternative D for grazing.	

Scenery

Natural landscapes are preserved and maintained. Further development of modified landscapes are avoided or minimized. Modified landscapes are restored to natural character where opportunities allow.

Alternative A

According to BLM's Visual Resource Management (VRM) policy, the agency has a basic stewardship responsibility to identify and protect visual values on public lands. This policy includes preparing an inventory of visual values on all public lands, developing visual management objectives (classes) for these lands, and using the VRM objectives and standards for the design and development of future projects and for rehabilitation of existing projects. The John Day RMP (USDI-BLM, 1985a) and the Two Rivers RMP (USDI-BLM, 1986a) designated VRM classes for all John Day River segments including substantial upland areas, with the exception of the upper North Fork which is managed by the USFS. Current SSW regulations allow new structures or improvements that are visible from the river only in connection with agricultural uses, public recreation, or resource protection.

This alternative would manage Scenery consistent with VRM classifications identified in current RMPs; Class II within most WSR segments, most non-designated segments, and portions of some tributaries. All WSR segments are VRM Class II with the exception of that portion of the South Fork upstream of Sunflower Creek, which is primarily VRM Class III. Most non-designated segments are also VRM Class II, with the exception of that portion of the mainstem from 7 river miles upstream of Prairie City to the USFS boundary, which is VRM III, and that portion of the North Fork from the Middle Fork confluence to Dale, which is VRM Class IV.

Within VRM Class II areas, management activities resulting in changes to the existing character of the landscape may be allowed, provided they do not attract the attention of the casual observer. Within VRM Class III areas, management activities resulting in changes to the existing character of the landscape may be allowed, but should not dominate the view of the casual observer. Within Class IV areas, major modifications of the existing character of the landscape are allowed, but every attempt should be made to minimize the impact of activities. (Appendix O)

Alternative B (Proposed Decision)

Same as Alternative A, except change the VRM classification in Wilderness Study Areas (WSAs) within the Prineville District to VRM I to be consistent with updated BLM policy guidance designed to protect wilderness values. This action would amend the WSA classifications in the John Day and Two Rivers RMPs. A VRM Class I rating requires that natural processes dominate the landscape and limits management activity by requiring that it not attract attention.

Common to All Action Alternatives

All action alternatives would allow continued use, maintenance and expansion of existing BLM recreational facilities within the river corridor, including boat ramps and parking lots. These areas would be designated and managed as VRM Class III "islands" within the river corridor VRM Class II designation. All anticipated new campgrounds within the corridor would be designated and managed consistent with VRM Class III when constructed.

Under all action alternatives, VRM classifications for portions of Segment 7 on the North Fork John Day River (partially within Umatilla, Grant and Morrow counties) would be reclassified from VRM IV to VRM III to provide greater VRM protection. This would apply to current BLM-administered lands, as well as any acquired lands until the John Day RMP is amended or revised.

Vegetation

Plant communities and special status plant species provide aspects of habitats, visuals, and communities that support watershed function, healthy ecosystems, other river values, and human uses.

Guidance Common to All Alternatives

The Federal Land Policy and Management Act of October 21, 1976 (43 USC 1701)

This act declares that it is the policy of the United States that the public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use.

Clean Water Act

The CWA requires the ODEQ to establish water quality standards, evaluate conditions relative to these standards, and develop strategies for water bodies not in compliance with established standards.

Endangered Species Act of 1973 (16 USC 1531 et seq.), as amended.

This Act directs the BLM to conserve threatened and endangered species and the ecosystems upon which they depend, and not contribute to the need to list a species.

BLM Manual 6840 - Special Status Species Management (9/16/98)

For federally listed and proposed threatened and endangered species, BLM shall 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, and retain in federal ownership all habitat essential for the survival or recovery of any threatened and endangered (T/E) species. For candidate species, the BLM shall determine the distribution, abundance, reasons for current status and habitat needs for species occurring on lands administered by the BLM and manage the habitat to conserve the species. For sensitive species, the minimal level of protection will be the level of protection provided to candidate species.

Oregon Washington Special Status Species Policy, IM No. OR-91-57, issued 11/5/90, as amended by IM No. OR-91-57 change 1, issued 8/5/91.

This policy provides protection for plants which are not federally listed, proposed or candidates, and assigns these species to one of three lists: *Bureau Sensitive, Assessment, and Tracking*. The policy relies in part on the State of Oregon rules, which includes the Oregon Endangered Species Act, and lists prepared by the Oregon Natural Heritage Data Base.

For *Bureau Sensitive Species*, the BLM is to protect, manage and conserve the species and their habitats such that any Bureau action will not contribute to the need to list any of these species. For *Assessment Species*, the BLM is to conduct clearances prior to activities, and where possible, take steps to protect them. *Tracking species* are not considered "Special Status" and are afforded no special protection.

The BLM is currently 'in limbo' related to some of the above direction since the USFWS has changed its policy on candidates for listing as endangered or threatened. Many of our special status plants were formerly Category 2 candidates for listing and this category no longer exists. All such species automatically became *Bureau Sensitive* but we are directed to manage them under the old guidance pertaining to candidates.

Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the States of Oregon and Washington (see Appendix J)

These standards are intended to meet the objectives of 43 CFR, Subpart 4180. These objectives are to promote healthy sustainable rangeland ecosystems, to accelerate restoration and improvement of public rangelands to properly functioning conditions, and to provide for the sustainability of the western livestock industry and communities that are dependent upon productive, healthy public rangelands. These standards apply to all uses of public rangelands.

Vegetation Rehabilitation and Restoration

In some cases there is a need to rehabilitate and/or restore sites to get them into a better functioning and more natural state. Examples of such areas include: ecosystems where fire is reintroduced to mimic natural processes, areas needing juniper control, areas with weed infestations, and areas dominated by other non-desirable vegetation, wildland fire rehabilitation, abandoned agriculture fields, road cuts/fills/ and right of ways, parking lots, campgrounds, and other high impact areas. In these situations, a site-specific or area-specific environmental assessment is done to address specific goals of each project.

Noxious Weed Control

The Prineville District's primary weed management document is the Prineville District Integrated Weed Management EA (OR-053-3-062). This district-wide EA analyzed two alternatives: Alternative 1, a full IWM program for all BLM-administered lands (including herbicide use), with provisions for more detailed weed management EAs for Wilderness Study Areas (such as the Lower John Day River IWM EA) and Alternative 2, the same as Alternative 1, except that herbicide use would not be permitted within Wilderness Study Areas or potential future Wilderness Areas. No Use of Herbicides, No Aerial Herbicide Application, and No Action were considered but not analyzed in this EA because these alternatives were all analyzed in the Northwest Area Noxious Weed Control Final EIS 1985 and Supplemental FEIS 1987 and their respective RODs. No further analysis of these alternatives was included in the EA because analysis in the FEISs and RODs were considered applicable to the district level. Alternative 1 was selected. The analysis and Finding of No Significant Impact (FONSI) for EA # OR-053-3-062 and its tiered documents (Vegetative Treatment on BLM Lands in Thirteen Western States FEIS, 1991; Northwest Area Noxious Weed Control Program Supplemental FEIS, 1987; and Northwest Area Noxious Weed Control Program FEIS, 1985) were affirmed in IBLA 94-692, 94-726, 94-727, decided July 7, 1997.

The Prineville District's most recent document pertaining to weed control (Lower John Day River Integrated Weed Management EA #OR-054-3-063) analyzed two alternatives as a result of the provisions for more detailed planning needs for Special Emphasis Areas outlined in the district-wide IWM EA: Alternative 1, a full Integrated Weed Management (IWM) program including the use of herbicides within the river corridor's four Wilderness Study Areas; and Alternative 2, the same program as Alternative 1, except that use of herbicides in Wilderness and Wilderness Study Areas. The Proposed Decision (Alternative 1) included all weed management practices (preventative (cultural), manual, mechanical, prescribed fire, biological, and chemical) on BLM lands along the Lower (RM 10 to 122) in four Wilderness Study Areas (WSAs) and potential future WSAs along the lower John Day River, and the designated Wild and Scenic River. As in the Prineville District IWM EA, No Use of Herbicides, No Aerial Herbicide Application, and No Action were considered but not analyzed because these alternatives were all analyzed in the Northwest Area Noxious Weed Control Final EIS 1985 and Supplemental FEIS 1987 and their respective RODs. No further analysis of these alternatives was included in the EA because the analysis in the FEISs and RODs was considered to be applicable to the district level. Alternative 1 was selected for implementation on the lower John Day River and the four WSAs within this corridor.

The Prineville District Weed Management EAs are tiered to the Vegetative Treatment on BLM Lands in Thirteen Western States FEIS (1991) and its respective ROD. The alternatives considered and evaluated in the EIS are as follows: Alternative 1 (Proposed Action), all methods of vegetation treatment at an increased level; Alternative 2, no aerial application of herbicides; Alternative 3, no use of herbicides; Alternative 4, no use of prescribed burning; and Alternative 5, no action (continue current management). The selected alternative for the Thirteen Western States FEIS (1991) was Alternative 1.

The last documents to which the Prineville District's Weed Management EAs are tiered are the Northwest Area Noxious Weed Control Program Supplemental FEIS (1987), the Northwest Area Noxious Weed Control Program FEIS (1985), and their respective RODs.

The Northwest Area Noxious Weed Control Program FEIS (1985) considered four alternatives. Alternative 1 (Proposed Action) included all approved methods of noxious weed control. Alternative 2 considered no aerial application of herbicides to control noxious weeds. Alternative 3 considered no use of herbicides to control noxious weeds. And finally, Alternative 4 considered no attempts at all to control noxious weeds (no action alternative). The Proposed Action (Alternative 1) was selected for implementation in Oregon and Washington.

The Northwest Area Noxious Weed Control Program Supplemental FEIS (1987), took a harder look at the environmental and health risks associated with the herbicides proposed for use in the proposed action in the 1985 FEIS. The BLM concluded that environmental and health risks are minimal when laws and restrictions concerning herbicide use are followed while benefits from controlling and eradicating noxious weeds are great.

Mitigations/Stipulations for Noxious Weed Control

The following District mitigation/stipulations apply to the District's Integrated Weed Management program for all noxious weed control activities both on the Lower John Day River and all BLM lands outside the Lower John Day River with the only exception of WSAs without specific management plans or EAs pertaining to weed management:

1. Cultural (prevention) activities such as inspection (weed surveys), regulation (ROWS), sanitation (wash and clean vehicles) and education will be encouraged and enforced for all high priority developed multi-use recreational areas, especially those along the Lower John Day River.
2. Physical control practices (mechanical) such as mowing, tilling, disking, seedbed preparation, and prescribed burning (if over 40 acres) treatments will require a separate EA. Small mechanical treatment areas of less than 5 acres may only require a categorical exclusion.
3. All manual control practices (hand pulling and hand tools) will be done before seed ripe or dispersal and the plant residue collected as needed for burning (piles) or bagged and removed from sites. On small isolated sites such as undeveloped primitive camp sites along the John Day River, manual control may be given priority consideration and users are encouraged to manually pull, grub, or hoe out the few plants to small patches of noxious weeds. Educational brochures identifying weed species of concern will be made available at all developed boating access points.
4. Biological control methods (such as introduced insects, competitive seedings, pathogens or grazing [goats or sheep]) will be considered district-wide. ODA-approved biocontrol agents (insects or pathogens) will be given emphasis for release to control/contain larger infestations where containment is major goal. The approval for release of beneficial insects or pathogens must use the same procedures as herbicides using the Biological Control Agent Release Proposal (BCARP) and Record (BCARR). Only ODA-approved biological control agents will be allowed for release after District and State Office approval.
5. A Special Status Plant and Animal survey or clearance will be done prior to any treatment.
6. A cultural survey or clearance is required before any soil surface-disturbing activity from physical weed control practices (mechanical or prescribed fire) occurs. Hand pulling, grubbing or hoeing a few plants or scattered plants on public land sites less than 5 acres (such as undeveloped campgrounds along the Lower John Day River in WSAs and/or WSRs is authorized).
7. All herbicide use will comply with USDI rules and policy, BLM policy and guidelines, Oregon State laws and regulations, Oregon Department of Agriculture (ODA) laws and regulations, Environmental Protection Agency (EPA) , federal pesticide laws (FIRCA), Oregon Department of Environmental Quality (ODEQ) regulations, Local County Weed District Priorities and requirements and by Law must follow product label requirements.
8. All pesticide (herbicide) applicators are required to submit proposals using
 - A Pesticide Use Proposal (PUP) form (which BLM may approve for use of up to 3 years, if same chemical, same target weed, and same area).
 - A Pesticide Application Record (PAR) to be completed after application and promptly submitted to the district office.

9. All herbicide applications will only be applied by a Oregon State licenced and certified applicator.
10. Material Safety Data Sheets (MSDSs) for each herbicide being applied will be at site with applicator, and guidelines and information found in "Oregon Pesticide Applicator Manual" as updated will be followed.
11. Areas of known or suspected Federal Listed, Candidate or Proposed or Oregon Candidate (old C-1) or Species of Concern (old C-2) amphibians will have as a minimum 100-foot buffer strip from live water for all herbicide applications, with the exception for the use of Rodeo.
12. Use of existing trails/access routes or roads for emergency weed control activities will be allowed by vehicles even in WSAs, but use off existing routes for prescribed fire, herbicide application, or seeding practices will only be by ATV type vehicles. All seeding in WSAs will be by broadcast methods.
13. Herbicide Use Restrictions are as follows:
 - a. No vehicle mounted or powered boom sprayers or handguns will be used within 25 feet of surface (live) water.
 - b. No booms or powered equipment applicators would be used in riparian areas, where weeds are closely intermingled with trees and shrubs.
 - c. Liquid herbicides can be applied (at a height of 0.5 feet to 2.5 feet above ground) to areas for spot treatments with hand spraying (backpack) equipment (single nozzle, low pressure and volume) to within 10 feet of live water. Use of mule or horse mounted equipment would also be allowed.
 - d. Spreader equipment (broadcast) could be used to apply granular formulations applied at a height of about 3.5 feet, to within 10 feet of the high water line of live water.
 - e. Contact systemic herbicides (such as Glyphosate-Rodeo or Accord) may be allowed using hand wipe applications on individual plants up to the existing high water line.
 - f. When wind speeds exceed 5 mph, no spray equipment will be used in riparian areas or near water, and no aerial applications are allowed in riparian or wetland areas. No aerial application of Glyphosate is allowed.
 - g. No application of herbicides will occur if wind speeds exceed 8 mph.
 - h. All aerial application of herbicides will be done only by helicopter and allowed within the constraints of the Final Northwest Area Noxious Weed Control Program EIS (1985) as supplemented 1987, and ROD pages 1-3 (May 5, 1987). A buffer strip of 100- feet will be established between target weed areas and any live water/riparian areas.
 - i. No aerial application of herbicides will be permitted without written approval from the authorized officer.
 - j. No aerial application of herbicides will be permitted when wind speeds exceed 5 mph.
 - k. For Oregon/Washington, only 2,4-D, picloram (Tordon), dicamba, and glyphosate (Rodeo and Accord only) and approved combinations will be allowed as per ROD (1987) from Supplemental FEIS (1987). Acceptable formulations, EPA registration numbers, maximum rates of application, and mixture stipulations are referenced from BLM Approved list March 1994 (see Appendix 6 as updated) and from Table 1-3 p. 9 FEIS (1985)
 - l. All chemicals will be applied only in accordance with BLM, EPA, ODA requirements, and Herbicide Label standards/stipulations.
 - m. Pesticide Use Proposals (3-year approval) for herbicide application within boundaries of WSAs, or WAs, and RNAS will be reviewed and evaluated by Resource Area staff on a year to year basis.

- n. Monitoring pretreatment and posttreatment will be done yearly (pre and post spray applications) on all treated areas.
- o. In aerial applications, a 500-foot unsprayed buffer strip will be left next to inhabited dwellings unless waived in writing by the residents. A 100-foot buffer of unsprayed strip will be left next to croplands and barns.
- p. Additional herbicides, if approved, may be used subject to all the above mitigation measures, label restrictions and within limits of ROD or specific approval recommendations.
- q. The maximum rates of application for the four approved herbicides (per Table 3-1 from FEIS 1985):

Rates for Herbicide Applications by Ground Methods (vehicle and hand)

Application of Single Herbicide		Application of Tank Mixes	
Herbicide	Maximum Rate	Herbicide	Maximum Rate
2,4-D	3 lb. ai/acre	2,4-D and Dicamba	2 lb ai/acre (2,4-D) and 1.5 lb. ai/acre (Dicamba)
Dicamba	6 lb. ai/acre	Picloram and 2,4-D	0.5 lb. ai/acre (Picloram) and 1 lb ai/acre (2,4-D)
Glyphosate	3 lb. ai/acre		
Picloram	1 lb. ai/acre		

Rates for Herbicide Applications by Aerial Method (helicopter only)

2,4-D	3 lb. ai/acre		
2,4-D and Dicamba	2.0 lb. ai/acre (2,4-D) 1.5 lb. ai/acre (Dicamba)		
Picloram			

(ai = active ingredients of specific herbicide).

- 14. All other stipulations and mitigation in FEIS (1985) pp. 1-7 to 1-10, Supplemental FEIS (1987) pp. 119-122, RODs (1986) or (1987) will apply. In addition, the stipulations and mitigation from the FEIS 1991 and its ROD will apply for all additional chemicals (herbicides) if or when approved for noxious weed control.

Fire Management

Wildfire suppression direction is given in the Two Rivers RMP (USDI-BLM 1986a) and the John Day RMP (USDI-BLM 1985a). Additional directions to minimize impacts are given in the Prineville District's fire management plan, BLM Manual H-8550-1 (USDI-BLM 1995b) and BLM Manual 8351 (USDI-BLM 1992c). Fire control actions in the John Day River basin are usually selected to minimize visual and ecological impacts and, when needed, aggressively suppress wildfire. The entire John Day basin occurs within the BLM Prineville District Fire Management Zone #3. Fire management will be guided by the Fire Management Plan written for Zone #3 and representative locations within this fire management zone. Additional fire management and rehabilitation efforts will be covered in supplemental environmental assessments or fire management plans.

The document *Wildland and Prescribed Fire Management Policy: Implementation Procedures Reference Guide* (USDI-NPS et al. 1998) represents an effort by federal wildland fire management agencies to establish standardized procedures to guide immediate implementation of the policy described in the Federal Wildland Fire Management Policy and Program Review (USDI-NPS and USDA-FS 1995). This document represents the latest stage in the evolution of wildland fire management and recommends policy changes that associate suppression and management of wildland fires into a single direction achieving multidimensional objectives. This policy directs federal agencies to achieve a balance between suppression to protect life, property, and resources, and fire use to regulate fuels and maintain healthy ecosystems.

Seeding

If a native seed source is not naturally available after eradication of weeds or after prescribed or wild fire, seeding is often need to provide sufficient vegetation to prevent weed infestations or to provide sufficient vegetation to prevent erosion. When seeding is used in restoration and rehabilitation projects, the BLM prefers to use native species where feasible. Direction is provided in the Standards for Rangeland Health and Guidelines for Grazing Management under the Accelerating Rangeland Recovery Section where it is stated that “Seedings and plantings of non-native species should only be used in those cases where native species are not available in sufficient quantities; where native species are incapable of maintaining or achieving the standards; or where non-native species are essential to the functional integrity of the site.”

Guidance is also given in BLM Manual Section 1745; Introduction, Transplant, Augmentation, and Reestablishment of Fish, Wildlife, and Plants. This manual states that: “native species shall be used, unless through the NEPA process it is determined that:”

1. Suitable native species are not available.
2. The natural biological diversity will not be diminished.
3. Exotic or naturalized species can be confined within the proposed treatment area.
4. Analysis of appropriate information (including ecological site inventory) indicates that a site will not support reestablishment of a species that was historically part of the natural environment.
5. Resource management objectives cannot be met with native species.

Other questions that are required under emergency fire rehabilitation procedures include:

1. Is the use of non-native plants necessary to meet objectives, such as consistent with applicable land use/ activity plans?
2. Will non-native plants meet the objectives for which they are planted without unacceptably diminishing diversity and disrupting ecological processes (such as nutrient cycling, water infiltration, and energy flow) in the plant community?
3. Will non-native plants stay on the site they are seeded and not significantly displace or interbreed with native plants?

There are instances where the use of desirable non-natives would be considered and used following the above direction. Examples of when non-natives would be considered include but are not limited to the following.

1. When natives are not currently available and seeding must proceed.

Example:

- a. Fire rehabilitation situations where liability or excessive resource damage may force the BLM to act quickly.
- b. Road cuts and fills where soil loss is excessive.

3. When the substrate has been so degraded that native species will not do well for a considerable length of time. Natives often don't do well when over half the A horizon in the soil has been removed.

Example:

- a. Road cuts where top soil is gone (natives able to prevent soil loss no longer adapted).
- b. Other areas where excessive soil erosion has occurred.

3. When natives will not meet the objectives for the site.

Example:

- a. Weed prevention is important, and natives will not compete well enough to make a project effective. Seeding can be effective at reducing weed infestations.

4. When the environment is already highly altered and will remain so.

Example:

- a. In parking lot areas or on irrigated areas.
- b. Sites where native species can't handle the use and non-natives can.
- c. Places where non-natives might add a desirable attribute to the site and not degrade other areas.
- d. Road shoulders where continual disturbance is assured.

5. When the large size of the seeding requires use of commercially obtained native species that:

Example:

- a. May not be adapted to the area.
- b. May contaminate the gene pool of natives on the site.

The BLM does not generally seed desirable non-native species where ecosystems are intact because there is no reason to do so if a site is properly functioning. Desirable non-natives would be given consideration when trying to restore degraded sites (i.e. rangeland infested with weeds or annual grasses, abandoned agriculture fields, areas with high probability of weed infestation after some form of disturbance, and areas where noxious weed infestations are being treated and competitive species are needed to aid in restoration/rehabilitation). Even in these cases the site would not be seeded to 100% desirable non-natives, a mixture of natives and desirable non-natives would be used (generally at least 50% natives) so that when those desirable non-natives that will eventually go out of the stand no longer persist, the seed source is there for native species regeneration. Some desirable non-native species will, however, persist indefinitely in open conditions. Ideally, seeding with non-natives should be a short-term measure to protect resource values until natives can re-establish. However, the objectives of each particular project, both short and long term, should drive the process of species selection. If research or information becomes available on a particular species that causes concern for the invasive potential of that species, it would not be included in a species mix.

No non-native species would be planted where the potential to compete directly with special status plant species occurs. No non-native species will be planted in WSA's. Guidance in BLM Manual H-8550-1, Interim Management Policy for Lands Under Wilderness Review, under Watershed Rehabilitation (pg. 38) states that "Re-seeding or planting under emergency conditions will utilize species native to the area..." and under Vegetative Manipulation (pg. 39) "Hand or aerial seeding of native species may be done to restore natural vegetation."

Grazing

Taylor Grazing Act, 43 USC 315

This act was passed in 1934 to stop injury to the public grazing lands by preventing overgrazing and soil deterioration, to provide for their orderly use, improvement, and development, to stabilize the livestock industry dependant upon the public range, and for other purposes.

43 CFR 4100 Regulations

The purpose of these regulations is to provide uniform guidance for administration of grazing on the public lands exclusive of Alaska.

Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the States of Oregon and Washington. (See Appendix J)

The BLM guidance for implementation of Standards and Guidelines requires that all grazing allotments in the John Day River basin receive interdisciplinary team review by December, 2008, to determine if the Standards and Guidelines are being met. The BLM will take appropriate action (see CFR subparts 4110, 4120, 4130 and 4160), as soon as practicable but not later than the start of the next grazing year, upon determining that existing grazing management needs to be modified to ensure that the following conditions are met or significant progress is being made toward their attainment:

1. Upland soils exhibit infiltration and permeability rates, moisture storage, and stability that are appropriate to soil, climate and landform.
2. Riparian-wetland areas are in properly functioning, physical condition appropriate to soil, climate and landform.
3. Healthy, productive and diverse plant and animal populations and communities appropriate to soil, climate and landform are supported by ecological processes of nutrient cycling, energy flow, and the hydrologic cycle.
4. Surface water and groundwater quality, influenced by agency actions, complies with State water quality standards.
5. Habitats support healthy, productive, and diverse populations and communities of native plants and animals (including special status species and species of local importance) appropriate to soil, climate and landform.

Assessment of riparian conditions would follow BLM approved procedures, detailed in USDI-BLM (1993) and USDI-BLM (1998c) and Interpreting Indicators of Rangeland Health (USDI-BLM, 2000). If after five years of implementation, it is shown that non-compliance on the part of the grazing operator (for example, willful trespass, failure to maintain facilities, or other violations of the CFR) is a significant contributor to non-attainment, or lack of significant progress, livestock grazing authorization shall be discontinued for a period to be determined by the authorized officer.

Wild and Scenic Rivers Act, 16 USC 1271

Guidance for grazing comes from the part of the Wild and Scenic Rivers Act that states, rivers “shall be administered ... to protect and enhance the (river) values ... without, insofar as is consistent therewith, limiting other uses that do not substantially interfere with public use and enjoyment of these values... Management plans for ... (Wild and Scenic Rivers) ... may establish varying degrees of intensity for protection and development, based on the special attributes of the area.

In interpreting the Act with respect to grazing, the U.S. District Court for Oregon has stated that grazing was not a ‘grandfathered’ use and that the managing agency may eliminate grazing from the river and surrounding lands. “This does not mean, however, that cattle grazing must be excluded from the river area. Rather, cattle grazing may continue, but only in accordance within the strictures of the Act to protect and enhance” (Oregon Natural Desert Association v. Green, 953 f. Supp. 1133[D. OR. 1897]). This opinion was reiterated in a subsequent case (Oregon Natural Desert Association v. Singleton, 1998 WL 10418180 [D. Or.1998]), “if grazing proves to be detrimental to soil, vegetation, wildlife, or other values, or is inconsistent with the “wild” designation, then clearly the BLM has the right--indeed, the duty-- not only to restrict it, but to eliminate it entirely.”

The standard for what constitutes acceptable grazing practices was similarly clarified. Where problems exist, it is not sufficient to continue standards (such as utilization), which are not substantially different from those that created the problems. The court has recognized that past grazing practices have adversely impacted the river values on the John Day (National Wildlife Federation v. Cosgriffe, 21 F. Supp 2d 1211 [D. Or. 1998]). However, the court found that the BLM has changed course toward more ecological grazing practices and is moving in the right direction by limiting grazing and negotiating with private landowners.

Vegetation Management Alternatives

Forestlands

Alternative A (Existing Management)(Proposed Decision, except as modified by Common to All Action Alternatives)

Existing management within Segments 7 and 10 is focused on protecting riparian areas for the benefit of water quality, soil stabilization, scenic values, fish and wildlife enhancement.

Current John Day RMP standards and guidelines require “no cut” buffers adjacent to all perennial and ephemeral streams. A 100-300 foot buffer (distance is dependent on steepness of side slopes) is required adjacent to perennial streams. A 50-foot buffer is required adjacent to ephemeral streams.

Other current BLM forest management guidelines related to riparian management are:

1. Timber removal may take place only when necessary to reduce the risk of catastrophic timber loss due to insect infestation, disease, or wildfire. New road construction within riparian areas should be avoided when possible.
2. Special harvest techniques (cable and/or aerial logging) are required when harvesting timber within riparian areas.
3. Skid trails should be located parallel to and outside of all drainages.

Outside of the riparian areas and within the corridor boundaries of Segments 7 and 10, forestland is managed as either commercial or non-commercial. Commercial forestlands are those lands capable of producing 20 cubic feet of commercially valuable wood (per acre) per year. In the John Day basin, commercial tree species include pine, fir, spruce, Douglas fir, and larch. Current management for commercial forestland is for the production of timber. Outside of riparian buffer zones timber is actively managed to prevent conditions that support insect and/or disease outbreaks. Management techniques include overstory removal and commercial and pre-commercial thinning.

Non-commercial forestlands do not have the viable species capable of producing 20 cubic feet of commercial grade wood. Primary vegetation management direction for non-commercial forestlands is to provide food and cover for wildlife and forage for cattle.

Common to All Action Alternatives (Proposed Decision)

To attain the desired condition of both Segments 7 and 10, the existing John Day RMP (USDI-BLM 1985a) guidelines for the management of riparian areas (see Alternative A) would be applied to all areas within the river corridor. Timber removal would take place only when necessary to reduce risk of catastrophic timber loss due to insect infestation, disease, or wildfire.

Grazing

Alternative A (No Action)

Since designation, grazing management has been changing under the directions of the Two Rivers RMP, John Day RMP, Northwest Power and Planning Council’s Strategy for Salmon, PACFISH, Clean Water Act, Endangered Species Act, Wild and Scenic Rivers Act, and Rangeland Standards and Guides. The management approach has been to learn about local conditions, discuss concerns, and seek cooperation with local and federal agencies and landowners. The process is ongoing. Appropriate management practices have not been implemented in all allotments. As a result, the image of grazing management for Alternative A summarized in Table 3-E (with greater detail in Appendix L) is merely a snapshot in time. Of the 197.8 public land river bank miles on the WSR designated segments (1, 2, 3, 10 and 11), 41.7 miles are excluded from livestock grazing, 24.7 miles are rested year long, 121.2 miles have other riparian-oriented grazing practices in place, and 10.2 miles do not have riparian-oriented grazing in place.

Table 3-E. Grazing Alternative Comparison, Segment 1 (Tumwater Falls to Cottonwood Bridge, 30 river miles)

Note: The Proposed Decision is underlined on this table.

Allotment Number & Name	Alternative A Current Management		Alternative B Restricted Grazing		Alternative C No Riparian Grazing			Alternative D No Grazing			
	Miles of River Bank private	public	Current Riparian Grazing Mgt.	Riparian Grazing Mgt.	Required Actions	Required Actions		Required Actions			
						Miles of Fence Pvt/Pub	Acres Excluded Pvt/Pub	Miles of Fence Pvt/Pub	Acres Excluded Pvt/Pub	Miles of Fence Pvt/Pub	Acres Excluded Pvt/Pub
2617 Emigrant Ch	2.8	0.6	7	<u>9, 2, 5</u>	<u>a, 0.7 miles fence</u>	2.8/0.6	34/7	0.6/0.1	10	300	200
2604 Philippi	1.0	0.0	2, 5	<u>2, 5</u>	<u>a</u>	n/a		0.0/0.7	1	0	40
2648 Hartung	2.9	0.7	9	<u>2, 5</u>	<u>a</u>	2.9/0.7	35/8	0.0/3.7	13	40	560
2594 Morehouse	0.4	1.0	9	<u>2, 5</u>	<u>a</u>	0.4/1.0	5/12	0.5/0.3	3	200	65
2555 Hoag	0.3	1.0	9	<u>2, 5</u>	<u>a</u>	n/a		n/a			
2562 J Bar S	0.0	0.9	1, 2, 5	<u>2, 5</u>	<u>a</u>	0.0/0.4	0/11	0.0/1.0	4	0	120
2513 Big Sky	5.4	1.2	1, 2, 5	<u>2, 5</u>	<u>a</u>	2.1/0.7	12/3	0.0/3.3	30	580	680
2637 VO West	1.4	0.3	1, 5	<u>1, 2, 5</u>	<u>a</u>	0.4/0.3	2/2	0.0/0.5	12	30	160
2595 Morris	3.0	1.5	1, 2	<u>1, 2, 5</u>	<u>a, 0.7 miles fence</u>	1.4/1.3	8/8	0.5/0.7	14	100	440
2540 Persimmon	1.1	0.0	<u>8, 9</u>	same as existing		n/a		n/a			
2560 Baseline	3.0	1.6	1, 2, 3	<u>1</u>	<u>1.1 miles fence</u>	0.4/0.7	3/9	0.0/0.5	5	20	160
2598 Hay Crk	3.1	1.7	1, 2, 3	same as existing	<u>pursue exchange</u>	1.6/1.2	10/7	0.0/2.5	8	80	320
2520 Smith Point	1.5	4.0	1, 2	same as existing	<u>1.8 miles fence</u>	n/a		0.0/0.0	93	200	2596
2597 Murtha	7.0	4.2	1, 6	<u>1, 2, 5, 6</u>	<u>a, 4.5 miles fence</u>	6.3/2.8	80/36	1.8/1.0	99	1680	3560
unleased	5.9	1.9	n/a								
Totals	38.8	20.6	=59.4		8.8 miles fence	18.3/9.7	189/103	3.4/14.3	292	3230	8901

- 1: exclusion
- 2: spring
- 3: summer
- 4: autumn
- 5: winter
- 6: rotation
- 7: season long
- 8: no public land riparian area
- 9: voluntary non use

a. adjust the leases to confine grazing period, see Appendix L for greater detail.

Table 3-E. Grazing Alternative Comparison, Segment 2 (Cottonwood Bridge to Clarno, 69 river miles.

Allotment Number & Name	Alternative A Current Management			Alternative B Restricted Grazing			Alternative C No Riparian Grazing			Alternative D No Grazing		
	Miles of River Bank		Current Riparian Grazing Mgt.	Riparian Grazing Mgt.	Required Actions	Miles of Fence	Acres Excluded	Miles of Fence	Acres Excluded	Miles of Fence	AUMs Canceled	Acres Included
	private	public				Pvt/Pub	Pvt/Pub	Pvt/Pub	Pvt/Pub	Pvt/Pub		Pvt Pub
2597 Murtha	3.5	16.9	6, 2, 5	1, 2, 5, 6	b, 2.0 miles fence	3.3/6.7	39/83	3.0/0.0		125	520	3800
2636 Weedman	0.0	0.1	9	2, 5	a	0.0/0.1	0/1	0.0/1.3		1	0	100
2553 Willow Spring	0.0	0.3	9	2, 5	a	0.0/0.3	0/1	0.0/0.0		20	560	1127
2591 Miller	0.7	4.0	2	2, 5, 9	a, 1.3 miles fence	0.7/4.3	4/26	0.0/1.3		42	420	1780
2509 Belshe	0.0	1.5	2	2, 5, 9	a, 1.0 miles fence	0.0/1.5	0/9	0.0/0.0		48	160	1440
2572 Laffoon	0.0	8.4	1, 2, 9	1, 2, 9	a	0.0/7.5	0/56	0.0/0.0		50	120	3095
2522 J Brown	1.4	5.7	1, 2	1, 2	a	0.5/6.5	3/39	0.3/0.0		24	680	2200
2521 H Bend	1.2	1.8	2	2, 5	a	1.0/1.5	6/9	0.0/0.0		10	140	380
2538 Decker	0.4	5.6	2	1, 2, 5	a, 0.7 miles fence	0.4/5.6	2/33	1.0/0.0		93	0	2000
2629 Tatum	0.0	2.1	2	1, 2, 5	a	0.0/2.1	0/13	0.0/0.0		45	160	1240
2518 Pine Ck	1.1	0.7	2	1, 2, 5	a	0.7/0.0	4/0	0.0/0.0		51	172	760
2619 Sid Seale	2.5	31.1	1, 2, 5, 9	1, 2, 5	a, 0.9 miles fence	0.8/6.8	4/36	4.4/3.9		545	2430	11,916
2608 Rattray	2.0	16.0	1, 2, 5, 6	1, 2, 5, 6	a	0.4/7.1	2/43	2.8/0.0		148	165	3720
2623 Steiwer	4.9	5.0	1, 2, 7	1, 2, 7	a, 0.7 miles fence	2.2/4.2	10/24	0.0/6.6		53	0	1280
2584 Maurer	10.3	6.5	1, 2, 7	1, 2, 5	pursue exchange	6.9/6.0	42/38	0.3/6.7		109	880	5036
2614 Clarno	0.4	2.8	9	1	b, pursue exchange	n/a				same as existing		
unleased	1.8	0.5										
Totals	30.2	109.0	=139.2		6.6 miles fence	16.9/60.2	116/411	11.8/19.8		1364	6407	39,874

- 1: exclusion
- 2: spring
- 3: summer
- 4: autumn
- 5: winter
- 6: rotation
- 7: season long
- 8: no public land riparian area
- 9: voluntary non use

a. adjust the leases to confine grazing period, see Appendix L for greater detail.
 b. develop an allotment management plan (AMP) or an allotment management agreement.

Table 3-E. Grazing Alternative Comparison, Segment 3 (Clarno to Service Creek, 48 river miles).

Allotment Number & Name	Alternative A			Alternative B			Alternative C			Alternative D		
	Current Management			Restricted Grazing			No Riparian Grazing			No Grazing		
	Miles of River Bank private	Miles of River Bank public	Current Riparian Grazing Mgt.	Riparian Grazing Mgt.	Required Actions	Required Miles of Fence Pvt/Pub	Required Acres Excluded Pvt/Pub	Required Miles of Fence Pvt/Pub	Required Acres Excluded Pvt/Pub	Required Miles of Fence Pvt/Pub	Required Acres Excluded Pvt/Pub	Required AUMs Canceled
2633 Amine Peak	5.7	3.9	2	1, 2, 5	a, 1.5 miles fence	5.7/3.9	34/24	0.8/2.1	35	174	35	800
2512 Big Muddy	8.0	5.6	2	1, 2, 5, 9	a, 3.2 miles fence	6.9/3.2	42/19	1.6/3.2	30	396	30	1280
2577 Byrd's Point	1.6	2.0	1	same as existing	none	same as existing		0.0/1.6	25	80	25	360
2545 Cherry Creek	2.3	1.2	2, 5	2, 5	a	3.9/1.1	24/7	0.0/0.9	6	0	6	200
2544 Circle S	1.5	0.8	2	2, 5	a	n/a		0.0/0.0	3	0	3	240
2587 Corral Canyon	3.4	0.1	2	2, 5	a	1.7/0.1	14/4	1.2/0.3	0	52	0	4
2537 Dead Dog C.	1.2	1.4	1	same as existing	none	same as existing		0.0/0.3	7	91	7	90
2656 Dry Knob	3.2	0.8	2, 4, 5	2, 5	a	1.8/0.4	9/2	0.1/1.1	2	30	2	34
2535 Hayfield	0.9	0.7	2	2, 5	a	1.2/1.2	7/7	0.0/0.0	0	0	0	90
2592 Misener	1.4	0.0	1	same as existing	none	same as existing		n/a	16	189	16	320
2556 M. Howard	3.2	2.6	1	same as existing	none	same as existing		0.2/2.4				
2641 North 80	0.2	0.0	2	same as existing	none	0.2/0.0	2/0	n/a				
2659 Packsaddle	1.0	0.0	1	same as existing	none	same as existing		n/a				
2536 Spring Basin	0.0	0.0	1	same as existing	none	same as existing		0.1/1.1	2	0	2	100
2588 Spud	3.2	0.6	1, 2, 5	1, 2, 5	a, 0.3 miles fence	0.0/0.3	0/1	0.0/0.4	5	494	5	148
2533 Sutton Mtn	0.2	6.7	1, 2	1, 2, 5, 9	a, 2.3 miles fence	0.0/1.8	0/11	0.0/2.3	45	0	45	1240
2532 T. Cole	1.1	0.7	5	2, 5	a	1.2/0.6	7/4	0.0/2.8	17	42	17	520
2624 Burnt Ranch	0.0	1.4	2, 6	2, 6, 9	a	0.0/1.4	0/8	0.0/0.9	2	0	2	180
2630 Tripp	0.4	0.2	7	1	0.6 miles fence	0.4/0.2	2/1	0.0/0.3	7	18	7	80
2570 Zaek Keys	0.6	0.2	1	same as existing	none	same as existing		0.0/0.6	2	0	2	90
2649 Rim	0.0	0.0	8	same as existing	none	n/a		0.1/0.7	3	0	3	300
2569 Zaek Keys	5.2	2.2	1	same as existing	none	same as existing		0.0/1.0	12	107	12	440
Unleased	18.7	1.1	n/a									
Totals	63.0	32.2	95.2		7.9 miles fence	23.0/14.2	141/88	4.1/22.0	219	1673	219	6516

1: exclusion
 2: spring
 3: summer
 4: autumn
 5: winter
 6: rotation
 7: season long
 8: no public land riparian area
 9: voluntary non use
 a. adjust the leases to confine grazing period, see Appendix L for greater detail.

Table 3-E. Grazing Alternative Comparison, Segment 4 (Service Creek to Dayville, 55 river miles)

Allotment Number & Name	Alternative A Current Management		Alternative B Restricted Grazing		Alternative C No Riparian Grazing		Alternative D No Grazing		
	Miles of River Bank		Riparian Grazing Mgt.	Riparian Grazing Mgt.	Required Miles of Fence Pvt/Pub	Required Acres Excluded Pvt/Pub	Required Miles of Fence Pvt/Pub	Required AUMs Canceled	Acres Included Pvt Pub
	private	public							
2589 McQuinn	0.0	0.0	8	same as existing	same as existing	same as existing	same as existing	same as existing	same as existing
2578 Logan	0.0	0.0	8	same as existing	same as existing	same as existing	same as existing	same as existing	same as existing
2517 Borschawa	0.0	0.0	8	same as existing	same as existing	same as existing	same as existing	same as existing	same as existing
2625 D. Stirewalt	0.0	2.7	1	1	b	same as existing	0.0/3.2	43	0
2626 Harper Mtn.	2.2	2.0	1	1	b	same as existing	2.7/2.9	43	432
2613 F. Robinson	0.0	0.3	2, 3	2, 5	a	same as existing	0.0/2.3	3	0
2585 Seek Peek	1.4	0.0	1	same as existing	same as existing	same as existing	0.0/3.3	22	0
2627 R.W. Straub	0.0	1.4	1	1	b	0.0/1.4	0.0/3.3	22	0
2563 Horseshoe Ck	8.8	3.0	1, 4, 5	1, 4, 5	a	8.8/2.5	8.8/2.5	48	1408
2575 A. Leckie	0.0	0.5	1	1	b	same as existing	0.0/1.0	1	0
2554 C. Hill	7.3	0.8	2, 3	2, 3	a	7.3/0.8	7.8/1.3	13	560
2528 Sentinel Peak	3.0	1.0	1, 2	1, 2	a, b	3.0/1.0	3.5/1.5	8	240
2662 Johnson Ck	2.5	0.5	1	1	b	same as existing	same as existing	same as existing	same as existing
4145 Two County	10.6	1.4	1	1	b	same as existing	same as existing	same as existing	same as existing
2501 H. Asher	4.0	0.3	1	1	b	same as existing	same as existing	same as existing	same as existing
4001 Johnny Crk	1.5	0.5	1	1	b	same as existing	same as existing	same as existing	same as existing
2558 Squaw Crk	1.6	0.0	1	same as existing	same as existing	same as existing	same as existing	same as existing	same as existing
4076 Cottonwood	4.0	0.0	8	same as existing	same as existing	same as existing	same as existing	same as existing	same as existing
4007 Windy Point	1.2	0.0	8	same as existing	same as existing	same as existing	same as existing	same as existing	same as existing
4068 Sheep Gulch	2.6	0.0	8	same as existing	same as existing	same as existing	same as existing	same as existing	same as existing
4041 Franks Crk	0.3	0.0	1	same as existing	same as existing	same as existing	same as existing	same as existing	same as existing
unleased	44.6								
Totals	95.6	14.4	=110			19.1/6.0	22.8/18.0	181	2640
									2083

1: exclusion
 2: spring
 3: summer
 4: autumn
 5: winter
 6: rotation
 7: season long
 8: no public land riparian area
 9: voluntary non use

a. adjust the leases to confine authorized use, details presented in Appendix L.
 b. Adjust use authorizations to prohibit grazing on public lands within riparian enclosure; see Appendix L for detail.

Table 3-E. Grazing Alternative Comparison, Segment 5 (Dayville to Headwaters, 72 river miles)

Allotment Number & Name	Alternative A Current Management		Alternative B Restricted Grazing		Alternative C No Riparian Grazing		Alternative D No Grazing	
	Miles of River Bank private	Miles of River Bank public	Riparian Grazing Mgt.	Riparian Grazing Mgt.	Required Actions	Required Actions	Required Actions	Required Actions
4023 Triple Fork	0.1	0.0	1	same as existing	same as existing	same as existing	same as existing	same as existing
4084 L Diamond	0.8	0.0	8	same as existing	same as existing	same as existing	same as existing	same as existing
4168 Grub Crk	4.4	0.0	1	same as existing	same as existing	same as existing	same as existing	same as existing
Unleased	138.7							
Totals	144.0							

Allotment Number & Name	Alternative A Current Management		Alternative B Restricted Grazing		Alternative C No Riparian Grazing		Alternative D No Grazing	
	Miles of River Bank private	Miles of River Bank public	Riparian Grazing Mgt.	Riparian Grazing Mgt.	Required Actions	Required Actions	Required Actions	Required Actions
4101 L Cupper	0.0	0.0	8	same as existing	same as existing	same as existing	same as existing	same as existing
4094 Dry Crk	0.0	0.0	8	same as existing	same as existing	same as existing	same as existing	same as existing
4080 S Stonehill	1.0	0.0	8	same as existing	same as existing	same as existing	same as existing	same as existing
4127 Kimberly	0.3	0.0	1	1	same as existing	same as existing	same as existing	same as existing
4037 Juniper	0.6	0.0	8	same as existing	same as existing	same as existing	same as existing	same as existing
4031 Coyote Fields	1.2	0.0	8	same as existing	same as existing	same as existing	same as existing	same as existing
4030 Powersite	1.2	0.0	8	same as existing	same as existing	same as existing	same as existing	same as existing
4025 Portuguese	0.0	0.0	8	same as existing	same as existing	same as existing	same as existing	same as existing
4011 CG	1.5	0.0	8	same as existing	same as existing	same as existing	same as existing	same as existing
4009 Birch Crk	4.8	1.2	7	2, 5	6.0/2.3	6.0/2.3	6.0/2.3	19 764 193
4035 Rim	0.0	0.0	8	same as existing	same as existing	same as existing	same as existing	same as existing
4178 Cheatgrass	0.0	0.0	8	same as existing	same as existing	same as existing	same as existing	same as existing
4069 Big Spring	0.0	0.0	8	same as existing	same as existing	same as existing	same as existing	same as existing
4185 Cokeran Crk	1.4	0.0	8	same as existing	same as existing	same as existing	same as existing	same as existing
4082 Jack-of-Clubs	1.5	0.9	1	1	same as existing	same as existing	same as existing	same as existing
4012 River	1.0	0.8	1	1	same as existing	same as existing	same as existing	same as existing
unleased	14.4							
Totals	28.8	3.2	=32.0		6.0/2.3	764/193	6.0/2.3	19 764 193

Segment 6 (Kimberly to Monument, 16 river miles)

4101 L Cupper	0.0	0.0	8	same as existing				
4094 Dry Crk	0.0	0.0	8	same as existing				
4080 S Stonehill	1.0	0.0	8	same as existing				
4127 Kimberly	0.3	0.0	1	1	same as existing	same as existing	same as existing	same as existing
4037 Juniper	0.6	0.0	8	same as existing				
4031 Coyote Fields	1.2	0.0	8	same as existing				
4030 Powersite	1.2	0.0	8	same as existing				
4025 Portuguese	0.0	0.0	8	same as existing				
4011 CG	1.5	0.0	8	same as existing				
4009 Birch Crk	4.8	1.2	7	2, 5	6.0/2.3	6.0/2.3	6.0/2.3	19 764 193
4035 Rim	0.0	0.0	8	same as existing				
4178 Cheatgrass	0.0	0.0	8	same as existing				
4069 Big Spring	0.0	0.0	8	same as existing				
4185 Cokeran Crk	1.4	0.0	8	same as existing				
4082 Jack-of-Clubs	1.5	0.9	1	1	same as existing	same as existing	same as existing	same as existing
4012 River	1.0	0.8	1	1	same as existing	same as existing	same as existing	same as existing
unleased	14.4							
Totals	28.8	3.2	=32.0		6.0/2.3	764/193	6.0/2.3	19 764 193

- 1: exclusion
- 2: spring
- 3: summer
- 4: autumn
- 5: winter
- 6: rotation
- 7: season long
- 8: no public land riparian area
- 9: voluntary non use

a. Adjust the leases to confine grazing period, see Appendix L for detail.
 b. Adjust use authorizations to prohibit grazing on public lands within riparian enclosure, see Appendix L for detail.

Table 3-E. Grazing Alternative Comparison, Segment 7 (Monument to confluence of Camas Creek, 41 river miles)

Allotment Number & Name	Alternative A			Alternative B			Alternative C			Alternative D		
	Current Management			Restricted Grazing			No Riparian Grazing			No Grazing		
	Miles of River Bank private	Miles of River Bank public	Current Riparian Grazing Mgt.	Riparian Grazing Mgt.	Required Actions	Required Miles of Fence Pvt/Pub	Required Acres Excluded Pvt/Pub	Required Miles of Fence Pvt/Pub	Required Acres Excluded Pvt/Pub	Required Miles of Fence Pvt/Pub	Required Acres Excluded Pvt/Pub	Acres Included Pvt Pub
4003 Slicker Mtn.	3.0	7.1	2	2.5	a	1.3/6.3	15/200	4.0/10.0	41	200	620	
4028 Neale Butte	6.0	4.0	2, 7	2.5	a	3.2/1.2	19/7	3.7/1.7	16	592	160	
4029 North Fork	11.3	9.1	2	same as existing		11.3/9.1	68/55	11.8/9.6	72	896	720	
4125 Umatilla	4.1	1.0	7	2.5	a	4.1/1.0	50/12	4.6/1.5	16	656	160	
4083 19-20	0.8	0.6	2	2.5	a	0.8/0.6	10/7	1.3/1.1	10	128	96	
4042 J. Cake Mtn.	1.5	1.0	2	2.5	a	1.5/1.0	18/12	2.0/1.5	16	240	160	
4139 Bone Yard	0.0	0.0	8	same as existing		same as existing						
4122 Big Bend	0.2	0.8	1	1	b	same as existing						
4089 East Monument	0.0	0.0	8	same as existing		same as existing						
4027 Top Road	0.0	0.0	8	same as existing		same as existing						
4015 Mud Springs	0.0	0.0	8	same as existing		same as existing						
4169 Sheepshed Can	0.0	0.0	8	same as existing		same as existing						
6549 Healy	6.5	0.5	7	2.5	a	6.5/0.5	36/6	6.5/0.5	2	820	140	
4189 Morris	3.7	0.0	7	2.5	a	3.7/0.0	24/0	3.7/0.0	2	440	20	
6532 Doherty	7.9	3.5	7	2.5	a	7.9/3.5	48/18	7.9/3.5	20	280	200	
Unleased Totals	15.4	27.6	=88.0			40.3/23.3	288/159	45.5/29.4	195	4252	2276	

Segment 8 (North Fork, Camas Creek to Headwaters, 54.1 river miles)

Forest Service Baker R.A.	4.0	95.2	1	same as existing		same as existing					
Total	11.0	97.2	=108.2								

Segment 9 (North Fork Confluence to Headwaters, 75 river miles)

4135 Gibson Crk	0.0	0.2	7	2.5	a, pursue exchange	0.0/0.2	0/5	0.0/1.2	6	0	40
4046 Three Mile	3.4	0.8	7	2.5	a, pursue exchange	0.0/0.8	0/40	0.0/0.8	3	0	40
4014 Middle Fork	5.8	0.7	7	2.5	a, pursue exchange	0.0/0.5	0/100	0.0/0.5	10	0	100
Unleased Totals	139.1	1.7	=150.0			0.0/1.5	0/145	0.0/2.5	19	180	

- 1: exclusion
- 2: spring
- 3: summer
- 4: autumn
- 5: winter
- 6: rotation
- 7: season long
- 8: no public land riparian area
- 9: voluntary non use

a. adjust the leases to confine grazing period, see Appendix L for detail.
 b. Adjust use authorizations to prohibit grazing on public lands within riparian enclosure, see Appendix L for detail.

Table 3-E. Grazing Alternative Comparison, Segment 10 (Mainstem to County Road 63, 35 river miles)

Allotment Number & Name	Alternative A			Alternative B		Alternative C			Alternative D		
	Current Management			Restricted Grazing		No Riparian Grazing			No Grazing		
	Miles of River Bank private	Miles of River Bank public	Current Riparian Grazing Mgt.	Riparian Grazing Mgt.	Required Actions	Required Miles of Fence Pvt/Pub	Required Acres Excluded Pvt/Pub	Required Miles of Fence Pvt/Pub	Required Actions AUMs Canceled	Acres Included Pvt	Acres Included Pub
4038 Dayville	0.0	0.0	8	same as existing	same as existing	same as existing	same as existing	same as existing	same as existing	182	188
4020 Murderers Crk	0.0	8.0 State 5.2 BLM	1, 2, 6	same as existing	same as existing	0.0/7.8	0/71	0.4/7.1	182	188	3885
4103 Rockpile	9.8	3.8 State 8.0 BLM	1, 2, 6, 9	same as existing	same as existing	9.8/11.8	60/143	3.0/14.0	278	840	2780
4052 Big Baldy	9.6	7.4	2, 6	same as existing	same as existing	8.8/7.2	53/44	2.0/9.0	278	470	2780
4124 Smokey Creek	3.0	0.2	1	1	a	3.0/0.2	36/3	3.0/0.2	2	480	32
4119 Black Canyon	2.4	0.0	1	same as existing	same as existing	same as existing	same as existing	3.0/0.8	1	80	10
4186 Big Flats	2.0	1.2	1, 3	1, 3	a	1.2/0.4	24/4	3.0/4.0	31	260	310
Unleased	9.6										
Totals	36.4	33.8	=70.2			22.8/27.4	173/265	14.4/35.1	772	2318	9797

Segment 11 (County road 63 to Headwaters, 22 river miles)

4186 Big Flats	5.4	0.8	3, 4, 5	4, 5	a	2.8/0.8	34/10	4.0/2.0	14	180	140
4106 Izze	1.7	0.3	1	1	b	same as existing	same as existing	1.0/1.0	20	190	197
4067 Sheep Ck B.	10.6	0.6	3	2, 3, 5	a	4.8/0.3	58/3	6.2/3.0	28	480	280
4155 Blackhorse D	1.2	0.4	1	1	a	same as existing	same as existing	1.4/1.0	8	40	60
4044 Soda Creek	4.4	0.0	1	same as existing		same as existing	same as existing	6.0/0.8	8	600	80
4104 South Fork	7.9	0.1	5	2, 5	a	7.9/0.1	96/1		8	600	80
4154 Morgan Crk	0.0	0.0	8	same as existing		same as existing	same as existing		78	1490	757
Totals	31.2	2.2	=33.4			15.5/1.2	188/14	18.6/7.8	78	1490	757

- 1: exclusion
- 2: spring
- 3: summer
- 4: autumn
- 5: winter
- 6: rotation
- 7: season long
- 8: no public land riparian area
- 9: voluntary non use

a. adjust the leases to confine grazing period, see Appendix L for detail.
 b. Adjust use authorizations to prohibit grazing on public lands within riparian enclosure, see Appendix L for detail.

The majority of the changes have been adjustments to season of use, from season long to spring and/or winter. Other adjustments include riparian fences (exclusion), reductions in the duration of use, and rotation grazing.

Alternative B (Proposed Decision)

The goal of this alternative is to protect and enhance river values, such as riparian vegetation, water quality, scenery, recreation, wilderness and other river values. This goal would be achieved by further restricting grazing practices and by applying a series of immediate, mid-term and long-term standards for verifying the protection and enhancement of river values.

Changes since the Draft EIS include the results of an additional screening of all pastures that incorporated the most up-to-date information gathered in the 'Limits of Acceptable Change' monitoring of campsites and a review of allotment files. The additional screening resulted in changes to the campsite exclusion areas, elimination of one and addition of two areas in the list of those to be excluded from grazing (see below). This same screening resulted in the identification of new fence sites and opportunities for year long rest from grazing (see segment descriptions below). As a result, within the designated portions of the river (Segments 1, 2, 3, 10 and 11) the public river bank miles excluded or rested in the Final EIS is 89.8, up from 65.5 reported in the Draft EIS (see Table S-3). A special seasonal limitation to grazing was added to this alternative which would restrict grazing to times when the river flows exceed 2,000 cubic feet per second (see below). Finally, additional monitoring is proposed including increased frequency of compliance monitoring, utilization monitoring and rates of recovery monitoring (see Monitoring, at the end of this chapter).

This alternative includes the following measures:

1. A special seasonal limitation to grazing would be established. To protect public land riparian areas, grazing in pastures where livestock have access to river bank would be limited to periods when river flows at the USGS Service Creek gauging station are at least 2,000 cubic feet per second (cfs). This strategy relies on several factors including cool air drainage, higher relative palatability of upland vegetation and inundated riparian areas. At 2,000 cfs and higher, water covers much of the riparian vegetation, particularly herbaceous vegetation, thereby protecting it from livestock grazing. The cool air and palatability factors further discourage livestock from lingering near the river, and they promote grazing of upland vegetation. In combination, these factors provide effective protection from livestock grazing without the use of riparian fences.
 - a. This special seasonal limitation to grazing is intended to restrict rather than lengthen the existing grazing season. For example, if grazing is currently restricted to March and April, this limitation would not extend authorized use into May. Pastures authorized for grazing during lower flows would shift to high flow seasons. Season of use changes from winter to spring would not be authorized in Wilderness Study Areas until an analysis of impacts is completed.
 - b. For pastures with authorized winter grazing, the flow level restriction would be an interim measure until recovery monitoring established that recovery was occurring at acceptable rates (for further detail see the monitoring section at the end of this chapter).
 - c. Special seasonal limitation to grazing would not apply to scattered tracts of public land (all of Segment 11, all of allotment 2656, the Rayburn Pasture of allotment 2584 and the Sherman Pasture of allotment 2598, a total of approximately 5 river bank miles).
2. Monitoring of compliance with authorized grazing schedules would be increased over normal frequencies.
3. Levels of grazing or browsing use on important vegetative components of the riparian ecosystem would be monitored.
4. Increased vegetation and river channel monitoring would be established on grazed and ungrazed areas in order to verify that recovery rates are equal. In the event the above measure is not met, appropriate action would be taken as described in the monitoring section.
5. In the lower John Day River mainstem, most livestock use on public land riparian areas would end prior to the start of the high use boating season. At campsites where livestock use creates a conflict as documented in Limits of Acceptable Change (LAC) monitoring, grazing would be excluded. The LAC study is described under Recreation Opportunities and Appendix K. Several sites have already been identified and are located as described below:

River Left 43.6 - 45.5
River Right 59.0 - 60.1 (Owl Rock) w/in WSA
River Left 76.0 - 77.2 (Chisholm Canyon) w/in WSA
River Right 77.7 - 78.2 (Cordwood Canyon) w/in WSA
River Left 81.3 - 82.9 w/in WSA
River Right 99.4 - 100.0 (Juniper Island)
River Left 119.1 - 119.7
River Right 122.0 - 123.6
River Left 135.7 - 136.4
River Left 137.3 - 139.2

6. Any campsite closed to recreation use for recovery would also be closed to grazing.
7. To protect California Bighorn Sheep, no sheep or goat permits (domestic or non-native) would be allowed in the future on BLM allotments within and adjacent to Segments 1, 2, 3, or 10. Also, conversion of permits from cattle or horses, to sheep or goats would not be allowed in the future in Segments 1, 2, 3, and 10 (see Appendix P). Any use of domestic sheep or goats for weed control would be closely monitored and done in accordance with the Bighorn Sheep Management Guidelines. No reduction in present livestock permit levels are proposed to accommodate bighorn sheep, just a restriction on livestock class. Currently there are no active domestic sheep or goat permits in Segments 1, 2, 3, 10.

Changes in management from the current situation and some direct impacts of those changes are detailed in Table 3-E and Appendix L. If this alternative were selected for each allotment within the designated segments, 71.6 public land river bank miles would be excluded from livestock grazing, 18.2 public land river bank miles would be rested from grazing for at least three years, 105.4 miles would be under other riparian-oriented grazing management, and 2.6 miles of scattered public land tracts would await exchange for other lands within the WSR corridor. The alternative requires the construction of 23.3 miles of fence and 24 water developments in designated segments.

The grazing season in pastures where livestock have access to river banks would be restricted by the special seasonal limitation to grazing, described above. In some cases, this is a restriction or a shift in the grazing period, typically away from hot season or season long grazing. In many cases, the current authorized grazing season is winter and/or spring. The associated action would be limited to modifying the terms and conditions of the lease to establish the new grazing season. These actions would establish a relatively standard grazing period for the public lands along the river. A uniform season, during which river flow levels are sufficient to permit the river to be used as a barrier to livestock movement, reduces the incidence of trespass from livestock which, during low flows, are able to travel up and down the river banks and freely cross the river (See Appendix M, photos 11-14).

In Segment 1, pasture division fences would create riparian pastures on allotments 2595 and 2597. Grazing on the new riparian pastures would be limited to winter and/or spring, with grazing occurring most often in March and April. On allotment 2597, a large pasture would be divided into four smaller pastures, restricting access to the river from three of the pastures and allowing a rotation grazing system to be implemented. Fence construction on 2617 would create a riparian pasture with a higher percentage of public land than exists in the current pasture. That new pasture would be rested for three years. Fence construction on 2520 and 2560 would exclude grazing from public land river bank. In allotment 2598, two corners of public land extend across the river and occupy 0.7 river bank miles in a pasture which is dominated by private land. This land would be difficult to manage efficiently and is recommended for exchange for other lands within the Wild and Scenic River corridor.

In Segment 2, approximately 4.9 miles of fence would be built to exclude livestock from popular campsites in allotments 2597, 2619, 2538 and 2623. In allotments 2629 and 2619, pastures (River B and Hoot Owl) containing popular campsites would be closed to grazing. A pasture division fence would create a riparian pasture on allotment 2591. Following three years of rest, grazing on the new riparian pasture would be limited to winter and/or spring, with grazing occurring most often in March and April. One mile of fence would be built in Little Ferry Canyon, on allotment 2509, the Gooseneck and the mouth of Little Ferry would be rested for three years. On 2538 and 2619 small gap fences would bridge steep cliffs to restrict livestock access from 1.3 and 3.5 public land river bank miles respectively. In allotments 2518 and 2609, the Pine Hollow and Big Gulch pastures,

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would be rested for three years and subsequently grazed only during the winter. In allotment 2584, scattered tracts lie on or near river bank in a pasture dominated by private land. This land would be difficult to manage efficiently and is recommended for exchange for other lands within the Wild and Scenic River boundaries.

In Segment 3, approximately 4.3 miles of fence would be built to exclude livestock from popular campsites in Allotments 2633, 2512, and 2533. An additional 1.9 miles of fence would be constructed in Allotment 2512, creating a new pasture with a high proportion of public land and 3.4 miles of river bank. The new pasture would be rested for three years. In Allotments 2512 and 2588, about 0.8 miles of fence and 0.3 miles, respectively, would be placed to prevent livestock from entering an isolated terrace along the river where they tend to remain. The 0.6 miles of fence on Allotment 2630 would create a riparian exclusion fence for the entire length of the allotment. The riparian pasture in allotment 2624 would be rested for three years, after which it would return to the present early spring grazing for two weeks every other year.

Alternative C

The goal of this alternative is to protect and enhance river values such as riparian vegetation, water quality, public-land campsites, and others from livestock impacts. This goal would be achieved by excluding livestock from the riparian area through use of fencing and topographic barriers. Existing fences would be incorporated to the extent possible. The primary factors to be taken into account in locating new fences would be (1) the effectiveness in excluding livestock, (2) the ability to withstand high water events, (3) visibility from river, campsites, or other recreational settings, and (4) accessibility and ease of maintenance. Where fencing the riparian area is impractical and topographic barriers are absent, the goal of this alternative may be accomplished through modification of pasture boundaries or cancellation of livestock grazing privileges for individual pastures, or other measures which would effectively prevent livestock from accessing the riparian area. Existing guidance would continue to provide standards and guides for livestock management throughout the basin.

Changes in management from the current situation and some direct impacts of those changes are summarized in Table 3-E and Appendix L. If this alternative were selected for each allotment, of the 197.8 public land river bank miles in the designated Wild and Scenic River segment (1, 2, 3, 10 and 11), all of them would be excluded from grazing. Nearby uplands would continue to be grazed.

Alternative D

The goal of this alternative is to protect and enhance river values by protecting riparian areas and surrounding publicly owned uplands from the impacts of livestock. This goal would be achieved by cooperators taking whatever actions necessary to eliminate livestock grazing on public lands within the WSR boundaries and within 1/4 mile of non-designated segments of the mainstem, North, Middle, and South Forks of the John Day River. Existing guidance would continue to provide standards and guides for livestock management elsewhere in the basin.

The actions necessary to implement this alternative would extend outside WSR boundaries (or more than 1/4 mile in non-designated segments). When grazing allotments encompass both public and private lands, this alternative would require either the elimination of grazing from private lands or some means of preventing trespass from private lands to public lands. The cooperators would utilize a range of options to implement this alternative:

1. Request that current permittees voluntarily refrain from grazing their cattle on unfenced lands adjacent to public lands. This option could include the use of incentive programs which provide compensation for the private land productivity loss as well as for construction costs of whatever infrastructure would be necessary to eliminate grazing on the targeted lands while allowing use on other lands.
2. Purchase of or exchange for private lands within grazing allotments or purchase of conservation easements from willing sellers.
3. Exchange out of small tracts of public lands, surrounded by private land, within the WSR boundary, for other private land within the WSR boundary.

4. When permittees do not voluntarily stop grazing and are not willing to sell adjacent private lands, permittees would not be authorized to graze livestock on public lands within the river corridor or WSR boundaries.

Some direct impacts on private and public lands due to implementation of this alternative are summarized in Table 3-E and Appendix L. If this alternative were selected for each allotment, of the 197.8 public land river bank miles on the Wild and Scenic River designated segments (1, 2, 3, 10 and 11), 192.8 miles would be excluded from livestock grazing, 4.0 miles would be rested, and 1.0 river bank miles would await exchange for other lands within the Wild and Scenic River corridor. There would be 65,845 public land acres closed to grazing, eliminating 2,725 AUMs from grazing allotments which lie partially within the WSR designated segments. In order to fully implement the alternative, the approximately 15,000 acres of private land fenced in with the closed public lands would have to be dealt with, either by acquiring title or a conservation easement for those lands.

Agricultural Lands

Alternative A

Rivers designated Recreational under the WSRs Act may be managed for a full range of agriculture, consistent with current practices (USDI-BLM 1992c).

The BLM-administered agricultural lands are now managed for a variety of purposes. These lands have associated water rights. The OWRD is responsible for administering state water law and application of water right restrictions. Water rights associated with these public agricultural lands are restricted to a rate not to exceed 1/40 cfs (cubic feet per second) per acre. Withdrawal from the river during the irrigation season (April 1 to September 30) is not to exceed 3 to 5 acre-feet per acre, depending on the specific water right associated with each property.

Management of public agricultural lands and utilization of associated water rights would continue under existing guidance for a combination of instream leasing, non-use, riparian shrub/tree propagation (such as cottonwood, willow, and alder), wildlife food and cover, weed control, vegetation restoration (riparian and upland), and commodity agriculture in a manner consistent with the overall goals of ecosystem management.

Segment 1

The BLM would continue to lease the 8.7 acres of public agricultural lands and associated water rights at approximately river mile (RM) 23 for commodity production associated with adjacent private irrigated lands. Use in 1998 was for alfalfa hay.

Segment 2

This alternative would retain a full range of management opportunities for the 278.5 acres of public agriculture lands and associated water rights. Examples of use include instream leasing, non-use, riparian shrub/tree propagation (cottonwood, willow, aspen), wildlife food and cover, weed control, vegetation restoration (riparian and upland), and commodity agriculture. Use in 1998 (Table 3-F) consisted of approximately 46.4 acres of alfalfa hay, 82 acres of spring wheat, 17 acres of wildlife food and cover mix, and 26 acres of cottonwood.

Table 3-F. Acres of BLM-Managed Agricultural Land and Associated Water Use in Segment 2

Location River Mile (RM)	Total Acres	Actual Use Estimates - 1998		
		Acres Not Used	Acres Used for Restoration and Enhancement	Acres Leased for Commodity Production
RM 106.5-109.5	232.1	107.1 ¹	65.0 ²	60.0
RM 101.5	43.0	0.0	0.0	43.0
RM 98.75	3.4	0.0	0.0	3.4
Total	278.5	107.1	65.0	106.4

¹Water retained instream is result of instream lease, non-use, water use efficiency, and particular crop water demand, while meeting beneficial use criteria of Oregon water law.

²Ten acres of 70-acre agricultural lease retained for wildlife food and cover in coordination with ODFW. These 10 acres are included with Restoration and Enhancement acres.

Segment 3

The BLM would continue to manage approximately 97 acres of public agricultural lands and associated water rights in Segment 3. Estimated use in 1998 (Table 3-G) consisted of approximately 33.7 acres of alfalfa, 46 acres of oats, 15.3 acres of onion seed, and 2 acres of cottonwoods.

This alternative would maintain approximately 95 acres for leased agriculture production and 2 acres to generate riparian vegetation (such as cottonwood, willow and aspen) for restoration and enhancement purposes.

Table 3-G. Acres of BLM-Managed Agricultural Land and Associated Water Use in Segment 3

Location River Mile (RM)	Total Acres	Actual Use Estimates - 1998		
		Acres Not Used	Acres Used for Restoration and Enhancement	Acres Leased for Commodity Production
RM 112	15.3	0	0	15.3
RM 119	10.3	0	0	10.3
¹ RM 136	23.4	0	0	23.4
¹ RM 137	48.0	0	2	46.0
Total	97.0	0	2	95.0

¹Irrigation is seasonally terminated when John Day River flows drop below 390 cfs measured at the USGS Gauging Station near Service Creek (Sutton Mountain CRMP/DR, BLM 1996).

Segments 10 and 11

There are no public agricultural lands in Segments 10 and 11.

Management Common to All Action Alternatives

Dispose of public parcels and associated water rights that constitute a portion of a larger agricultural field owned by a private party and which do not have reasonable access by public road or river. Such parcels would be disposed of through the land exchange process for lands of equal or greater value within the designated WSR boundary. Implementation of the exchange would be pursued as soon as possible. A conservation easement in exchange for these parcels could also be pursued if the opportunity arises. Currently, known parcels are in Segment 3 and include RM 112; T8S, R19E, Section 4, SE/14 (15.3 acres) and RM 119; T8S, R19E, Section 25, NW1/4 (10.3 acres). Pending any exchange, these lands would continue to be leased.

Stipulations that would be applied to Agriculture Permits in the Wild and Scenic River Corridor would include, but not be limited to:

1. Water Rights

Irrigation of all commercial agriculture fields that are entirely publicly owned and managed by the BLM would be terminated on August 15 to protect adult steelhead immigration. On non-commercial fields where the BLM is in the process of establishing perennial vegetation (which includes tree and shrub propagation, cottonwood galleries, and upland grasses and forbs), the August 15 termination date would not be implemented to aid in the establishment perennial vegetation. Where perennial vegetation is being established this extension of irrigation will be short lived and only occur until perennial vegetation is established successfully. Cottonwood galleries used for outplanting may require small amounts of annual irrigation (typically less than 1 cfs) after the termination date. Wildlife food and cover plots would fall under this stipulation.

Entirely publicly owned agriculture fields affected by the August 15 termination date include the following: 1) 182.4 acres of agriculture land currently leased for commodity production. This total does not include the 25.6 acres described above that are identified for disposal or the 8.7 acres in Segment 1 and the 3.4 acres in Segment 2 that would be excluded from this Alternative. The 37.7 acres listed above are excluded because they are identified for disposal and/or constitute a portion of a larger agriculture field that is privately owned and operated and irrigation system design make it infeasible to implement irrigation stipulations, and 2) 164.1 acres of BLM agriculture land that is currently not in commodity production and where perennial vegetation is not being established.

2. Herbicides

The permittee shall comply with all applicable State and Federal laws and regulations concerning the use of pesticides (including insecticides, herbicides, fungicides, rodenticides and other similar substances) in all activities and operations under the permit. The permittee is prohibited from using any herbicides, except as approved by the Authorized Officer and within the provisions of the BLM Prineville District's Integrated Weed Management Program.

3. Buffer Strips

Where leased agricultural lands along the river terrace are immediately adjacent to the active floodplain, a buffer or filter strip between the agriculture field and the active floodplain would be maintained by the Permittee. The buffer or filter strip may be planted along the edge of the field adjacent to the active floodplain, or may occur as perennial vegetation that naturally occurs between the field and the active floodplain. The minimum strip width shall be 20 feet and would be determined by multiplying the appropriate LS factor ($LS = \text{Length} \times \text{Slope value}$) from the Revised Universal Soil Loss Equation (RUSLE) by 10 (USDA-NRCS, 1998).

4. Rehabilitation

A rehabilitation plan must be approved by the Authorized Officer prior to cancellation or abandonment of the permit.

5. Cultural

The permittee shall immediately suspend operations under the permit and notify the Authorized Officer if the permittee encounters or becomes aware of any objects or sites of cultural value, such as historical or prehistorical ruins, graves, grave markers, fossils or artifacts. The permittee's operations may resume at the discovery site only upon receipt of written instructions and authorization by the Authorized Officer.

[Note: The same stipulations for agricultural fields within the Wild and Scenic River will be applied to the Bridge Creek fields; however, where the current stipulations for the Bridge Creek fields are more restrictive, the most restrictive stipulations will remain in effect.]

Alternative B

Commit approximately 164 acres of public agricultural lands and associated water rights along the John Day River to non-commodity use, such as riparian vegetation propagation for restoration, wildlife habitat enhancement (such as food and cover plots, and tree and shrub plantings), or conversion to perennial vegetation. The actual non-commodity use on each field would be determined by a number of factors which include but are not limited to noxious weed control efforts needed to prepare the field for non-commodity use, the ability of the site to support riparian vegetation to be used for restoration or propagation, and specific wildlife habitat enhancement projects to benefit certain species (such as shrub and tree plantings to benefit upland game birds and neotropical migratory birds). For water rights not being used for irrigation, beneficial use would be maintained by leasing or transferring those water rights instream with the OWRD. Maintain approximately 195 acres of public land for leased commodity production. The BLM would further coordinate with lessees to evaluate activities and opportunities to enhance ORVs. Options may include but are not limited to increasing irrigation efficiency, and planting vegetation buffers along fields to create wildlife habitat, visual screening and color contrast, and filter potential nutrients and pesticides.

If a portion of the 195 acres goes out of leased status, the BLM would reserve the option to implement restoration and enhancement activities (such as weed control, food and cover plots, and perennial vegetation).

Segment 1

Under this alternative, 8.7 acres of public agricultural lands at approximately RM 23 would be leased for commodity production in association with private land agriculture.

Segment 2

Approximately 162 acres of public agricultural lands would be obligated for non-commodity use, such as riparian vegetation propagation for restoration, wildlife habitat enhancement (food and cover plots), or conversion to natural vegetation (desirable native and/or non-native grasses, forbs, shrubs and trees). Approximately 116 acres would be leased for commodity production. Crop selection would be based on local needs.

Segment 3

Two acres of public agricultural lands would be utilized for non-commodity use, propagation of woody riparian vegetation (such as cottonwood, willow, and aspen) for restoration purposes. Approximately 69.5 acres would be leased for commodity production. Crop selection would be based on local needs.

Alternative C (Proposed Decision)

Public land commodity production would be phased out. Emphasis would be placed on wildlife habitat enhancement. Activities would include tree and shrub propagation (such as cottonwood, willow, aspen), establishment of perennial vegetation (native and/or desirable non-native grasses, forbs, shrubs and trees) that does not require irrigation after establishment, and establishment of wildlife food and cover plots. Species selection would be made to benefit wildlife habitat and would require species able to compete with noxious weeds. When establishing perennial vegetation, native species are preferred over non-native species. However, situations may occur where desirable non-native species may be used (see vegetation rehabilitation/restoration in Chapter 3).

Removing the existing 195 (221 acres minus 26 acres identified for disposal) from commercial agriculture production will be accomplished within 10 years according to the following phased process:

- Segment 1 -** RM23 - One tract of 8.7 acres within 5 years.
- Segment 2 -** RM98.75- One tract of 3.4 acres within 8 years.
RM101.5 - One tract of 43 acres within 8 years.
RM 107 - One tract of 70 acres within 5 years.
- Segment 3 -** RM136 - One tract of 23.4 acres within 10 years.
RM 137 - One tract of 46 acres within 10 years.
(Two tracts totaling 26 acres in Segment 3 are identified for disposal.)

A phased process is required because of expected funding levels for implementation and to continue weed control during the process. This schedule is considered a realistic and cost-efficient strategy; however, it may be adjusted by availability of additional funds, contributions, cooperative agreements or termination and/or abandonment of leases by lessees ahead of the BLM schedule.

The opportunity to convert a small portion of the 43-acre field in Segment 2 and 46-acre field in Segment 3 to perennial vegetation would be pursued before the scheduled phase-out period to provide dispersed camp sites. Approximately 60 acres (in Segments 2 and 3) of the total agricultural lands would be kept in wildlife food and cover crops in the long term. Food and cover crops are cultivated annual crops that are specifically designed to provide food for terrestrial wildlife, especially upland and non-game birds. Plant species (such as wheat, sunflower, sorghum, milo, and millet) are commonly used for food and cover crops. These crops require conventional cultivation practices and irrigation to be successful. The cultivation practices associated with growing these crops are also used in part to control noxious weeds. In the long term, the 60 acres of food and cover crops that would be maintained would be irrigated starting at the time of seeding in April or May of each year and stopped by August 15. Total maximum allowable use for all 60 acres would be 1.5 cfs. In some years with higher than average spring rainfall, no irrigation would be needed.

Any BLM-managed land on which unauthorized agriculture is discovered in the future would be managed in a manner consistent with this alternative.

As tracts are converted to perennial vegetation, and irrigation is no longer required for establishment, their irrigation would cease. Beneficial use would be maintained and associated water rights would be leased or transferred instream in cooperation with the OWRD.

Alternative D

There would be no public land commodity production. Emphasis would be placed on restoring native vegetation and the elimination of irrigation. Activities would include establishment of native grasses, forbs, shrubs and trees. This would be conducted in a phased approach over approximately 20 years, depending on funding. Phase 1 would target areas currently not leased. Sites preparation would employ noxious weed control through application of herbicide and temporary establishment of annual crops. Phase 2 would target lands currently under lease agreements. Irrigation use would be phased out and leased or transferred instream in cooperation with the OWRD upon establishment of native vegetation.

Recreation Opportunities

A variety of on-river recreation experiences are provided (including motorized and non-motorized boating on specific segments). Commercial outfitters provide public service based on assessed need.

Common to All Alternatives (Preferred)

Under all alternatives the BLM would continue to implement a LAC planning and monitoring program to determine appropriate levels for boating use and make other management decisions that protect and enhance river values. Monitoring efforts would evaluate the physical condition of campsites both before and after the high use season, observe the ability of campsite conditions to recover during the “off season”, and conduct social experience surveys to determine social preferences, while correlating the data to actual recreation use levels. Data collected over a three year period would be needed before appropriate use levels could be determined.

Boating Use Levels

Common to All Alternatives

Under existing policy, the BLM would establish appropriate carrying capacity, using the principle of LAC, in all areas where visitor use has the potential to adversely impact significant resource values and/or the quality of visitor experience.

Alternative A

The BLM would continue existing management. The BLM would not set interim target use levels. Under this alternative, boating use is expected to increase during the three year LAC study period, subject to variations in water, weather, fishing, and economic conditions.

Common to All Action Alternatives (Component of Proposed Decision)

During the three-year period following the Record of Decision, appropriate use levels would be estimated for Segments 2 and 3. Interim daily launch targets would be set based on these estimates. In Segment 1, use levels would be evaluated annually to determine if launch targets are necessary. The effects of day use on river resources and social conditions would be evaluated as part of the LAC study to determine the need for future limits or use restrictions. In managing recreation use, including boating, it is the BLM's policy to begin with the least restrictive management prescriptions that would accomplish the objective and move toward more restrictive measures as needed. Through a variety of non-permit measures, the boating public would be asked to voluntarily launch during off-peak periods to maintain use levels at or below the interim daily launch targets. Launch targets proposed for interim management period are limited to launches for overnight trips. Launch limits proposed on the basis of the findings of the LAC study may involve limits on day use. Actions that could be employed to manage use levels include letters to users and the media encouraging off-peak use, required no impact camping, equipment restrictions, party size limits, a campsite reservation system, and use fees. During this time, on-the-ground management actions would be taken to protect resources as soon as a need was identified.

Alternative B

Under this alternative, the BLM would set interim daily launch targets at the maximum level observed during the 1998 boating season. As a result, interim launch targets would be 19 daily launches maximum for overnight trips within Segment 3, and 16 daily launches maximum for overnight trips within Segment 2 (See Boating Use Levels in Common to All Alternatives and Common to All Action Alternatives for all elements of this alternative).

See Boating Use Levels in Common to All Alternatives and Common to All action Alternatives for all elements of this alternative.

Alternative C (Proposed Decision)

The BLM would set interim daily launch targets based on campsite availability. Daily launch targets would be established at a level equal to 70% of the available campsites within the first 15 river miles of the launch point. Interim launch targets would be a maximum of 10 daily launches for overnight trips within Segment 3, and a maximum of 8 daily launches within Segment 2. This would limit campsite occupancy to a maximum of 70% of the available campsites within the first 15 miles of Service Creek and Clarno launch sites on a given night (Note: Campsites located less than 2.5 miles downstream of Service Creek and Clarno were not considered as available campsites due to their proximity to launch points.). Allowing a potential maximum of 70% of available campsites to be occupied on a given night by controlling launches allows for (1) some campsites to remain unfilled, giving boaters flexibility in campsite selection, (2) the possibility that drive-in campers may occasionally occupy riverside campsites, such as Priest Hole or Juniper Island, and (3) management flexibility to close campsites for rehabilitation, as necessary (see Boating Use Levels in Common to All Alternatives and Common to All Action Alternatives for all elements of this alternative).

Alternative D

This alternative would base interim daily launch targets on historical use levels. Using the limited data available, maximum daily launch targets would be established to equal 1988 to 1998 averages. Interim launch targets would be 8 daily launches maximum for overnight trips within Segment 3, and 6 daily launches maximum for overnight trips within Segment 2 (see Boating Use Levels in Common to All Alternatives and Common to All Action Alternatives for all elements of this alternative).

Alternative E

Same as Alternative C (Segment 1, continue existing management [no targets], Segments 2 and 3, target daily launches equal to 70% of campsites within 15 miles of launch points) except, within Segments 1 and 2, targets for motorized boating would be one launch per day in March and two launches per day in April. Motorized boating launch targets are intended to prevent use by large numbers of motorboats that would substantially change recreational experience during these months.

Boating Use Allocation

Alternative A

Because boating limits are not proposed under existing management, an allocation system need not be considered or implemented.

Common to All Action Alternatives (part of Proposed Decision)

An allocation system need not be implemented until it is determined that boating use levels are near or at the LAC and that actions short of a limited entry permit system have proven inadequate in keeping boating use levels within the LAC. If it is determined that limits are necessary to keep use within the LAC, then use would be allocated through a limited entry permit system.

If an allocation system is needed, the allocation method selected would consist of features designed, to the extent possible, to consider the following factors and criteria:

1. Treat outfitted and non-outfitted users equitably.
2. Be designed to minimize disruption to guided and outfitted services.
3. Not create a private property value out of a public resource.
4. Accommodate all types of boaters (long-term planner, as well as short-term and spontaneous user).
5. Foster a high quality of outfitted services.
6. Minimize the cost of access to the river by the public.
7. Provide an efficient system (minimize no-shows and make unused trips available to others).
8. Make the system as easy to use as is feasible.
9. Penalize cheaters.

10. Provide a system that is as flexible as possible to accommodate individual changes in plans based on weather, water levels, quality of fishing, etc.
11. Be defensible by diverse groups.

Alternative B

Under this alternative, allocation would be based on the historical proportion of non-guided and guided user groups. Available launches allocated to guided trips would be assigned individually to existing commercial permittees based on the average number of historical launches reported annually by the permittee (based on a five year average). Available launches allocated to non-guided trips would be issued through an annual lottery or reservation system. A lottery application fee would be charged and the applicable launch fee would be due in advance to hold a launch reservation. Canceled dates would be re-allocated.

Alternative C

Available launches would be allocated through an annual common pool lottery system, serving all boating groups, both non-guided and guided. A lottery application fee would be charged and the applicable launch fee would be due in advance to hold a launch reservation. Canceled dates would be re-allocated.

Alternative D

Available launches would be allocated using a common pool reservation system on a first-come, first-served basis, to boating groups, both guided and non-guided. Blocks of permits would become available for reservation at several intervals prior to launch dates. The applicable launch fee would be due in advance to hold a reservation. Canceled dates would be re-allocated.

Proposed Decision

Trip permits would be allocated through a first-come, first-served, common pool reservation system to all users in the same manner. For the user, this system would be similar to that used on the Deschutes River to reduce confusion for the public and to facilitate administration. The applicable use fee would be due in advance to hold a reservation. Canceled trip permits would again be available for reservation.

Before implementation on the John Day River, the allocation system must be:

- Fully implemented on the Deschutes River.
- Be proven workable on the Deschutes River, by results of a survey of all Deschutes River Boaters (non-guided users, guided users, and commercial guides and outfitters) and internal review.

If a limited entry permit system is required on the John Day River, but the common pool system on the Deschutes River is not fully implemented, an historical split allocation method as described under Alternative B would be implemented on the John Day, on an interim basis.

If the survey and internal review indicate the common pool system implemented on the Deschutes River does not meet public needs while protecting the ORVs, the BLM would reconsider a range of alternatives for allocating use on the John Day River.

Motorized Boating

Common to All Alternatives

Continue the existing closure to personal watercraft use upstream of Tumwater Falls.

Alternative A (Proposed Decision for Segment 1)

This alternative would allow motorized boating levels to fluctuate with public demand in all segments of the river, within existing regulations. Segments 1 and 2 are closed to motorized boating from May 1 to October 1).

Common to All Action Alternatives (Proposed Decision for Segments 10 and 11)

In Segments 10 and 11, motorized boating would be prohibited due to lack of sufficient flow for safe boating.

Alternative B

This alternative would adjust the areas and seasons of current restrictions to better reflect the needs of fish and wildlife.

Segment 1 would be closed to motor boat use from March 1 to December 1 to better protect fish and wildlife. The current closure period would be extended to include the months of March and April to protect nesting waterfowl from the noise and disturbance resulting from motorized boating use. It also would be extended to include the months of October and November to protect the spawning and rearing fall chinook salmon from the physical disturbance of motorized boats.

Segment 2 would be closed to motor boat use from March 1 to December 1 to better protect fish and wildlife. The current closure period would be extended to include the months of April and March to protect nesting waterfowl from the noise and disturbance resulting from motorized boating use. It also would be extended to include the months of October and November to protect the spawning and rearing fall chinook salmon from the physical disturbance of motorized boats. Motorized boating would be excluded if the WSAs within this segment are designated Wilderness.

Segment 3 would be closed to motor boat use from April 1 to October 1, except for downstream use of small electric motors (40 lbs. thrust or less), to protect fish and wildlife.

Alternative C

This alternative would restrict motorized boating use in order to protect a wide range of river values (including recreational experience, wilderness, fish, and wildlife).

Segment 1 would be closed to motorized boating use from April 1 to December 1.

Segment 2, from Cottonwood Bridge (RM 40) to Clarno Rapids (RM 104.5), would be closed to motorized boating use year-round to provide an opportunity for WSA visitors to experience natural primitive conditions without interruption by motors. The portion of Segment 2 from Clarno Rapids (RM 104.5) to Clarno Bridge (RM 109) would be closed to motorized boating use from April 1 to October 1, except for downstream use of small electric motors (40 lbs. thrust or less), to protect fish and wildlife.

Segment 3 would be managed the same as in Alternative B. It would be closed to motorized boating use from April 1 to October 1, except for downstream use of small electric motors (40 lbs. thrust or less), to protect fish and wildlife.

Alternative D (Proposed Decision for Segment 2)

Segments 1, 2, and 3 would be closed to motorized boating to protect river values.

Alternative E (Proposed Decision for Segment 3)

Segments 1 and 2 would be closed to motorized boating from May 1 to December 1 to minimize conflicts between motorized and non-motorized users during peak use periods, protect fall chinook and summer steelhead runs, and to manage boating use in a manner consistent with the purpose of John Day River Wildlife Refuge. Segment 3 would be closed May 1 to October 1 to minimize conflicts between motorized and non-motorized users during peak use periods.

Discontinue motorized boating use between Clarno Rapids and Cottonwood bridge in Segment 2 if WSAs are designated Wilderness, in order to promote use consistent with wilderness values.

Dispersed Recreation

Alternative A

BLM policy requires that management actions be taken through visitor information, public contact, resource protection and monitoring to ensure the protection of resource values.

This alternative would continue existing management. Decisions concerning dispersed sites would be made on a case by case basis.

Common to All Alternatives (Proposed Decision)

Encourage dispersed use in areas that can best sustain impacts of camping

Additional actions designed to protect dispersed river campsites would be based on the recommendations of a LAC study, currently underway. The LAC study would take into account the desired future condition defined for each river segment and monitoring data collected on the resource conditions of each campsite. Management actions would be taken to protect resources and convert campsites to the desired condition. Campsite rehabilitation methods may include but are not limited to defining campsite perimeter boundaries, defining tent site locations, site hardening, seeding and erosion control, and temporary or permanent campsite closure.

Common to All Alternatives (Proposed Decision)

Segment 1- No actions.

Segment 2 - Create a map to identify river campsites which can best handle human use. Designate dispersed camping area on west bank near Clarno.

Segment 3 - Create a map to identify river campsites which can best handle human use.

Segments 10 and 11 - Identify preferred dispersed camping areas and install signs and parking barriers to protect riparian vegetation.

Developed Recreation

Common to All Alternatives (Proposed Decision)

Development of recreation facilities should be proposed only if they meet one or more of the following criteria: 1) enhance resource-dependent recreation; 2) necessary to help manage public lands and protect resource values; 3) best provided by the BLM; or 4) complement and support other public and private recreation facilities in the area (USDI-BLM 1989a). The "Recreation" classification under the WSR Act does not prescribe or assume recreation development (USDI-BLM 1992c). Development of any type of facility on public lands within a WSA is generally not permitted (USDI-BLM 1995b).

Alternative A (Proposed Decision for Segment 11)

Segment 1 - Maintain Cottonwood and Rock Creek recreation sites. No scheduled maintenance of Oregon Trail Monument.

Segment 2 - Maintain Clarno recreation site.

Segment 3 - Maintain Service Creek and Priest Hole recreation sites.

Segments 10 and 11 - No developed sites exist.

Common to All Action Alternatives (Proposed Decision)

The BLM would improve or upgrade existing facilities where needed to protect resources.

Alternative B

Improve or upgrade existing facilities where needed to better meet the needs of the recreational user. **(Proposed Decision for Segments 1-3)**

The BLM would not develop additional recreation sites, but may develop new ones to replace those that are permanently closed for resource protection or other purposes.

Segment 1 - Same as Alternative A, except improve parking facilities, add a primitive boat ramp, and a boater registration station at Rock Creek. Add picnic tables, plant shade trees, and provide water for dump station at Cottonwood. Reestablish Cooperative Management Agreement with the Sherman County Historical Society to manage and maintain the Oregon Trail interpretive site, John Day Crossing (west side). Develop small parking area, access signing and implement regular maintenance at this interpretive site.

Segment 2 - Same as Alternative A, except add additional launch lanes, a pay phone, and provide water for the dump station at Clarno.

Segment 3 - Segment 3 Same as Alternative A, except develop Lower Burnt Ranch and a public site at Twickenham with a primitive boat ramp and boater registration station, to replace the existing Burnt Ranch and Twickenham (private) sites..Development at the Twickenham site would also include parking and a vault toilet. The purpose of these developments is to mitigate impacts to resource values at the Burnt Ranch site and replace the private Twickenham site. Development of a Twickenham site is contingent on acquiring land from a willing seller. This alternative would also add a vault toilet at Priest Hole.

Segments 10 and 11 - No sites exist. Same as Alternative A.

Alternative C

Same as Alternative B, and develop new facilities where needed to provide better resource protection. **(Proposed Decision for Segment 10)**

Segment 1 - Same as Alternative B.

Segment 2 - Same as Alternative B.

Segment 3 - Same as Alternative B, except at "Clarno East" (an undeveloped take-out point located 3.5 miles upstream of the existing Clarno recreation site): grade a primitive launch ramp and add a bulletin board to post regulations. At Lower Burnt Ranch site, develop a primitive camping area with bulletin board, signs, maps, parking barriers, and vault toilet.

Segment 10 - Approximately 10 years after implementation of this plan begins, develop a campground near Ellingson Mill. Facilities would include a vault toilet, tables, information board, signs, and parking barriers.

Segment 11 - A need for new sites has not been identified in this segment.

Alternative D

Reduce facilities at selected sites, or close selected sites, in an attempt to discourage use and protect resources.

Segment 1 - Close existing facilities at the Rock Creek site.

Segment 2 - Same as Alternative A.

Segment 3 - Close existing Burnt Ranch site to vehicle access, and discourage use at Clarno East.

Segments 10 and 11 - No developed sites or facilities exist.

Public Access

Common to All Alternatives (Proposed Decision)

Continue to seek a river access point on public land at Twickenham to replace the current private access. Ditches and culverts would be improved on the South Fork Road. Work with local government to clarify status of access to the Oregon Trail interpretive site (west side) and McDonald Crossing. Use signs to mark public access routes to this interpretive site, by foot from the west river bank, and by vehicle from the east and west banks.

Continue to resolve public access issues by consolidating public land ownership patterns through exchanges with willing landowners for state and private lands, through an active easement acquisition program, and through partnership agreements to provide access to high value recreation opportunities. The BLM policy encourages active participation in the Land and Water Conservation Fund for acquisition of appropriate recreation lands or interest in lands (USDI-BLM 1989a).

Landowners have rights of access across public lands to private parcels, subject to reasonable regulation by the BLM.

Alternative A

This alternative would maintain access at existing levels. Public access would not be expanded or reduced.

Common to All Alternatives (Proposed Decision)

Close existing Burnt Ranch Recreation Site to motor vehicles and maintain a trail for foot access.

Alternative B (Proposed Decision)

Improve existing access by upgrading current access routes across public land. **(Proposed Decision for Segments 1, 2, 3, 10, and 11, except add actions for Alternative D for Segment 2.)**

Grade, surface, or widen gravel roads as needed.

Segment 1 - Same as Alternative A.

Segment 2 - Same as Alternative A, except improve BLM road on west bank from Clarno to Clarno Homestead.

Segment 3 - Same as Alternative A, except close the existing Burnt Ranch site to vehicle access while improving access to Lower Burnt Ranch dispersed use area. Develop foot trail to existing Burnt Ranch site.

Segments 10 and 11 - Same as Alternative A, except apply gravel to the surface of the South Fork Road.

Alternative C

Provide maximum reasonable public access to the river via roads and trails.

Access would be through public lands where possible. Access needed through private land would be achieved through acquisition of easements, land exchange, or land purchase from a willing seller.

Segment 1 - Same as Alternative B, plus seek to acquire public access to Tumwater Falls and the confluence of Hay Creek and the John Day River.

Segment 2 - Same as Alternative B, plus seek public access easement to the river via Butte Creek Road. Seek to acquire public access on the east bank from Clarno to Clarno Rapid.

Segment 3 - Same as Alternative B.

Segments 10 and 11 - Same as Alternative B, except widen the South Fork Road where practicable.

Alternative D

Reduce public access to protect and enhance resources that constitute river values.

This alternative would reduce public access via roads and trails by closing some existing access routes.

Segment 1 - Close BLM river access point at Rock Creek.

Segment 2 - Seasonally close the west bank to vehicle traffic past the Clarno Homestead during the first 10 days of pheasant season to provide a non-motorized hunting experience and promote safety (**part of Proposed Decision**).

Segment 3 - Same as B, except do not provide motor vehicle access to Lower Burnt Ranch site. Discourage use of "Clarno East" as boating use access.

Segments 10 and 11 - Same as Alternative A.

Commercial Uses

Common to All Alternatives

BLM policy provides extensive guidance for administration of Special Recreation Permits for Commercial Use (USDI-BLM 1987b). In addition, the Oregon State Marine Board has registration requirements for all guides and outfitters.

Alternative A

Under this alternative, the BLM would continue to issue permits on a case-by-case basis, at the discretion of the Authorized Officer, to qualified applicants, when the proposed activity meets management objectives. The number of permits would not be limited, and permits would be transferable according to the guidelines provided by BLM policy.

Common to All Alternatives (Proposed Decision)

As applications for new permits are received, the BLM would fully consider the type of public service to be provided by the permittee or applicant and consistency with management goals and objectives, the ability of that person to provide the service, the opportunity to make a business profit, the public safety of commercial customers, the BLM workload in administering and monitoring of permits, and other ramifications of that decision.

The minimum use required to maintain a commercial permit would be increased from 10 paying client user days every 2 years, to at least 20 paying client user days every 2 years. Minimum use limits may be modified in the future based on review of use levels and LAC.

Shuttle services would be brought under special use permit in compliance with BLM policies. Applicants would be required to comply with applicable Oregon Division of Motor Vehicles and Department of Transportation requirements.

Issue concession permits based on the results of a needs assessment (described below in Alternative B and in glossary).

Continue moratorium on new permits and not allow any transfers until launch numbers are finalized (in 3 years or less from Record of Decision).

Alternative B (Proposed Decision)

1. The BLM would increase requirements for permits and permit transfers to include training in river rescue, Leave No Trace skills, and interpretive techniques.
2. New applicants would pay a non-refundable application fee to cover the cost of verifying that application requirements are met.
3. The BLM would conduct independent random audits of permit records.
4. The BLM would issue new permits at the discretion of the Authorized Officer, if a needs assessment identified a need for a particular service. After a specific need is identified, permits would be issued by competitive prospectus among those applicants meeting specific criteria identified by the needs assessment.
5. After the initial moratorium, transfers would be allowed in accordance with BLM transfer policies.

A needs assessment is a process used by land managing agencies to determine public need for services prior to allowing new or additional commercial use. The needs assessment considers agency mission, existing opportunities, land capability, demand/supply, and input from others. If the analysis indicates the need for additional commercial uses to accommodate access needs for the target audience, the findings are used to construct a proposal and criteria for application by competitive prospectus. This proposal is subject to NEPA analysis through an EA process if it would involve a new use or WSA lands. The needs assessment process is outlined in USDA-FS Guidebook on Outfitting and Guiding (1997).

Alternative C

Issue new permits only if the need existed for a particular service (such as, trips for the disabled, etc.), as indicated by a needs assessment. After a specific need is identified, permits would be issued by competitive prospectus among those applicants meeting specific criteria identified by the needs assessment. Permits would be transferable only to applicants who met the same criteria identified in the needs assessment.

Alternative D

The BLM would **place an administrative limit** on the number of outfitter/guide permits at the current level of 34 permits. Any spaces that became available through attrition would be filled based on a needs assessment and competitive prospectus. Neither outfitter/guide nor concession permits would be transferable.

Energy and Mineral Resources

Common to All Alternatives (Proposed Decision)

All public lands are open to recreational mineral collection unless there are prior rights, such as mining claims.

Alternative A

Since the river segments were classified by legislation as "Recreational," the mineral estate was not withdrawn from mineral entry as it would have been if the river was classified "Wild." All mining-related activity, including road construction, must meet screening standards prescribed in State Scenic Waterway (SSW) Rules (see Chapter 4). All lands in the WSR corridor are subject to a Plan of Operations under the regulations at 43 CFR 3809. Additional guidance for energy and mineral resources is found in the Two Rivers and John Day RMPs, BLM Manual 8351 (USDI-BLM 1992c) for Wild and Scenic Rivers, the Technical Report of the Interagency WSR Coordinating Council, and BLM Manual H-8550-1 (USDI-BLM 1995b) for WSAs.

Leasable Minerals

All Wilderness Study Areas within the Prineville District are closed to mineral leasing. In the Two River RMP area, a restrictive no surface occupancy stipulation for fluid minerals exploration and development is maintained on lands identified as nationally significant or visually sensitive. The John Day RMP, which applies to the upper John Day (and South Fork) basins, does not address leasable minerals.

Exceptions to the stipulation of no surface occupancy would be evaluated using the following criteria:

(1) Evidence of exploration or similar activities would not be visible from the surface of the John Day River. (2) All activities involving exploration would use existing roads to the fullest extent possible. (3) Any proposed exploratory drilling pad or road construction for access to a drilling site would be located to avoid canyon slopes and areas of high visibility. In these areas, roads and drilling sites would be fully rehabilitated when operations have been completed.

If leases are issued with the no surface occupancy stipulation, the criteria for exception would be included in the stipulation.

Locatable Minerals

Areas not specifically withdrawn from mineral entry under the Mining Law of 1872, as amended, would continue to be open under the mining laws to help meet the demand for minerals. Mineral exploration and development on public land would be regulated under 43 CFR 3809 to prevent unnecessary and undue land degradation. Under the 43 CFR 3809 regulations, all mining in WSR corridors requires a plan of operations. If the John Day River is ever ruled to be navigable, the bed and banks would be considered state land, and not subject to location under the 1872 Mining Law.

State law provides the minimum standard for environmental protection, with which any activities on BLM land must comply. State Scenic Waterway rules for dredging are set by ORS 390.835(2). This law requires a permit for any dredging, regardless of the amount, from the Oregon Division of State Lands (ODSL). In other waters, a permit is required only for movement of more than 50 cubic yards. Also, suction dredging in SSWs may not: (a) divert a waterway or obstruct fish passage; (b) include nozzling outside the wet perimeter; (c) move boulders or logs from the wet perimeter, except by hand; (d) disturb any woody plants; (e) excavate from the streambank; (f) fail to level pits and furrows outside the main channel; (g) occur without a ODEQ discharge permit; (h) occur on federal lands without permission; (i) impede boating; (j) operate within 500 ft of a home or campground between 6 pm and 8 am; or, (k) operate within posted swimming areas.

A permit from the ODEQ is also required for suction dredges. Under that permit, suction dredging is prohibited on the John Day mainstem, North Fork, Middle Fork, and South Fork for all but six weeks of each year. Suction dredging is permitted only between July 15 and August 31, in order to protect anadromous fish.

Salable Minerals

Salable minerals, including common varieties of sand, gravel, and stone, would continue to be made available at the three sites located within the John Day River corridor. The salable mineral program involves several quarries where state and county road departments obtain rock for road surfacing material. New quarry sites may be developed on a case-by-case basis if requested by the state or counties. In all cases, they would be approved only if they are consistent with the protection of other values in the river corridor.

All public lands are open to recreational mineral collection unless specific minerals are subject to prior rights, such as mining claims.

Alternative B (Proposed Decision)

This alternative is the same as Alternative A, except that:

1. The John Day RMP would be amended by subjecting leasable minerals on public lands falling within the John Day River Canyon of the John Day Planning Area (Grant County)(Segments 5, 6, 7, 8, 9, 10, 11, and

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the Grant County portion of 4) (including designated SSWs and federally designated WSRs) to a no surface occupancy restriction (remaining portions of planning area already have this restriction under the Two Rivers RMP).

2. The BLM would adopt the SSW rules, described in Chapter 4, as the minimum restrictions for locatable mineral operations on BLM managed lands in the river corridor. If state laws or rules in the future conflict with these requirements, an operator would be required to follow the federal requirements which are the SSW rules in Chapter 4. If State laws or regulations require a higher standard of protection for public lands than these rules provide, the more stringent state requirements would apply. Where permitted, mining of locatable minerals would be subject to stipulations to protect river values. Stipulations would include actions necessary to:
 - Prevent sediment from entering the river or tributaries.
 - Protect riparian vegetation.
 - Prevent noxious weed establishment and spread.
 - Protect recreation facilities.
3. On BLM-administered lands, new sites for the production of saleable minerals would not be permitted within SSWs or WSRs, and existing agreements would either not be renewed when they expire or would be renegotiated.
4. Facilities, such as established campgrounds and launches, would be closed to leasing and salable minerals and withdrawn from locatable mineral entry under the 1872 Mining Law.

Alternative C

Same as Alternative B.

Alternative D

Same as Alternative B for segments not designated WSR or SSW. Both the John Day and Two Rivers RMPs would be amended by closing BLM managed lands within WSR and SSW boundaries to leasing and salable mineral activity, and locatable minerals would be withdrawn from entry under the Mining Law of 1872, as amended.

Land Ownership, Classifications, and Use Authorizations

Alternative A

The Two Rivers and John Day RMPs, as amended, provide direction for processing requests for utility and transportation rights-of-way and for land acquisitions, exchanges, and disposals. The RMPs identify certain corridors or river crossing “windows” where utilities may be placed to cross a given area. Several utility lines and pipelines already cross the John Day River in previously defined corridors. Any future requests granted would require the use of these corridors. BLM-designated corridors are generally 1000 feet on either side of existing road, pipeline, or major electric transmission right-of-way center lines.

Bureau of Land Management administered lands within the WSR are withdrawn from disposal (sale) under public land laws. These lands may be exchanged, however, for private lands of equal or greater value that are within the boundaries of the WSR.

Lands Under Wilderness Review - Until Congress acts on wilderness recommendations or otherwise releases WSAs for other purposes, these lands would be managed so as not to impair their suitability for preservation as wilderness, under the BLM Interim Management Policy for Lands Under Wilderness Review (IMP) (USDI-BLM 1995b). WSAs within the Prineville District are closed to mineral leasing, however, these lands have not been withdrawn from operation under the Public Land Laws. Permitted activities in WSAs (except grandfathered and valid existing rights) are temporary uses that create no new surface disturbance, nor involve permanent

placement of structures. Those grazing, mining, and mineral leasing uses that existed on October 21, 1976 (the date FLPMA was approved) may continue in the same manner and degree as on that date, even if this would impair wilderness suitability. Valid existing rights must be recognized. All lands must be managed to prevent unnecessary or undue degradation. With few exceptions, such as mining patents, these lands may not be disposed of by public sale, exchange, patents under Recreation and Public Purposes Act, or state selections.

Land Acquisitions - Under this alternative, management decisions and land use allocations under existing RMPs would continue in effect. River values would be considered in these decisions and mitigation proposed where feasible.

Common to All Action Alternatives (Proposed Decision)

Same as Alternative A, except that the BLM has identified several parcels of land along the river for potential acquisition through purchase or exchange, or acquisition of easement. Primary benefits of acquisition would be to protect and enhance recreational, wildlife/fisheries, cultural and wilderness values. Table 3-H displays these lands, their location, the approximate size of the parcels and the values associated with the lands and/or the rationale for the proposed acquisition. Under most circumstances these lands would be acquired through an exchange process. Acquisitions would be limited to parcels with willing sellers and may occur only after site specific analysis tied to this EIS.

Table 3-H. Lands Potentially Suitable for Acquisition

Parcel #	Location	Est. Acres	Comment
1	T 9S R 23E Section 18, SE1/4 NE 1/4	5.83	Acquire Service Creek launch site from ODOT as agreed.
1a	T 9S R 22E Section 28, portions of E1/2 SW1/4 south of JDR Section 32, SW1/4 NE1/4 NW1/4 SE1/4 E1/2 NW1/4 NE1/4 SW1/4	248	Consolidate public lands.
1b	T 9S R 22E Section 23, SW1/4 NW1/4	40	Consolidate public lands.
1c	T 9S R 22E Section 32, SE1/4 SW1/4	40	Consolidate public lands.
1d	T 9S R 22E Section 13, portions of NE1/4 SW1/4 NW1/4 SE1/4	80	Consolidate public lands, recreation site potential.
1e	T9S R22E Section 23, NE¼SW¼	40	Consolidate public lands, acquire for campsites.
1f	T9S R22E Section 22, S½SW¼ Section 27, NW¼NW¼ Section 28, N½NE¼	200	Consolidate public land, acquire for campsites.
2	T 10S R 22E Section 6, NW1/4	160	Acquire for campsites.

Table 3-H. Lands Potentially Suitable for Acquisition

Parcel #	Location	Est. Acres	Character of Land and Acquisition Rationale
2a	T10S R22E Section 5, NW¼NE¼	40	Consolidate public land.
3	T 9S R21E Section 32, portions of N1/2 NW1/4, north of the river	15	Consolidate public lands, acquire campsites.
3a	T9S R21E Section 32, N½NE¼ Section 33, NW¼NW¼ all north of the JDR	31	Consolidate public lands, acquire for campsites.
3b	T9S R21E Section 28, SE1/4SW1/4 north of the JDR	6	Consolidate public land.
4	T 7S R 19E Section 32, SW1/4 NE1/4	1.86	Acquire Clarno Launch/landing from OPRD as agreed.
5	T 1S R 19E Section 17, SE1/4 SW1/4	1	Small sliver of private land between BLM and OPRD.
5a	T 1S R 19E Section 17, SE1/4 SW1/4	7.12	Acquire Cottonwood launch/landing from OPRD as agreed.

Table 3-H. Lands Potentially Suitable for Acquisition

Parcel #	Location	Est. Acres	Character of Land and Acquisition Rationale
6	T 1S R 19E Section 14, S½ SW1/4 NW1/4 SW1/4 Section 15, NW1/4 NE1/4 NE1/4 SE1/4 Section 22, S½ NE1/4 SE1/4 NW1/4 Section 23, W1/2 NW1/4 NE1/4 NW1/4	440	Consolidate public lands.
7	T 1S R 19E Section 4, SW 1/4 Section 9, NW 1/4 N½ SW1/4 Section 16, NE1/4 NE1/4	440	Acquire access.
8	T 1S R 20E Section 6, SW 1/4 SW1/4 SE1/4 Section 7, E½ NW1/4 W½ NE1/4 NE1/4 NE1/4 Section 8, N½ SE1/4 SW1/4 NE1/4 SE1/4 NW1/4 NW1/4 NW1/4	600	Acquire access.
9	T 1N R 19E Section 3, S1/2S1/2	160	Acquire Oregon Trail segment.

Table 3-H. Lands Potentially Suitable for Acquisition

Parcel #	Location	Est. Acres	Character of Land and Acquisition Rationale
9a	T 1N R 19E Section 11, NW 1/4	20	Provide additional parking and boat launch.
10	T 4S R 18E Section 11, W1/2 SW 1/4 SW1/4 NW1/4 Section 14, NW1/4 NW 1/4	160	Consolidate public land in Wilderness Study Area
11	T 3S R 18E Section 35, S1/2 SW1/4 T 4S R 18E Section 2, NW1/4 NW1/4	160	Consolidate public land in Wilderness Study Area.
12	T 4S R 18E Section 14, N1/2 SE1/4 NE1/4 SW1/4 SW1/4 NE1/4	160	Consolidate public land in Wilderness Study Area.
13	T 2S R 18E Section 13, SW1/4 SW1/4 Section 24, W1/2 NW1/4 NW1/4 SW1/4 SE1/4 NW1/4 S1/2 NE1/4 NE1/4 SE1/4	320	Consolidate public land in Wilderness Study Area.
14	T 8S R 19E Section 36, NW1/4 NW1/4	40	Acquire poor condition land for rehabilitation and campsite potential.
15	T 5S R 19E Section 30, NE1/4 SE1/4	40	Consolidate public land in Wilderness Study Area.

Table 3-H. Lands Potentially Suitable for Acquisition

Parcel #	Location	Est. Acres	Character of Land and Acquisition Rationale
16	T 1S R 19E Section 19, LOT 7, 8 and 12 Section 30, NW1/4 NE1/4 SW1/4 NE1/4 NW1/4 SE1/4 LOT 1 and 7	320	
16a	T 1S R 19E Section 32, SW1/4 NW1/4	40	
16b	T 1S R 19E Section 32, SW1/4 NE1/4 SE1/4 NW1/4 E1/2 SW1/4 W1/2 SE1/4	240	
17	Cherry Creek		Preserve undeveloped character of the area.
Total Acres (approximate)		4,036	

Priorities for Acquisition

Specific criteria exist for categorizing public land for retention, disposal, and acquisition. This list is not all-inclusive, but represents the major factors to be evaluated. The criteria to be used are public resource values, including but not limited to:

- Public access
- Threatened or endangered species habitat
- Reducing landowner conflicts
- Wilderness
- Riparian/wetland/unique habitats
- Manageability
- Recreation site potential/river campsites
- Cultural resources/National Register eligibility
- Paleontological resources
- Wildlife and fisheries
- Protection and enhancement of ORVs

Lands Under Wilderness Review - The Two Rivers RMP would be amended to change the land use authorization of new WSA lands to official WSA status. The public lands added in 1998 to North Pole Ridge WSA (Segment 2), and the lands within the Sutton Mountain and Pats Cabin WSAs (adjacent to Segment 3), would be studied under Section 202 of FLPMA to determine if they are best suited for wilderness designation or for some other non-wilderness use. These WSA lands would continue to be managed in compliance with IMP guidance until such time as Congress determines to either designate the areas as Wilderness or release them from further wilderness consideration. Approximately 2,400 acres of lands adjacent to Pats Cabin WSA would be inventoried for wilderness characteristics and managed as roadless area until the inventory process is complete.

Alternative D

The BLM would pursue opportunities within the WSR boundaries to acquire from willing sellers privately owned lands affected by Grazing Alternative D. It is not known how many acres would be targeted for acquisition. Acquisition of these lands may occur only after site-specific analysis tied to this EIS.

Summary of Direct Impacts of Alternatives

See Table S-3.

Monitoring

The job of determining whether a certain course of action is having the desired effects can be broken down into three separate activities associated with a monitoring plan. First, confirmation of the completion of necessary actions is required, this is the implementation phase. In the case of grazing, implementation monitoring answers questions like 'were improved grazing systems put into place?' and 'did the necessary fences get built?' Second, confirmation that the actions are having consequences is required, this is the effectiveness phase. In the case of grazing, effectiveness monitoring answers questions like 'are the cattle where they are supposed to be when they are supposed to be there?' and 'is the vegetation responding to changes in management?' Third, confirmation that changes are desirable, relative to the stated objectives, is required. This is the validation phase. In the case of grazing, validation monitoring answers questions like 'are riparian areas at or progressing toward properly functioning condition?'

Water Quality

Existing Management

Within the basin, water temperature is monitored at various sites. Typically continuous recording devices are used to establish a comprehensive data set, however, some areas have been monitored less intensively using a one-point-in-time temperature assessment. A network of United States Geological Survey (USGS) and OWRD gaging stations are employed in the John Day basin and provide stream flow data and, in some cases, continuous water and air temperature data. In addition, BLM uses continuous recording devices to monitor water temperature across the basin, and utilizes data from other sources as it is available to manage for river values. Specific sites monitored continuously in the river corridor include: the mainstem John Day River at river mile 15, Service Creek, Kimberly, Picture Gorge, and the forest boundary; the North Fork John Day River at Lonepine campground, Wrightman Canyon and the forest boundary; the Middle Fork John Day River at the mouth and at the forest boundary; the South Fork of the John Day River at the gauging station above Dayville, Black canyon, upper end of the Rockpile allotment, Izee Falls, the Post/Paulina Highway crossing and the forest boundary.

Riparian area trends are indirect indicators of water quality and were chosen to be monitored because the riparian zone affects many of the designated uses for water. Riparian vegetation is a contributing factor of stream temperature, bank erosion, channel morphology, fish rearing habitat, large woody debris input, and for controlling the amount of sediment and nutrients reaching the stream from up-slope sources. The BLM's approach has been that by monitoring trends in the John Day River riparian areas, and being able to demonstrate an upward trend based on potential of the site, the BLM is maintaining or improving water quality on a non-point source basis. Riparian areas have been monitored along the mainstem (down to river mile 15.0), South Fork, North Fork and Middle Fork John Day Rivers. New study sites will be established as needed.

Common to All Action Alternatives

Water temperature would be monitored at more locations than at present within the plan area. Data collected would be combined with data from the entire basin and used to determine if actions taken affect water temperature.

Special Status Plants

Populations of special status plant species will be monitored to assess stability and health.

Noxious Weeds

Noxious weed populations will be monitored as prescribed under the Integrated Weed Management Program (USDI-BLM 1994).

Grazing

Protocols for each step in the evaluation process have been established by BLM. For the implementation phase the documentation of activities such as fence or water trough construction would occur through the computerized 'Rangeland Improvement Project Systems' (RIPS) database. For the effectiveness phase of monitoring documentation would be achieved through a wide variety of monitoring techniques, including but not limited to random compliance checks of adherence to authorized grazing systems, rangeland health and watershed function assessments, water quality, vegetative attribute, recreational use, road density and maintenance, river flow and channel cross section monitoring. Additionally, on river Segments 2 and 3, an inventory of willow communities, first completed in 1981 and re-measured in 1995, would be completed on a 5-10 year basis. For the validation phase of monitoring, an interdisciplinary team would gather available information and evaluate resource conditions relative to site potential and changes which have occurred since management changes went into effect. An allotment evaluation (or similar document) would be prepared to provide the authorized officer the information needed to determine attainment, progress toward attainment or non-attainment of standards and allotment objectives. In the event of non-attainment, a determination of cause would be made and appropriate action will be taken as soon as practicable. In the case of non-attainment due to non-compliance on the part of the grazing operator (for example, trespass, failure to maintain facilities, or other violations of the grazing regulations or permit conditions/stipulations, such as the allotment management plan), appropriate action will be taken in accordance with 43 CFR 4150 and 4160.

Table 3-J shows the proposed monitoring and implementation schedule for Alternatives A, B, C and D. Activities would be started following issuance of the WSR plan decision record and completed by December 31 of the years shown. Some actions, such as adjustments to grazing leases where no on-the-ground structures are required, could be made immediately following the signing of the decision record. Other actions, such as fence construction, would take longer. The time required to complete title or easement acquisitions is beyond the control of the BLM. The assumptions were made that funding would continue similar to current levels and that the decision record would be issued before December 31, 2000.

Table 3-J. Proposed Monitoring and Implementation Schedule for Grazing

Monitoring Element	Alternative A (Year)	Alternative B	Alternative C	Alternative D
Allotment Evaluations	2002	WSR Plan replaces Evaluation, Consult/Coordinate/Cooperate, and Decisions		
Consult, Coordinate, and Cooperate	2002	WSR Plan replaces Evaluation, Consult/Coordinate/Cooperate, and Decisions		
Decisions	2003	WSR Plan replaces Evaluation, Consult/Coordinate/Cooperate, and Decisions		
Implement Management Actions (Year)	2005	2003	2008*	2012*
Monitoring Interval** (In years)				
Compliance	1	1	1	1
Riparian Vegetation	2-5	2-3	2-3	2-3
Upland Vegetation	5-10	3-6	3-6	3-6
Other	2-5	2-5	2-5	2-5
Validation***	2008	2003	2003	2003
Validation****	10	5	5	5

Notes:

*Time will depend on landowner willingness to negotiate easements and land exchanges necessary to implement the actions in Alternatives C and D.

** Monitoring ongoing throughout the John Day basin; at the date of a Record of Decision, a new monitoring frequency will be adopted for allotments that fall within designated Wild and Scenic River segments.

*** For allotments requiring no on-the-ground changes (such as fences) as described in this plan.

**** For allotments requiring on-the-ground changes as described in this plan, validation will occur within 5 years of implementation in the Action Alternatives.

Standards for Grazing - Alternative B

I. Compliance standard for authorized grazing.

The objectives of the compliance standards would be to identify cooperation problems that are likely to lead to an inadequate recovery determination (see below) and to resolve the problems before degradation occurs.

Livestock operator compliance with the authorized grazing use would be monitored throughout the year, every year. All cooperating state, federal and tribal personnel on the river in an official capacity would be trained to identify and document livestock trespass. All incidence of trespass would be documented and recorded in an evaluation file. Agency procedures for resolving unauthorized grazing are detailed in 43 CFR 4150 and 4160.

II. Riparian use standards for authorized grazing.

The objective of the use standards would be to permit unimpeded succession of riparian plant communities and unimpeded functioning of riparian areas. Use would be monitored in a pasture every year until the recovery determination is completed (see below) and a determination is made that no further adjustments in grazing

system are needed. Incidence of use on woody riparian species would be less than 25%. Monitoring procedures would include visits prior to and immediately following authorized use to establish the amount of use which is attributable to livestock. Stubble height prior to high river flows (pastures grazed during winter) would be at least four inches for wet colonizer and bank stabilizer herbaceous species. Stubble height would be at least six inches at the end of the grazing season for pastures grazed during the growing season. An evaluation of the cause of use standard exceedance (for example, drought, grazing season, animal number, trespass) would determine the appropriate management remedy (such as rest and change in authorized use season or number of livestock).

III. Recovery standard for authorized grazing.

The objective of the recovery standard would be to verify that grazing authorized within the Wild and Scenic River boundaries is having no detectable impact on rates of vegetative community succession and channel development. Areas of use would be compared to areas of non-use. Only areas of similar ecological potential would be compared.

Monitoring techniques would be quantitative, where possible. Where quantitative techniques are inappropriate or unavailable, qualitative techniques would be used. Monitoring techniques would be appropriate to land form. For example, techniques would differ between upland and riparian vegetation, between South Fork and mainstem channel form. Monitoring would include at least soil cover, plant species composition, bank stability, microbiotic crusts, and may include water quality or other physical and biological attributes or processes. Monitoring studies would be installed within one year of the Record of Decision on winter-grazed pastures, and within two years of the Record of Decision on spring-grazed pastures. Scattered tracts of public lands would be exempt from this standard.

A final determination of the similarity of the changes between use and non-use areas would be made after a period of time sufficient to allow ecological processes to become expressed (10 years for winter pastures; and 11 to 15 years for spring grazed pastures, with the 4-year period allowing for the volume of work that is anticipated). In use areas demonstrating change that *is not* different from change found in non-use areas, the evaluation would find that the standard has been met and no adjustment in authorized grazing would be necessary. In use areas demonstrating change that is different (less desirable) from change in non-use areas, the evaluation would find that the standard has not been met. The evaluation would determine the probable cause of non-attainment. If non-attainment is due to livestock, use would be canceled in that portion of the pasture that did not meet the standard. For example, if riparian areas did not meet the standard and upland areas did meet the standard, a remedy similar to that described in Grazing Alternative C would be implemented. In some cases, this would mean construction of water developments and fences; in other cases, this would mean canceling use in a pasture. If both riparian and upland areas did not meet the standard, a remedy similar to that described in Grazing Alternative D would be implemented. This would require elimination of grazing within that portion of the pasture within the boundaries of the Wild and Scenic River.

Mid-term determinations of the similarity of the changes between use and non-use areas would be made at Years 3 and 7 for winter pastures, and during Years 5 and 6 for spring-grazed pastures. If the standard is being met for winter grazed pastures during Year 3, the 2,000 cfs restriction would be lifted for those pastures. If the standard is not being met in Year 3, the 2,000 cfs restriction would remain until the Year 7 determination and a solution would be pursued. The fallback solution would be to implement a spring rotation grazing system, one year on the riparian pasture, and one year off the riparian pasture. If the standard is being met in Year 7, the 2,000 cfs restriction would be lifted and the grazing system could be readjusted. If the standard is not being met in Year 7, the 2,000 cfs restriction would remain until year 10 and a solution would be pursued. The fallback solution would be the same as described above. For spring-grazed pastures, the 2,000 cfs restriction would remain in place indefinitely. Mid-term determinations for spring-grazed pastures would proceed as described for winter grazed pastures.

Recreation

Monitoring of recreation and impacts of recreation would occur as the result of LAC monitoring, as described for each alternative (see Appendix K).

CHAPTER IV - OREGON STATE SCENIC WATERWAY

June 2, 2000

TO THE READER:

The John Day River system is fortunate to have designation under two important river preservation programs; the National Wild and Scenic Rivers Act and the Oregon Scenic Waterways Act. Together, these two Acts, one a federal program and one a state program, provide the best protection available today for the natural, scenic, and recreational values of our river environments.

The Oregon Parks and Recreation Department administers the Oregon Scenic Waterways Program. The department has participated with the Bureau of Land Management, the Tribes, state agencies, local government and the public in the development of the John Day River Management Plan and Environmental Impact Statement and the Rules of Land Management for the John Day River Scenic Waterway system. We deeply appreciate the opportunity offered by the BLM to include this chapter on the State Scenic Waterway Program and the state Rules of Land Management in the federal John Day River Management Plan. It is our sincere desire that displaying the state program side by side with the federal program in this manner, will give the public a clearer picture and more complete understanding of how these two programs will work together to preserve and protect the outstanding values of the John Day River system.

The rules contained in this chapter were adopted by the Oregon Parks and Recreation Commission on May 31, 2000. When they become effective later this year, these rules will be used by the Parks and Recreation Department in evaluating proposals for development, improvement or alteration of private and non-federal, public lands within the John Day River Scenic Waterway system.

For more information on the State Scenic Waterways Program or the Rules of Land Management for the John Day Scenic Waterway, please contact the Oregon Parks and Recreation Department Rivers Program at 1115 Commercial St. NE, Salem, Oregon, 97301-1002, or call (503) 378-4168.

Sincerely,
Laurie A. Warner
Acting Director
Oregon Parks and Recreation Department

Background

The Oregon Scenic Waterways System was created by ballot initiative in 1970. The original Act designated 496 free-flowing miles of six different rivers. Designation of the John Day River main stem accounted for about 147 of these miles. Scenic waterways are defined as including the designated river and related adjacent lands within one-fourth of one mile of the bank on either side of the river.

In 1988, Oregon voters passed a second scenic waterways initiative, the Oregon Rivers Initiative (Ballot Measure #7). This measure added 573 river miles to the Oregon Scenic Waterways System, including 167 additional miles to the John Day River Scenic Waterway. The John Day River addition was divided among four new segments. These segments are: an 11 mile addition to the John Day River Scenic Waterway on the main stem extending upstream from Service Creek to Parrish Creek; a 56 mile addition on the North Fork, from approximately three miles upstream from Monument to the North Fork John Day Wilderness Area; a 71 mile addition on the Middle Fork, from its confluence with the North Fork to its confluence with Crawford Creek; and a 29 mile addition on the South Fork, from the north boundary of the Phillip W. Schneider Wildlife Area (formerly Murderer's Creek Wildlife Area) to the Post-Paulina Road crossing. There are now segments of 19 rivers (1,148 river miles) and one lake (Waldo Lake) in the Oregon Scenic Waterways System.

Rivers can also be added to the system by the state legislature or through administrative act of the Governor. Such actions have added segments of five rivers and the entirety of Waldo Lake to the scenic waterway system.

Administration

Scenic waterways are administered by the Oregon Parks and Recreation Commission in accordance with Oregon Revised Statutes (ORS) 390.805 to 390.925. Oregon Administrative Rules (OAR) have been adopted to govern the program. General rules set forth generic standards that apply to all scenic waterways. Specific rules are also developed for each river during the management planning process. These rules are designed to manage development within the scenic waterway corridor to maintain the natural beauty of the river.

The Scenic Waterways Act and rules require evaluation of proposed land development, improvement or alteration relative to the scenic and aesthetic beauty of the waterway as viewed from the river. This review and evaluation apply to all related adjacent lands within one-fourth of one mile of the banks of the scenic waterway. Landowners wanting to build houses or roads, cut timber, mine, or pursue other similar projects, must make written notification to the Oregon Parks and Recreation Department (OPRD). OPRD reviews the proposal in coordination with other jurisdictions and determines if the proposal will substantially impair the natural beauty of the scenic waterway. When a project is inconsistent with scenic waterway goals, OPRD works with the landowner to resolve conflicts. The Commission has one year from the date of initial notification in which to reach accommodation with the landowner. This may include revising the project or compensating the landowner by purchasing the land or resource or negotiating a scenic easement. If satisfactory resolution is not reached within one year, the landowner may proceed with the initial development proposal.

Local and state agencies must comply with the scenic waterway law and rules. Federal land managing agencies are encouraged to coordinate with OPRD to insure their own land management actions are compatible with scenic waterway management prescriptions.

Management Plans

Scenic waterway management plans (administrative rules) are developed to protect or enhance the aesthetic and scenic values of scenic waterways while allowing compatible agriculture, forestry and other land uses. The plans are composed of management principles, standards and prescriptions applicable to scenic waterway shorelines and related adjacent lands. The rules establish varying intensities of protection or development based on the special attributes of each river segment. This is done through the use of river classifications.

In addition to developing formal management rules, the scenic waterway planning process may also identify other management tools. These may take the form of prescribed agency actions, interagency agreements, agency commitments, and cooperative arrangements with a variety of other parties, all designed to more effectively preserve and protect the natural values and special attributes of scenic waterways.

Scenic Waterway Classification

A scenic waterway may be divided into multiple segments with each segment having its own classification. Scenic waterway segments are assigned one of six possible classifications according to the character of the landscape and the amount and type of development present within the corridor at the time of designation.

The following describes each of the six classifications and the management goals each represents.

1. *Natural River Areas* are generally inaccessible, except by trail or river, with primitive or minimally developed shorelines. Preservation and enhancement of the primitive character of these areas are the goals of this classification.
2. *Accessible Natural River Areas* are readily accessible by road or railroad but otherwise possess the qualities of Natural or Scenic River Areas. Preserving or enhancing the primitive scenic character while allowing compatible recreation use are the goals of this classification.
3. *Scenic River Areas* are accessible by roads in places but contain related adjacent lands and shorelines still largely primitive and undeveloped except for agriculture and grazing. Scenic River Areas are administered to preserve their undeveloped character, maintain or enhance their high scenic quality, recreation, fish and wildlife values while allowing continued agriculture use.
4. *Natural Scenic View Areas* possess the qualities of Natural or Scenic River Areas except that one shore and the related adjacent lands have development or access that only qualify for a lesser classification. Protecting or enhancing the primitive scenic character while allowing compatible recreation use are the goals of this classification.
5. *Recreational River Areas* are readily accessible by road or railroad, may have some development along their shoreline and on related adjacent lands and may have undergone impoundment or diversion in the past. Allowing compatible existing uses and a wide range of river-oriented recreation use while protecting the natural beauty, fish and wildlife values are the management goals of this classification.
6. *River Community Areas* are river segments where the density of existing structures (residential tract or platted subdivision), or other development precludes a more restrictive classification. River Community Areas are managed to allow development that is compatible with county zoning and blends into the natural character of the surrounding landscape. This also means protecting riparian vegetation and encouraging activities that enhance the landscape.

The rules established for each river classification generally do not affect development existing at the time of scenic waterway designation. None of the classifications are designed as absolute prohibitions of new development. Though some types of improvements require notification, review, and approval, others do not.

Mining, road building, new structures, mobile home placement, land clearing and timber harvest typically must go through the notification process. River classifications and the administrative rules for each scenic waterway determine what proposals may be approved and how they must be conditioned to protect the natural and scenic beauty of the waterway.

Notification and approval is generally not needed for new fences, farm building maintenance, irrigation lines, crop rotation, danger tree removal, residential maintenance and remodeling, homesite landscaping, minor road maintenance and firewood cutting. However, landowners are generally advised to contact OPRD before making any changes to their land within a scenic waterway corridor, especially if it is visible from the river.

Classification for the John Day River Scenic Waterway (Main Stem)

The John Day River main stem from Tumwater Falls to the confluence with Service Creek was designated as a state scenic waterway in 1970. In 1988, an additional 11 miles of river extending upstream from the confluence of Service Creek to the confluence of Parrish Creek was designated as scenic waterway.

Oregon Administrative Rules divide the John Day River Scenic Waterway (main stem) into four reaches. The upstream most reach is classified as a Recreational River Area, followed by a Scenic River Area, a Natural River Area and then another Scenic River Area at the downstream end of the scenic waterway. Amendments to the John Day River Scenic Waterway rules adopted by the Oregon Parks and Recreation Commission in May 2000, lengthened the reach of the Natural River Area segment along the lower John Day River, added more definitive land management rules to the segments of the John Day River between Tumwater Falls and Service Creek, and established management rules for the new scenic waterway segment from Service Creek to Parrish Creek.

The 11.3 mile segment of the John Day River from river mile 168.7, at the confluence with Parrish Creek near Spray, to river mile 157.4, at the confluence with Service Creek, runs parallel to Oregon State Highway 19. Along most of this segment, the highway can be seen from the river. OPRD has classified this scenic waterway segment as a **Recreational River Area**. The management goal for this segment is to ensure that the view of any new development along the river is unobtrusive as seen from the river.

The 62.4 mile segment of the John Day River from Service Creek, at river mile 157.4, to the Wasco County-Sherman County line, at river mile 95, is fronted mainly by private agricultural lands. Public access along this segment is less prominent than the upstream reach. The management goal for this segment is to allow the continuation of existing farm, rural residential and recreation uses while protecting the scenic character of the river. OPRD has classified this segment of river as a **Scenic River Area**.

The 51.7 mile segment of the John Day River from the Wasco County-Sherman County line, at river mile 95, downstream to river mile 43.3, about three and one-half miles upstream from Cottonwood Bridge, is largely inaccessible by road. This segment of river is remotely located between steep-walled canyons where very little sign of structures or human settlement exists. River frontage in this segment is mainly Bureau of Land Management administered public land. The management goal for this segment is to preserve and protect the primitive, undeveloped character of the river corridor. OPRD has classified this segment as a **Natural River Area**.

The lower 33.3 mile segment of the John Day River Scenic Waterway begins at river mile 43.3, upstream from Cottonwood Bridge, and terminates at river mile 10 at Tumwater Falls. This segment is fronted mostly by private agriculture and range lands. The management goal for this segment is to allow the continuation of existing farm, rural residential and recreation uses while protecting the scenic character of the river corridor. The classification for this segment is **Scenic River Area**.

Land Management Rules for the John Day River Scenic Waterway (Main Stem)

736-040-0065

John Day River Scenic Waterway

(1) Natural River Area:

- (a) That segment of the scenic waterway beginning at the intersection of the John Day River with the township line between Township 5 South and Township 6 South, Willamette Meridian, at about river mile 95, thence downstream approximately 51.7 miles to the intersection of the John Day River with the southern section line of Section 30, Township 1 South, Range 19 East, Willamette Meridian, (Section 30, T 1S, R 19E, W.M.) at about river mile 43.3, is classified as a Natural River Area;
- (b) This Natural River Area shall be administered consistent with the standards set by OAR 736-040-0035 and OAR 736-040-0040(1)(a)(C). In addition to these standards, all new development in resource zones (i.e. farm-related dwellings) shall comply with Gilliam County or Sherman County land use regulations.
- (c) New structures and associated improvements shall be totally screened from view from the river by topography and/or vegetation, except as provided under OAR 736-040-0030(5), and except those minimal facilities needed for public outdoor recreation or resource protection. If inadequate topographic or vegetative screening exists on the site, the structure or improvement may be permitted if native vegetation can be established to provide total screening of the proposed structure or improvement within a reasonable time (4-5 years). The condition of "total screening," as used in Section (1) of this rule, shall consist of adequate topography and/or density and mixture of native evergreen and deciduous vegetation to totally obscure (100%) the subject improvement.
- (d) Commercial public service facilities, including resorts and motels, lodges and trailer parks which are visible from the river, shall not be permitted.
- (e) New mining operations, except recreational placer mining and recreational prospecting, as those terms are defined and used in ORS 390.835, and similar improvements, shall be permitted only when they are totally screened from view from the river by topography and/or vegetation. If inadequate topographic or vegetative screening exists to totally screen the proposed mining site, the mining operation may be permitted if native vegetation can be established to provide total screening of the proposed mining site within a reasonable time (4-5 years).
- (f) New roads may be permitted only when totally screened from view from the river by topography and/or vegetation. If inadequate topographic or vegetative screening exists to totally screen the proposed road, the road may be permitted if acceptable topography can be created or road design techniques used to totally screen the road at the time of construction or native vegetation can be established to provide total screening of the proposed road within a reasonable time (4-5 years).
- (g) Where existing roads are visible from the river, major extensions, realignments, or upgrades to existing roads shall not be permitted. Necessary minor road improvements shall be substantially screened from view from the river. If inadequate topography or vegetation exists to substantially screen the road improvement, the road improvement may be permitted if acceptable topography can be created or road design techniques used to substantially screen the road at the time of construction or native vegetation can be established to provide substantial screening of the road improvement within a reasonable time (4-5 years). The condition of "substantial screening," as used in Section (1) of this rule, shall consist of adequate topography and/or density and mixture of native, evergreen and deciduous vegetation to substantially obscure (at least 75%) the subject improvement. When an existing road is regraded, no side cast into or visible from the river shall be permitted. Excess material shall be hauled to locations out of view from the river.
- (h) Visible tree harvest or other vegetation management may be permitted provided that:
 - (A) The operation complies with the relevant Forest Practices Act rules;
 - (B) Harvest and management methods with low visual impact are used;
 - (C) The harvest or vegetation management does not degrade the riparian buffer of any waterway;and

- (D) The harvest or vegetation management is designed to enhance the scenic view within a reasonable time (5-10 years). For the purposes of this paragraph, "enhance" means to benefit forest ecosystem function and vegetative health by optimizing forest stand densities and vegetative composition, fostering forest landscape diversity and promoting sustainable forest values.
 - (i) Improvements needed for public recreation use or resource protection may be visible from the river, but shall be primitive in character and designed to blend with the natural character of the landscape.
 - (j) Proposed utility facilities shall share existing utility corridors, minimize any ground and vegetation disturbance, and employ non-visible alternatives when reasonably possible.
 - (k) Whenever the standards of OAR 736-040-0035 and Section (1), Subsections (a) through (j) of this rule, are more restrictive than the Gilliam and Sherman County Land Use and Development Ordinances, the above Oregon Administrative Rules shall apply.
- (2) Scenic River Areas: two segments of the John Day River main stem are designated as Scenic River Areas:
- (a) That segment of scenic waterway beginning at the confluence of Service Creek at about river mile 157.4 and extending downstream approximately 62.4 miles to the intersection of the John Day River with the township line between Township 5 South and Township 6 South, Willamette Meridian, at about river mile 95, is classified as a Scenic River Area;
 - (b) That segment of scenic waterway beginning at the intersection of the John Day River with the southern section line of Section 30, Township 1 South, Range 19 East, Willamette Meridian, (Section 30, T 1S, R 19E, W.M.) at about river mile 43.3 and extending approximately 33.3 miles downstream to Tumwater Falls, at about river mile 10, is classified as a Scenic River Area.
 - (c) These Scenic River Areas shall be administered consistent with the standards set by OAR 736-040-0035 and OAR 736-040-0040(1)(b)(B). In addition to these standards, all new development in resource zones (i.e. farm related dwellings) shall comply with Sherman County, Gilliam County, Wasco County, Wheeler County, or Jefferson County land use regulations, whichever applies.
 - (d) New structures and associated improvements shall be substantially screened by topography and/or native vegetation, except as provided under OAR 736-040-0030(5), and except for those minimal facilities needed for public outdoor recreation or resource protection. If inadequate topographic or vegetative screening exists on a site, the structure or improvement may be permitted if native vegetation can be established to provide substantial screening of the proposed structure or improvement within a reasonable time (4-5 years). The condition of "substantial screening," as used in Section (2) of this rule, shall consist of adequate topography and/or density and mixture of native, evergreen and deciduous vegetation to substantially obscure (at least 75%) the viewed structure or improvement.
 - (e) Commercial public service facilities, including resorts and motels, lodges and trailer parks which are visible from the river, shall not be permitted.
 - (f) New mining operations, except recreational placer mining and recreational prospecting, as those terms are defined and used in ORS 390.835, and similar improvements, shall be permitted only when they are totally screened from view from the river by topography and/or vegetation. If inadequate topographic or vegetative screening exists on a site, mining and similar forms of development may be permitted if native vegetation can be established to provide total screening of the affected area within a reasonable time (4-5 years). The condition of "total screening," as used in Section (2) of this rule, shall consist of adequate topography and/or density and mixture of native, evergreen and deciduous vegetation to totally obscure (100%) the subject improvement.
 - (g) New roads may be permitted only when totally screened from view from the river by topography and/or vegetation. If inadequate topographic or vegetative screening exists to totally screen the proposed road, the road may be permitted if acceptable topography can be created or road design techniques used to totally screen the road at the time of construction or native vegetation can be established to provide total screening of the proposed road within a reasonable time (4-5 years).
 - (h) Where existing roads are visible from the river, extensions, realignments, upgrades, or other improvements, shall only be permitted when substantially screened from view from the river. If inadequate topography or vegetation exists to provide substantial screening, the road improvement may be permitted if acceptable topography can be created or road design techniques used to substantially screen the road at the time of construction or native vegetation can be established to provide substantial screening of the subject improvement within a reasonable time (4-5 years). When an existing road is improved or regraded, no side cast into or visible from the river shall be permitted. Excess material shall be hauled to locations out of view from the river.

- (i) Visible tree harvest or other vegetation management may be allowed provided that:
 - (A) The operation complies with the relevant Forest Practices Act rules;
 - (B) Harvest and management methods with low visual impact are used;
 - (C) The harvest or vegetation management does not degrade the riparian buffer of any waterway; and
 - (D) The harvest or vegetation management is designed to enhance the scenic view within a reasonable time (5-10 years). For the purposes of this paragraph, "enhance" means to benefit forest ecosystem function and vegetative health by optimizing forest stand densities and vegetative composition, fostering forest landscape diversity and promoting sustainable forest values.
 - (j) Improvements needed for public recreation use or resource protection may be visible from the river, but shall be primitive in character and designed to blend with the natural character of the landscape.
 - (k) Proposed utility facilities shall share existing utility corridors, minimize any ground and vegetation disturbance, and employ non-visible alternatives when reasonably possible.
 - (l) Whenever the standards of OAR 736-040-0035 and Section (2), Subsections (a) through (k) of this rule are more restrictive than the applicable County Land Use Development Ordinances, the above Oregon Administrative rules shall apply.
- (3) Recreational River Area:
- (a) That segment of scenic waterway beginning at the confluence of Parrish Creek, at about river mile 168.7, about one mile west of Spray and extending downstream approximately 11.3 miles to the confluence of Service Creek, at about river mile 157.4, is classified as a Recreational River Area.
 - (b) This Recreational River Area shall be administered consistent with the standards set by OAR 736-040-0035 and OAR 736-040-0040(1)(c)(B). In addition to these standards, all new development in resource zones (i.e. farm and forest related dwellings) shall comply with Wheeler County land use regulations.
 - (c) New structures and associated improvements shall be moderately screened from view from the river by topography and/or vegetation, except as provided by OAR 736-040-0030(5) and except those minimal facilities needed for public outdoor recreation or resource protection. If inadequate topographic or vegetative screening exists on a site, the structure or improvement may be permitted if native vegetation can be established to provide moderate screening of the proposed structure or improvement within a reasonable time (4-5 years). The condition of "moderate screening," as used in Section (3) of this rule, shall consist of adequate topography and/or density and mixture of native, evergreen and deciduous vegetation to moderately obscure (at least 50%) the viewed improvement or structure.
 - (d) Commercial public service facilities, including resorts and motels, lodges and trailer parks which are visible from the river, shall not be permitted.
 - (e) New mining operations, except recreational placer mining and recreational prospecting, as those terms are defined and used in ORS 390.835, and similar improvements, shall be permitted only when they are totally screened from view from the river by topography and/or vegetation. If inadequate topographic or vegetative screening exists on a site, mining and similar forms of development may be permitted if native vegetation can be established to provide total screening of the affected area within a reasonable time (4-5 years). The condition of "total screening," as used in Section (3) of this rule, shall consist of adequate topography and/or density and mixture of native, evergreen and deciduous vegetation to totally obscure (100%) the altered improvement site.
 - (f) New roads constructed for agricultural use, mining or residential use shall be moderately screened with vegetation and/or topography. If inadequate topographic or vegetative screening exists, the road may be permitted if acceptable topography can be created or road design techniques used to moderately screen the road at the time of construction or native vegetation can be established to provide moderate screening of the road within a reasonable time (4-5 years).
 - (g) Where existing roads are visible from the river, extensions, realignments, upgrades, or other improvements, shall only be permitted when partially screened from view from the river. If inadequate topography or vegetation exists to provide partial screening, the road improvement may be permitted if acceptable topography can be created or road design techniques used to partially screen the road at the time of construction or native vegetation can be established to provide partial screening of the subject improvement within a reasonable time (4 -5 years). The condition of "partial screening," as used in Section (3) of this rule shall consist of adequate topography and/or density and mixture of native, evergreen and deciduous vegetation to partially obscure (at least 30%) views of the road

improvement. When an existing road is improved or regraded, no side cast into or visible from the river shall be permitted. Excess material shall be hauled to locations out of view from the river.

- (h) Visible tree harvest or other vegetation management may be allowed provided that:
 - (A) The operation complies with the relevant Forest Practices Act rules;
 - (B) Harvest and management methods with low visual impact are used;
 - (C) The harvest or vegetation management does not degrade the riparian buffer of any waterway; and
 - (D) The harvest or vegetation management is designed to enhance the scenic view within a reasonable time (5-10 years). For the purposes of this paragraph, "enhance" means to benefit forest ecosystem function and vegetative health by optimizing forest stand densities and vegetative composition, fostering forest landscape diversity and promoting sustainable forest values.
- (i) Improvements needed for public recreation use or resource protection may be visible from the river, but shall be primitive in character and designed to blend with the natural character of the landscape.
- (j) Proposed utility facilities shall share existing utility corridors, minimize any ground and vegetation disturbance, and employ non-visible alternatives when reasonably possible.
- (k) Whenever the standards of OAR 736-040-0035 and Section (3), Subsections (c) through (j) of this rule are more restrictive than Wheeler County Land Use and Development Ordinances, the above Oregon Administrative Rules shall apply.

Classification for the North Fork John Day River Scenic Waterway

The North Fork John Day River was designated a scenic waterway in 1988. The designated reach extends approximately 56.2 miles from the North Fork John Day Wilderness boundary at about river mile 76.7, downstream to about river mile 20.3 approximately three miles upstream from Monument. OPRD divides the North Fork John Day River Scenic Waterway into three segments.

The upper segment begins at the North Fork John Day Wilderness boundary at about river mile 76.7 and extends downstream approximately 16.7 miles to the State Highway 395 Bridge crossing at about river mile 60, just north of Dale. A primitive road, intermittently visible from the river runs along the north side of the river for most of this segment. Publicly owned National Forest land borders the river for most of this segment. Cattle grazing and timber harvest is common on the privately owned parcels along this reach of river. The impact of these activities as viewed from the river has, for the most part, been minimal. Dwellings, ranch buildings and public campground structures are lightly distributed making the overall impression one of primitiveness and isolation. The management goal is to preserve the primitive character of the landscape throughout this portion of the river corridor. OPRD classifies this segment of scenic waterway as an **Accessible Natural River Area**.

The next scenic waterway segment extends from about river mile 60, at the State Highway 395 Bridge crossing, downstream approximately three miles to the confluence of Camas Creek at about river mile 57. State Highway 395 closely parallels the north bank of the river throughout this segment and is readily visible from the river. River frontage on both banks is primarily privately owned. The management goal for this section is to ensure that the view of any new developments is unobtrusive as seen from the river. OPRD classifies this segment of scenic waterway as a **Recreational River Area**.

The third North Fork scenic waterway segment extends approximately 36.7 miles from the confluence with Camas Creek downstream to about river mile 20.3 approximately three miles north of Monument. Landownership in this reach is a patchwork of private holdings and public lands managed by the Bureau of Land Management. The upstream half of this segment is closely paralleled by a road which is visible from the river. The lower half of the reach is essentially unroaded. As with the upstream most segment of this scenic waterway, range and timber practices provide the economic base and evidence of settlement is minimal. The management goal is to maintain the primitive character of the river corridor. OPRD classifies this segment as an **Accessible Natural River Area**.

Land Management Rules for the North Fork John Day River Scenic Waterway

736-040-0066

North Fork John Day River Scenic Waterway

- (1) Accessible Natural River Areas: two segments of the North Fork John Day River are designated Accessible Natural River Areas:
 - (a) That segment of scenic waterway beginning at the west boundary of the North Fork John Day Wilderness in the Umatilla National Forest as that boundary was constituted on December 8, 1988, being at about river mile 76.7, where the North Fork John Day River intersects the western section line of Section 18, Township 7 South, Range 34 East, Willamette Meridian, (Section 18, T 7S, R 34E, W.M.) and extending downstream approximately 16.7 miles to the State Highway 395 Bridge crossing, at about river mile 60, is classified as an Accessible Natural River Area;
 - (b) That segment of scenic waterway beginning at the confluence of Camas Creek, at about river mile 57, and extending downstream approximately 36.7 miles to the intersection with the northern boundary of the south one-half of Section 20, Township 8 South, Range 28 East, Willamette Meridian, (Section 20, T 8S, R 28E, W.M.) at about river mile 20.3, is classified as an Accessible Natural River Area.
 - (c) These Accessible Natural River Areas shall be administered consistent with the standards set by OAR 736-040-0035 and OAR 736-040-0040(1)(e)(B). In addition to these standards, all new development in resource zones (i.e. farm and forest related dwellings) shall comply with Grant or Umatilla County land use regulations.
 - (d) New structures and associated improvements shall be totally screened from view from the river by topography and/or vegetation, except as provided under OAR 736-040-0030(5), and except those minimal facilities needed for public outdoor recreation or resource protection. If inadequate topographic or vegetative screening exists on the site, the structure or improvement may be permitted if native vegetation can be established to provide total screening of the proposed structure or improvement within a reasonable time (4-5 years). The condition of "total screening," as used in Section (1) of this rule, shall consist of adequate topography and/or density and mixture of native evergreen and deciduous vegetation to totally obscure (100%) the subject improvement.
 - (e) Commercial public service facilities, including resorts and motels, lodges and trailer parks which are visible from the river, shall not be permitted.
 - (f) New mining operations, except recreational placer mining and recreational prospecting, as those terms are defined and used in ORS 390.835, and similar improvements, shall be permitted only when they are totally screened from view from the river by topography and/or vegetation. If inadequate topographic or vegetative screening exists to totally screen the proposed mining site, the mining operation may be permitted if native vegetation can be established to provide total screening of the proposed mining site within a reasonable time (4-5 years).
 - (g) New roads may be permitted only when totally screened from view from the river by topography and/or vegetation. If inadequate topographic or vegetative screening exists to totally screen the proposed road, the road may be permitted if acceptable topography can be created or road design techniques used to totally screen the road at the time of construction or native vegetation can be established to provide total screening of the proposed road within a reasonable time (4-5 years).
 - (h) Where existing roads are visible from the river, major extensions, realignments, or upgrades to existing roads shall not be permitted. Necessary minor road improvements shall be substantially screened from view from the river. If inadequate topography or vegetation exists to substantially screen the road improvement, the road improvement may be permitted if acceptable topography can be created or road design techniques used to substantially screen the road at the time of construction or native vegetation can be established to provide substantial screening of the road improvement within a reasonable time (4-5 years). The condition of "substantial screening," as used in Section (1) of this rule, shall consist of adequate topography and/or density and mixture of native, evergreen and deciduous vegetation to substantially obscure (at least 75%) the subject improvement. When an existing road is regraded, no side cast into or visible from the river shall be permitted. Excess material shall be hauled to locations out of view from the river.

- (i) Visible tree harvest or other vegetation management may be permitted provided that:
 - (A) The operation complies with the relevant Forest Practices Act rules;
 - (B) Harvest and management methods with low visual impact are used;
 - (C) The harvest or vegetation management does not degrade the riparian buffer of any waterway; and
 - (D) The harvest or vegetation management is designed to enhance the scenic view within a reasonable time (5-10 years). For the purposes of this paragraph, "enhance" means to benefit forest ecosystem function and vegetative health by optimizing forest stand densities and vegetative composition, fostering forest landscape diversity and promoting sustainable forest values.
 - (j) Improvements needed for public recreation use or resource protection may be visible from the river, but shall be primitive in character and designed to blend with the natural character of the landscape.
 - (k) Proposed utility facilities shall share existing utility corridors, minimize any ground and vegetation disturbance, and employ non-visible alternatives when reasonably possible.
 - (l) Whenever the standards of OAR 736-040-0035 and Section (1), Subsections (c) through (k) of this rule are more restrictive than Grant County's or Umatilla County's Land Use and Development Ordinance, the above Oregon Administrative Rules shall apply.
- (2) Recreational River Area:
- (a) That segment of scenic waterway beginning at the State Highway 395 Bridge crossing, at about river mile 60, and extending downstream approximately three miles to the confluence of Camas Creek, at about river mile 57, is classified as a Recreational River Area.
 - (b) This Recreational River Area shall be administered consistent with the standards set by OAR 736-040-0035 and OAR 736-040-0040(1)(c)(B). In addition to these standards, all new development in resource zones (i.e. farm and forest related dwellings) shall comply with Grant County or Umatilla County land use regulations.
 - (c) New structures and associated improvements shall be moderately screened from view from the river by topography and/or vegetation, except as provided by OAR 736-040-0030(5), and except those minimal facilities needed for public outdoor recreation or resource protection. If inadequate topographic or vegetative screening exists on a site, the structure or improvement may be permitted if native vegetation can be established to provide moderate screening of the proposed structure or improvement within a reasonable time (4-5 years). The condition of "moderate screening," as used in Section (2) of this rule, shall consist of adequate topography and/or density and mixture of native, evergreen and deciduous vegetation to moderately obscure (at least 50%) the viewed improvement or structure.
 - (d) Commercial public service facilities, including resorts and motels, lodges and trailer parks which are visible from the river, shall not be permitted.
 - (e) New mining operations, except recreational placer mining and recreational prospecting, as those terms are defined and used in ORS 390.835, and similar improvements, shall be permitted only when they are totally screened from view from the river by topography and/or vegetation. If inadequate topographic or vegetative screening exists on a site, mining and similar forms of development may be permitted if native vegetation can be established to provide total screening of the affected area within a reasonable time (4-5 years). The condition of "total screening," as used in Section (2) of this rule, shall consist of adequate topography and/or density and mixture of native, evergreen and deciduous vegetation to totally obscure (100%) the altered improvement site.
 - (f) New roads constructed for agricultural use, mining or residential use shall be moderately screened with vegetation and/or topography. If inadequate topographic or vegetative screening exists, the road may be permitted if acceptable topography can be created or road design techniques used to moderately screen the road at the time of construction or native vegetation can be established to provide moderate screening of the road within a reasonable time (4-5 years).

- (g) Where existing roads are visible from the river, extensions, realignments, upgrades, or other improvements, shall only be permitted when partially screened from view from the river. If inadequate topography or vegetation exists to provide partial screening, the road improvement may be permitted if acceptable topography can be created or road design techniques used to partially screen the road at the time of construction or native vegetation can be established to provide partial screening of the subject improvement within a reasonable time (4-5 years). The condition of “partial screening,” as used in Section (2) of this rule shall consist of adequate topography and/or density and mixture of native, evergreen and deciduous vegetation to partially obscure (at least 30%) views of the road improvement. When an existing road is improved or regraded, no side cast into or visible from the river shall be permitted. Excess material shall be hauled to locations out of view from the river.
- (h) Visible tree harvest or other vegetation management may be allowed provided that:
 - (A) The operation complies with the relevant Forest Practices Act rules;
 - (B) Harvest and management methods with low visual impact are used;
 - (C) The harvest or vegetation management does not degrade the riparian buffer of any waterway; and
 - (D) The harvest or vegetation management is designed to enhance the scenic view within a reasonable time (5-10 years). For the purposes of this paragraph, “enhance” means to benefit forest ecosystem function and vegetative health by optimizing forest stand densities and vegetative composition, fostering forest landscape diversity and promoting sustainable forest values.
- (i) Improvements needed for public outdoor recreation use or resource protection may be visible from the river, but shall be primitive in character and designed to blend with the natural character of the landscape.
- (j) Whenever the standards of OAR 736-040-0035 and Section (2), Subsections (c) through (i) of this rule are more restrictive than Grant County or Umatilla County Land Use and Development Ordinances, the above Oregon Administrative Rules shall apply.

Classification for the Middle Fork John Day River Scenic Waterway

The Middle Fork John Day River was designated a scenic waterway in 1988. The designated reach begins at about river mile 71, at the confluence with Crawford Creek, and extends approximately 71 miles to the confluence of the Middle Fork with the North Fork John Day River. OPRD divides the Middle Fork John Day River into two scenic waterway segments.

The first segment extends from Crawford Creek downstream approximately 60 miles to about river mile 11 approximately four miles downstream from Ritter. The upper 30 miles of this segment flows through an interspersed ownership of private parcels and public lands managed by the Malheur National Forest. The lower 30 miles is bounded mostly by private lands. This river segment is paralleled by a paved but lightly traveled road that provides access to thinly distributed ranches and rural dwellings. The road and development in the area is not obtrusive on the view from the river. The management goal is to allow continuation of existing farm, forest, rural residential and recreational uses while protecting the scenic character of the river corridor. OPRD classifies this segment of the river as a **Scenic River Area**.

The second scenic waterway segment extends from about river mile 11 to the confluence with the North Fork John Day River. While this segment of river is bordered by mostly private lands, it flows through a steep walled canyon, is inaccessible by road and exhibits little sign of settlement or development. The management goal is to preserve and protect the primitive undeveloped character of the river corridor. OPRD classifies this segment of scenic waterway as a **Natural River Area**.

Land Management Rules for the Middle Fork John Day River Scenic Waterway

736-040-0067

Middle Fork John Day River Scenic Waterway

(1) Natural River Area:

- (a) That segment of scenic waterway beginning at the intersection of the Middle Fork John Day River with the eastern section line of Section 11, Township 8 South, Range 29 East, Willamette Meridian, (Section 11, T 8S, R 29E, W.M.), at about river mile 11, and extending downstream approximately 11 miles to its confluence with the North Fork John Day River is classified as a Natural River Area.
- (b) This Natural River Area shall be administered consistent with the standards set by OAR 736-040-0035 and OAR 736-040-0040(1)(a)(C). In addition to these standards, all new development in resource zones (i.e. farm and forest related dwellings) shall comply with Grant County land use regulations.
- (c) New structures and associated improvements shall be totally screened from view from the river by topography and/or vegetation, except as provided under OAR 736-040-0030(5), and except those minimal facilities needed for public outdoor recreation or resource protection. If inadequate topographic or vegetative screening exists on the site, the structure or improvement may be permitted if native vegetation can be established to provide total screening of the proposed structure or improvement within a reasonable time (4-5 years). The condition of "total screening," as used in Section (1) of this rule, shall consist of adequate topography and/or density and mixture of native evergreen and deciduous vegetation to totally obscure (100%) the subject improvement.
- (d) Commercial public service facilities, including resorts and motels, lodges and trailer parks which are visible from the river, shall not be permitted.
- (e) New mining operations, except recreational placer mining and recreational prospecting, as those terms are defined and used in ORS 390.835, and similar improvements, shall be permitted only when they are totally screened from view from the river by topography and/or vegetation. If inadequate topographic or vegetative screening exists to totally screen the proposed mining site, the mining operation may be permitted if native vegetation can be established to provide total screening of the proposed mining site within a reasonable time (4-5 years).
- (f) New roads may be permitted only when totally screened from view from the river by topography and/or vegetation. If inadequate topographic or vegetative screening exists to totally screen the proposed road, the road may be permitted if acceptable topography can be created or road design techniques used to totally screen the road at the time of construction or native vegetation can be established to provide total screening of the proposed road within a reasonable time (4-5 years).
- (g) Where existing roads are visible from the river, major extensions, realignments, or upgrades to existing roads shall not be permitted. Necessary minor road improvements shall be substantially screened from view from the river. If inadequate topography or vegetation exists to substantially screen the road improvement, the road improvement may be permitted if acceptable topography can be created or road design techniques used to substantially screen the road at the time of construction or native vegetation can be established to provide substantial screening of the road improvement within a reasonable time (4-5 years). The condition of "substantial screening," as used in Section (1) of this rule, shall consist of adequate topography and/or density and mixture of native, evergreen and deciduous vegetation to substantially obscure (at least 75%) the subject improvement. When an existing road is regraded, no side cast into or visible from the river shall be permitted. Excess material shall be hauled to locations out of view from the river.
- (h) Visible tree harvest or other vegetation management may be permitted provided that:
 - (A) The operation complies with the relevant Forest Practices Act rules;
 - (B) Harvest and management methods with low visual impact are used;
 - (C) The harvest or vegetation management does not degrade the riparian buffer of any waterway; and
 - (D) The harvest or vegetation management is designed to enhance the scenic view within a reasonable time (5-10 years). For the purposes of this paragraph, "enhance" means to benefit forest ecosystem function and vegetative health by optimizing forest stand densities and vegetative composition, fostering forest landscape diversity and promoting sustainable forest values.

- (i) Improvements needed for public outdoor recreation or resource protection may be visible from the river but shall be primitive in character and designed to blend with the natural character of the landscape.
 - (j) Proposed utility facilities shall share existing utility corridors, minimize any ground and vegetation disturbance, and employ non-visible alternatives when reasonably possible.
 - (k) Whenever the standards of OAR 736-040-0035 and Section (1), Subsections (c) through (j) of this rule are more restrictive than the Grant County Land Use and Development Ordinance, the above Oregon Administrative Rules shall apply.
- (2) Scenic River Area:
- (a) That segment of scenic waterway beginning at the confluence with Crawford Creek at about river mile 71, being in the Northwest 1/4 of Section 25, Township 11 South, Range 35 East, Willamette Meridian, (NW 1/4, Section 25, T 11S, R 35E, W.M.) and extending downstream approximately 60 miles to the intersection of the Middle Fork John Day River with the eastern section line of Section 11, Township 8 South, Range 29 East, Willamette Meridian, (Section 11, T 8S, R 29E, W.M.), at about river mile 11, is classified as a Scenic River Area.
 - (b) This Scenic River Area shall be administered consistent with the standards set by OAR 736-040-0035 and OAR 736-040-0040(1)(b)(B). In addition to these standards, all new development in resource zones (i.e. farm and forest related dwellings) shall comply with Grant County land use regulations.
 - (c) New structures and associated improvements shall be substantially screened by topography and/or native vegetation, except as provided under OAR 736-040-0030(5), and except for those minimal facilities needed for public outdoor recreation or resource protection. If inadequate topographic or vegetative screening exists on a site, the structure or improvement may be permitted if native vegetation can be established to provide substantial screening of the proposed structure or improvement within a reasonable time (4-5 years). The condition of "substantial screening," as used in Section (2) of this rule, shall consist of adequate topography and/or density and mixture of native, evergreen and deciduous vegetation to substantially obscure (at least 75%) the viewed structure or improvement.
 - (d) Commercial public service facilities, including resorts and motels, lodges and trailer parks which are visible from the river, shall not be permitted.
 - (e) New mining operations, except recreational placer mining and recreational prospecting, as those terms are defined and used in ORS 390.835, and similar improvements, shall be permitted only when they are totally screened from view from the river by topography and/or vegetation. If inadequate topographic or vegetative screening exists on a site, mining and similar forms of development may be permitted if native vegetation can be established to provide total screening of the affected area within a reasonable time (4-5 years). The condition of "total screening," as used in Section (2) of this rule, shall consist of adequate topography and/or density and mixture of native, evergreen and deciduous vegetation to totally obscure (100%) the subject improvement.
 - (f) New roads may be permitted only when totally screened from view from the river by topography and/or vegetation. If inadequate topographic or vegetative screening exists to totally screen the proposed road, the road may be permitted if acceptable topography can be created or road design techniques used to totally screen the road at the time of construction or native vegetation can be established to provide total screening of the proposed road within a reasonable time (4-5 years).
 - (g) Where existing roads are visible from the river, extensions, realignments, upgrades, or other improvements, shall only be permitted when substantially screened from view from the river. If inadequate topography or vegetation exists to provide substantial screening, the road improvement may be permitted if acceptable topography can be created or road design techniques used to substantially screen the road at the time of construction or native vegetation can be established to provide substantial screening of the subject improvement within a reasonable time (4-5 years). When an existing road is improved or regraded, no side cast into or visible from the river shall be permitted. Excess material shall be hauled to locations out of view from the river.
 - (h) Visible tree harvest or other vegetation management may be allowed provided that:
 - (A) The operation complies with the relevant Forest Practices Act rules;
 - (B) Harvest methods with low visual impact are used;
 - (C) The harvest or vegetation management does not degrade the riparian buffer of any waterway;and

- (D) The harvest or vegetation management is designed to enhance the scenic view within a reasonable time (5-10 years). For the purposes of this paragraph, “enhance” means to benefit forest ecosystem function and vegetative health by optimizing forest stand densities and vegetative composition, fostering forest landscape diversity and promoting sustainable forest values.
- (i) Improvements needed for public outdoor recreation use or resource protection may be visible from the river but shall be primitive in character and designed to blend with the natural character of the landscape.
- (j) Proposed utility facilities shall share existing utility corridors, minimize any ground and vegetation disturbance, and employ non-visible alternatives when reasonably possible.
- (k) Whenever the standards of OAR 736-040-0035 and Section (2), Subsections (c) through (j) of this rule are more restrictive than the Grant County Land Use and Development Ordinance, the above Oregon Administrative Rule shall apply.

Classification for the South Fork John Day River Scenic Waterway

The South Fork John Day River was designated a scenic waterway in 1988. The designated reach extends from the Post-Paulina Road crossing near river mile 35, downstream approximately 29 miles to the northern border of the Phillip W. Schneider Wildlife Area (formerly Murder’s Creek Wildlife Area) at about river mile six. OPRD divides this reach into two segments.

The first segment extends from the Post-Paulina Road crossing downstream approximately five miles to Ellingson Mill. This section of river is paralleled by a gravel road which crosses from the east bank to the west bank at Ellingson Mill and can be seen frequently from the river. The road is lightly traveled and provides access to a few ranch dwellings. Utility lines also follow the road and river in this segment. In this segment, the river flows through public lands, managed by the Bureau of Land Management, interspersed with private holdings. The management goal is to allow the continuation of existing ranch, forest and recreation uses while protecting the scenic character of the river corridor. OPRD classifies this segment as a **Scenic River Area**.

The remaining segment of the South Fork extends from Ellingson Mill approximately 24 miles downstream to about river mile six at the north boundary of the Phillip W. Schneider Wildlife Area. The river is paralleled by an all season road which begins on the west river bank, crosses the river shortly downstream from Izee Falls, follows the east bank to the end of the segment and is visible from the river at numerous locations. River frontage in this segment includes state owned lands as well as private parcels and BLM managed lands. While there is access to the river in this segment, there is little evidence of development or settlement. The management goal for this reach is to preserve and protect the fairly primitive and undeveloped character of the river corridor. OPRD classifies this segment as an **Accessible Natural River Area**.

Land Management Rules for the South Fork John Day River Scenic Waterway

736-040-0068

South Fork John Day River Scenic Waterway

(1) Accessible Natural River Area:

- (a) That segment of scenic waterway beginning at Ellingson Mill at about river mile 30, being at the intersection of the South Fork John Day River with the northern section line of Section 29, Township 16 South, Range 27 East, Willamette Meridian, (Section 29, T 16S, R 27E, W.M.) and extending downstream approximately 24 miles to the north boundary of the Murder's Creek Wildlife Area as constituted on December 8, 1988, at about river mile six, being in the Southeast 1/4 of Section 24, Township 13 South, Range 26 East, Willamette Meridian, (SE1/4, Section 24, T 13S, R 26E, W.M.) is classified as an Accessible Natural River Area.
- (b) This Accessible Natural River Area shall be administered consistent with the standards set by OAR 736-040-0035 and OAR 736-040-0040(1)(e)(B). In addition to these standards, all new development in resource zones (i.e. farm and forest related dwellings) shall comply with Grant County land use regulations.
- (c) New structures and associated improvements shall be totally screened from view from the river by topography and/or vegetation, except as provided under OAR 736-040-0030(5), and except those minimal facilities needed for public outdoor recreation or resource protection. If inadequate topographic or vegetative screening exists on the site, the structure or improvement may be permitted if native vegetation can be established to provide total screening of the proposed structure or improvement within a reasonable time (4-5 years). The condition of "total screening," as used in Section (1) of this rule, shall consist of adequate topography and/or density and mixture of native evergreen and deciduous vegetation to totally obscure (100%) the subject improvement.
- (d) Commercial public service facilities, including resorts and motels, lodges and trailer parks which are visible from the river, shall not be permitted.
- (e) New mining operations, except recreational placer mining and recreational prospecting, as those terms are defined and used in ORS 390.835, and similar improvements, shall be permitted only when they are totally screened from view from the river by topography and/or vegetation. If inadequate topographic or vegetative screening exists to totally screen the proposed mining site, the mining operation may be permitted if native vegetation can be established to provide total screening of the proposed mining site within a reasonable time (4-5 years).
- (f) New roads may be permitted only when totally screened from view from the river by topography and/or vegetation. If inadequate topographic or vegetative screening exists to totally screen the proposed road, the road may be permitted if acceptable topography can be created or road design techniques used to totally screen the road at the time of construction or native vegetation can be established to provide total screening of the proposed road within a reasonable time (4-5 years).
- (g) Where existing roads are visible from the river, major extensions, realignments, or upgrades to existing roads shall not be permitted. Necessary minor road improvements shall be substantially screened from view from the river. If inadequate topography or vegetation exists to substantially screen the road improvement, the road improvement may be permitted if acceptable topography can be created or road design techniques used to substantially screen the road at the time of construction or native vegetation can be established to provide substantial screening of the road improvement within a reasonable time (4 -5 years). The condition of "substantial screening," as used in Section (1) of this rule, shall consist of adequate topography and/or density and mixture of native, evergreen and deciduous vegetation to substantially obscure (at least 75%) the subject improvement. When an existing road is regraded, no side cast into or visible from the river shall be permitted. Excess material shall be hauled to locations out of view from the river.
- (h) Visible tree harvest or other vegetation management may be allowed provided that:
 - (A) The operation complies with the relevant Forest Practices Act rules;
 - (B) Harvest and management methods with low visual impact are used;
 - (C) The harvest or vegetation management does not degrade the riparian buffer of any waterway;and

- (D) The harvest or vegetation management is designed to enhance the scenic view within a reasonable time (5-10 years). For the purposes of this paragraph, “enhance” means to benefit forest ecosystem function and vegetative health by optimizing forest stand densities and vegetative composition, fostering forest landscape diversity and promoting sustainable forest values.
 - (i) Improvements needed for public outdoor recreation use or resource protection may be visible from the river, but shall be primitive in character and designed to blend with the natural character of the landscape.
 - (j) Proposed utility facilities shall share existing utility corridors, minimize any ground and vegetation disturbance, and employ non-visible alternatives when reasonably possible.
 - (k) Whenever the standards of OAR 736-040-0035 and Section (1), Subsections (c) through (j) of this rule are more restrictive than the Grant County Land Use and Development Ordinance, the above Oregon Administrative Rules shall apply.
- (2) Scenic River Area:
- (a) That segment of scenic waterway beginning at the Post -Paulina Road crossing at about river mile 35, being in the Northwest 1/4 of Section 9, Township 17 South, Range 27 East, Willamette Meridian, (NW1/4, Section 9, T 17S, R 27E, W.M.) and extending downstream approximately five miles to Ellingson Mill at about river mile 30, being at the intersection of the South Fork John Day River with the northern, section line of Section 29, Township 16 South, Range 27 East, Willamette Meridian, (Section 29, T 16S, R 27E, W.M.) is classified as a Scenic River Area.
 - (b) This Scenic River Area shall be administered consistent with the standards set by OAR 736-040-0035 and OAR 736-040-0040(1)(b)(B). In addition to these standards, all new development in resource zones (i.e. farm and forest related dwellings) shall comply with Grant County land use regulations.
 - (c) New structures and associated improvements shall be substantially screened by topography and/or native vegetation, except as provided under OAR 736-040-0030(5), and except for those minimal facilities needed for public outdoor recreation or resource protection. If inadequate topographic or vegetative screening exists on a site, the structure or improvement may be permitted if native vegetation can be established to provide substantial screening of the proposed structure or improvement within a reasonable time (4-5 years). The condition of “substantial screening,” as used in Section (2) of this rule, shall consist of adequate topography and/or density and mixture of native, evergreen and deciduous vegetation to substantially obscure (at least 75%) the viewed structure or improvement.
 - (d) Commercial public service facilities, including resorts and motels, lodges and trailer parks which are visible from the river, shall not be permitted.
 - (e) New mining operations, except recreational placer mining and recreational prospecting, as those terms are defined and used in ORS 390.835, and similar improvements, shall be permitted only when they are totally screened from view from the river by topography and/or vegetation. If inadequate topographic or vegetative screening exists on a site, mining and similar forms of development may be permitted if native vegetation can be established to provide total screening of the affected area within a reasonable time (4-5 years). The condition of “total screening,” as used in Section (2) of this rule, shall consist of adequate topography and/or density and mixture of native, evergreen and deciduous vegetation to totally obscure (100%) the subject improvement.
 - (f) New roads may be permitted only when totally screened from view from the river by topography and/or vegetation. If inadequate topographic or vegetative screening exists to totally screen the proposed road, the road may be permitted if acceptable topography can be created or road design techniques used to totally screen the road at the time of construction or native vegetation can be established to provide total screening of the proposed road within a reasonable time (4-5 years).
 - (g) Where existing roads are visible from the river, extensions, realignments, upgrades, or other improvements, shall only be permitted when substantially screened from view from the river. If inadequate topography or vegetation exists to provide substantial screening, the road improvement may be permitted if acceptable topography can be created or road design techniques used to substantially screen the road at the time of construction or native vegetation can be established to provide substantial screening of the subject improvement within a reasonable time (4-5 years). When an existing road is improved or regraded, no side cast into or visible from the river shall be permitted. Excess material shall be hauled to locations out of view from the river.

- (h) Visible tree harvest or other vegetation management may be allowed provided that:
 - (A) The operation complies with the relevant Forest Practices Act rules;
 - (B) Harvest and management methods with low visual impact are used;
 - (C) The harvest or vegetation management does not degrade the riparian buffer of any waterway;
and
 - (D) The harvest or vegetation management is designed to enhance the scenic view within a reasonable time (5-10 years). For the purposes of this paragraph, "enhance" means to benefit forest ecosystem function and vegetative health by optimizing forest stand densities and vegetative composition, fostering forest landscape diversity and promoting sustainable forest values.
- (i) Improvements needed for public outdoor recreation use or resource protection may be visible from the river but shall be primitive in character and designed to blend with the natural character of the landscape.
- (j) Proposed utility facilities shall share existing utility corridors, minimize any ground or vegetation disturbance, and employ non-visible alternatives when reasonably possible.
- (k) Whenever the standards of OAR 736-040-0035 and Section (2), Subsections (c) through (j) of this rule are more restrictive than the Grant County Land Use and Development Ordinance, the above Oregon Administrative Rule shall apply.

5/31/2000 Final Adopted Rules
OPRD

Chapter V

Environmental Consequences

Introduction

This chapter describes the environmental consequences of the different alternatives for managing the John Day Wild and Scenic River corridor and non-designated segments of the John Day River. This chapter follows the same sequence of discussion followed in Chapter 3:

1. The impacts of the alternatives on issues resolved by continuing existing management.
2. The impacts of the alternatives on issues resolved by continuing existing management with additional actions.
3. The impacts of the alternatives on issues resolved by alternatives.

The subsequent analysis assumes that every action proposed for each alternative has the potential to impact other actions. As a result we systematically ask the question, "How does _____ action impact any given issue, resource, or value associated with the John Day Wild and Scenic River?" Sometimes the answer is obviously "no impact." Sometimes a large number of actions have no impact on a particular issue or resource. Whenever appropriate the analysis that follows will minimize repetition by grouping actions that have no impact on a particular issue or action.

As required by 40CFRsec.1508.8 this analysis documents a cause and effect relationship between actions and consequences, both beneficial and detrimental. Indirect effects are frequently the result of lengthy cause and effect chains involving several resources. In order to simplify the analysis and to avoid repetition consequences described for other resources will frequently serve as the beginning point of analysis. For example it is well known that the condition and composition of upland vegetation has an impact on fish. The linkage between upland vegetation and fish is not direct. In the analysis that follows when we examine the impacts of the alternatives on vegetation we will examine how different vegetation management strategies impact the condition and composition of vegetation. When we examine the impacts of the alternatives on water quality and quantity we will show the link between vegetation condition and composition on water quality and quantity. Finally when examining the impacts of the alternatives on fish we will show the link between water quality and quantity and fish habitat and fish populations and will cite the analysis that links vegetation management to vegetation condition and composition and vegetation condition and composition to water quality and quantity rather than repeating that portion of the cause and effect chain when explaining the relationship of water quantity and quality to fish habitat and fish populations. Isolating key elements of cause and effect chains will reduce the amount of repetition of text and will dramatize the interrelationship of the various actions proposed to protect and enhance river related resources.

The effects disclosed in this chapter include direct, indirect, and cumulative effects on other ecosystem components. By focusing on each issue or resource and describing the impacts of each of the alternatives on that issue or resource the cumulative impacts analysis is built into each discussion. When the impacts of action alternatives differ by alternative, the impacts associated with the proposed decision will be indicated. There is a brief summary of our evaluation of the cumulative impacts prior to the discussion of the CEQ required disclosure. After addressing issue related effects this chapter will disclose other environmental effects and incomplete/unavailable information.

Actions Common to All Alternatives Documented by Reference

The following two management actions are Common to All Alternatives and have been subject to recent environmental analysis. For detailed consideration of the consequences of these actions please refer to the documents cited.

Noxious Weed Control

Impacts are discussed in documents cited in Chapter 3, including EA # OR-053-3-062, EA # OR-054-3-063, BLM's Northwest Area Noxious Weed Control Program FEIS (Dec. 1985) and Supplemental FEIS (March 1987) and their respective Record of Decisions, Vegetative Treatment on BLM Lands (Thirteen Western States) FEIS (1991), and the use of additional chemicals when approved for Oregon.

The district Environmental Assessments described impacts for all areas within the BLM's Prineville District and found no significant adverse impacts with the proposed treatments. These environmental assessments found that the treatments would decrease or eliminate noxious weeds in riparian, rangeland, woodland, and forest types and would prevent the dominance of noxious plant species that would limit forage and cover values of vegetation when compared to taking no action or relying on only mechanical or biological means of control.

Fire Management

Impacts are discussed in documents referred to in Chapter 3, including the Prineville District's Fire Management Plan, BLM Manual H-8550-1 (interim management policy for lands under wilderness review, 1995), BLM Manual 8351 (Wild and Scenic Rivers - policy and program direction for identification, evaluation, and management, 1992), and various Environmental Assessments written for prescribed fire projects.

These documents noted that wildfire, short of catastrophic levels, and prescribed fire would generally improve habitat conditions by diversifying habitat structure, providing short-term improvement in forage palatability, and increasing the availability of herbaceous forage plants. Some habitat changes would result in adverse impacts to species reliant on large homogeneous blocks of vegetation types. Most vegetation types are dependent on fire return intervals that have been modified over the last century. Returning these habitats to historic fire interval levels, or management close to these levels, would generally increase the quality of habitat.

Extreme wildfire that causes mortality in existing plants and soil sterilization can lead to noxious weed infestation, and may demand immediate attention for rehabilitation efforts.

Impacts of the Alternatives on Issues Resolved by Continuing Existing Management

Riparian and Aquatic Habitat Restoration

Actions considered for managing riparian and aquatic restoration, scenery, and agricultural lands have the potential to impact riparian and aquatic restoration activity.

Riparian and Aquatic Habitat Restoration

Continuation of existing management involves the planting of native riparian trees and shrubs including black cottonwood (*Populus trichocarpa*) into suitable riparian areas (riparian areas capable of supporting specific species). Outplanting would increase riparian diversity, structure and productivity in specific planting areas. Over time re-establishment of these riparian species into historic habitat would introduce and provide a residual seed source for these species, including black cottonwood, that will provide additional recruitment sources and promote the re-establishment of adequate natural production of these species into the John Day basin.

Scenery

Alternative A

Continuing existing management of visual resources would require that projects and activities proposed for public lands be designed to meet VRM standards and guidelines for the VRM classification assigned to the project area in existing RMPs.

Common to all Action Alternatives

Changing VRM classifications to provide a higher level of VRM protection on the North Fork and in all WSAs, and a lower level of protection at existing and future recreation sites, would require that projects and activities proposed for public lands in these locations be designed to meet the revised VRM standards for the project area. Proposed projects would also be designed to comply with State Scenic Waterway rules for scenery management, where applicable.

Agricultural Land Management

Alternatives A-C (Alternative C is Proposed Decision)

Each of these alternatives would allow existing riparian and aquatic restoration activity to continue.

Alternative D

Black cottonwood plantations would be discontinued due to lack of irrigation. This would require a new, less convenient source of stock to maintain the cottonwood outplanting program and would make the program more expensive.

Fish

Management of Wildlife, Native American Uses, Paleontological Resources, Cultural Resources, Information and Education, Law Enforcement and Emergency Services, and Boating Use Allocation would not alter existing condition of fish under any alternative. There are no direct actions (fish habitat enhancement projects proposed under any alternative).

Riparian and Aquatic Habitat Restoration

As discussed in impacts on vegetation, riparian and aquatic restoration would stabilize streambanks and, by the retaining of soil by the roots of trees and shrubs, create overhanging banks.

Impacts on fish and fish habitat result from:

- 1) increased filtration of water - thereby improving water quality parameters especially with regard to agricultural fields and surface runoff containing various chemicals such as fertilizers.
- 2) increased storage capacity and groundwater recharge - providing late summer season water sources to the river which would augment and enhance typical summer flows.
- 3) increased root masses - stabilizing banks and reducing sediment input to the river and providing important habitats such as overhanging or undercut banks used for cover.
- 4) allochthonous organic production which provides food specifically for fish and indirectly food for other aquatic organisms which fish eat.
- 5) shade production - buffering stream temperatures by reducing solar energy input which leads to reduced summer maximum temperatures, thereby lowering metabolic rates and increasing oxygen content within the water providing fish with a less environmentally stressful habitat.
- 6) dissipation of high stream flows - decreased velocity of high water through submerged riparian vegetation areas provides specific high flow refugia which allows fish to remain protected from high water velocities.

Though riparian and aquatic restoration activity can accelerate achievement of conditions needed to protect and enhance aquatic conditions which are the foundation of fish habitat, as described under water quantity and quality these actions can impact, at best, 2 % of the stream and river banks in the John Day River basin. Because the vast majority of water flowing through the John Day River originates and flows through miles of streams managed by other landowners before it reaches areas within the scope of the plan, the ability of the cooperators to create measurable and significant changes in water quantity and quality and subsequent changes in fish populations is severely restricted.

Fish

All actions that are designed to protect and enhance fish and fish habitat involve treatment of other resources.

Water Quantity and Water Quality

The elements of water quantity and quality that affect fish include: quantity of water, chemical and nutrient levels, and temperature. Water quantity impacts fish through the volume of water within the stream. The higher the volume the more buffering capability water has to reduce impacts to fish from changes in air temperature, solar radiation input, or introduced chemicals or nutrients. In addition higher water volume allows fish to overcome barriers that are impassable at lower flows. Chemical and nutrient levels can affect fish. Excessive pollutants such as gas and oil will kill fish at very low concentrations. Low levels of available oxygen can increase stress, limit function, and over a sufficient period can lead to mortality. Stream temperature determines metabolic rates and oxygen saturation levels. Decreased levels of specific chemicals and decreases in water temperature can improve fish habitat and remove or reduce some stressors.

Existing Management

Continuing cooperative and coordinated efforts enable watershed landowners to identify pollutant sources and pool resources to reduce inputs. These efforts would contribute to increased water quantity and reduced introduction of sediment and other pollutants, and lower water temperature during warmer periods of the year.

Additional Actions

The OWRD recommended flows for State Scenic Waterways would provide sufficient water quantity and water quality through dissipation and buffering of other water quality parameters such as chemical or nutrient levels and instream temperatures to provide for migration, spawning, and rearing of anadromous fish (Lauman 1977) at appropriate times compared to existing conditions. Adopting the State Scenic Waterway recommended flows constitutes a benchmark against which progress toward providing adequate riparian habitat for anadromous fish can be measured.

Scenery

Existing Management

There would be no impacts to the fisheries resource.

Common to All Action Alternatives

Requiring that fish enhancement projects be designed to meet interim VRM Standards could increase the costs of some projects. Most projects would not be affected by implementation of VRM standards.

Vegetation Rehabilitation and Restoration

Common to All Action Alternatives

Vegetation rehabilitation of degraded sites would improve watershed stability and ultimately have the potential to improve attributes of fish habitat.

Grazing Management

Alternative A

Continuing existing grazing management would change riparian conditions as described later in this chapter in the description of impacts of grazing on riparian vegetation. Impacts to fish habitat would include increases in water quantity and quality as described in the discussion of impacts of riparian and aquatic restoration on fish. However the area affected by grazing management would be much greater than the area affected by direct restoration activity. As a result increases in density and diversity of riparian vegetation would cover a greater area than would occur as the result of direct restoration activity alone.

Alternative B (Proposed Decision)

Same as Alternative A except that there would be an increase in diversity and density in riparian vegetation on allotments in which grazing practices would be altered (see Table 3-E). The additional 9.1 miles of riverbank that would be converted to riparian oriented management would increase fish habitat through increases in water quantity and quality as described in the discussion of impacts of riparian and aquatic restoration on fish.

Alternative C

Exclusion would increase riparian density and diversity as described in the discussion of impacts of grazing on riparian vegetation and would have the same consequence for water quality and fish habitat as outlined in the discussion of impacts of riparian habitat restoration.

Alternative D

Effects of this alternative would be the same as Alternative C. Impacts associated with upland grazing within the river corridor would be eliminated. See discussions of riparian and aquatic restoration on fish and water quality and quantity.

Agricultural Lands Management

During the irrigation season and especially during the summer months the primary fishery of concern is the smallmouth bass fishery. Colder water species such as salmonids are not present in segments 1-3 during these times of year (Segments 1-3 function primarily as a migration corridor in early spring and fall). Agricultural leases and their associated water rights have the result of removing water from instream, thereby decreasing the amount of habitat available for fish and other aquatic life. See discussion of water quantity effects on fish habitat.

The critical low flow months are August and September when average flows at McDonald Ferry (80% exceedence) are 246 cfs and 194 cfs respectively. Total consumptive use and storage in the basin are 192.6 and 128.5 cfs respectively. The water rights held by the BLM represent approximately 5% and 7.5% respectively in August and September of the 80% exceedence flows in the river.

Alternative A

Continuing existing management would maintain existing levels of water quantity and quality for fish. Continuing existing management would maintain the existing levels of water use and consumption in Segments 1-3. Total water use for all three segments would have a theoretical maximum of 9.6 cfs at any single time and a total of 1925 acre-feet of water withdrawn from the river over the irrigation season. Instream use, non-use, riparian shrub/tree propagation, wildlife food and cover, weed control, vegetation restoration, and commodity agriculture would continue.

Segment 1 - BLM has 8.7 acres of agricultural lands in this segment with approximately a 0.2175 cfs water right associated with them. Withdrawal of this amount of water in this segment represents an 0.09% reduction in river flows in August and an 0.11% reduction in September, these water removals would be imperceptible the average daily fluctuation in river flow in August and September.

Segment 2 - BLM has 278 acres of agricultural lands in this segment with approximately a 6.96 cfs water right associated with them. In 1998 approximately 107.1 acres of agricultural land in this segment were not irrigated and the associated water was left instream in the form of an instream use or non-use, this accounts for approximately 2.67 cfs. The remaining 4.29 cfs is available for use in irrigation. These numbers represent a theoretical maximum allowed water withdrawal based on this stipulations of the water right certificate. In reality actual use is far less. If the water rights were used to their maximum in this segment, minus instream flows it would take approximately 100 days removing water at a rate of 4.29 cfs in order to use associated maximum duty of 857 acre feet. Actual use for the crops grown require less than this theoretical maximum cfs withdrawal of 1/40 per acre: spring grain - 22.3 days; alfalfa - 51.7 days; and beans - 32.4 days. Therefore even with the most water intensive crop - alfalfa - the water right is only approximately half utilized, the rest of the water remains instream. However, alfalfa and beans require irrigation in August and September (alfalfa only) when water levels are the lowest. In order to produce these crops the most water withdrawn from the river would be 4.29 cfs for approximately 14 days in August and 7 days in September. This represents approximately 1.7% and 2.2% of 80% exceedence flow in these months respectively. Removal of 4.29 cfs from the river for irrigation would have a negligible effect on water quantity within the river and therefore a very minimal, unmeasurable effect on fish habitat. Approximately 2.6 cfs is allocated for commodity crop production and the remaining 1.6 cfs is used for BLM restoration projects including cottonwood plantations and wildlife food and cover plots.

In addition not all water removed for irrigation is lost to the stream, some returns in the form of overland flow and to a greater extent groundwater flow. Numbers to quantify this return flow associated with these agricultural fields are not available. This return flow acts to add water into the river and increase water quantity parameters.

Segment 3 - BLM agricultural lands in this segment have approximately a 2.425 cfs water right associated with them. Alfalfa is the most water intensive crop grown on these lands requiring a total of 51.7 days of maximum rate irrigation (1/40 cfs per acre). Approximately 95 acres are leased for agricultural production, less than half of which (33.7 acres) is used to grow alfalfa. The BLM water right represents approximately <1% and 1.25% of 80% exceedence river flows in August and September respectively. Given the crop production in this segment the theoretical maximum duty available is 485 acre-feet only approximately 248 acre-feet are used to produce alfalfa.

Overall water use by BLM agricultural leases accounts for 5% and 7.5% of flow in August and September respectively when water is withdrawn at the theoretical maximum rate of 9.6 cfs. Portions of this are leased for instream use, other parts are in non-use and not used for irrigation, the remainder used for irrigation does not approach maximum use levels and in fact uses approximately half the associated duty when producing the most water intensive crop (alfalfa) grown on these lands. Adjusting for these conditions the BLM water withdrawal accounts for approximately 0.7% and 0.9% in August and September respectively. Water use on these agricultural fields does not significantly impact water quantity in the river and has an imperceptible impact on smallmouth bass habitat.

Common to All Action Alternatives (Proposed Decision)

Exchange of 25 acres would maintain existing uses and because these lands are distant from the river bank uses would not impact conditions upon which fish depend.

Exchange of approximately 25 acres would reduce BLM water rights by approximately 0.625 cfs. This would reduce BLM water rights to approximately 9.0 cfs. Slightly more than half of BLM agricultural fields are leased for commodity production (182.4 acres) the rest are not currently in commodity production (164.1 acres) or are part of a larger privately owned field (12.1 acres). Therefore maximum theoretical water withdrawal for BLM commodity producing agricultural fields is 4.56 cfs, only approximately half of this is needed to produce alfalfa - the most water intensive crop grown on these fields - leaving approximately 2.28 cfs withdrawn from the river for irrigation. This accounts for approximately 0.9% of flow in August.

In alternatives for which commercial agriculture is permitted and during interim periods as commercial agriculture is phased out an irrigation shutoff date of August 15 would ensure that a maximum additional 4.875 cfs would remain in the river after this date. During some years the steelhead are known to enter the basin as early as mid-August. If similar or other conservation measures were taken on private lands the cumulative impact would be to provide instream conditions that would more closely approximate natural flows. This would increase the probability that early steelhead could successfully negotiate the lower reaches of the river.

Alternative B

Changes in vegetation and implementation of vegetative buffers between agricultural lands and the river would slow overland runoff and filter or absorb agricultural chemicals and sediment thus reducing introduction of pollutants into the river. This process would contribute to the quality of fish habitat.

Commitment of 164 acres to non-commodity production would maintain a water right of approximately 4.1 cfs on these lands. This water would be used for irrigation purposes designed to promote and establish trees and shrub stands, wildlife food and cover plots and upland grasses and forbs. Water rights not used for irrigation would be left instream as non-use or could be leased or transferred through the Water Resources Department and maintained as an instream water right.

Designation and implementation of a minimum 20 ft. buffer strip associated with agricultural fields adjacent to the active floodplain would serve to filter water and nutrients originating in the agricultural field. This

would serve to protect water quality as described under Riparian Habitat Management effects of water quality. Water rights associated with the remaining commodity producing acreage would amount to 4.875 cfs or approximately 2% of water flow at the 80% exceedence level. In the event that any portion of current commodity production acres goes out of leased status the current water rights would be maintained in irrigation to implement restoration and enhancement activities. Reduction in flows within the river due to BLM water withdrawal will have an imperceptible impact on smallmouth bass during the summer months.

Alternative C (Proposed Decision)

This alternative is likely to reduce the introduction of pollutants into the river because, with the elimination of commodity production, there would be a lower rate of application of fertilizers with less cultivation and reduced introduction of sediment than at present. With reduced withdrawal of water from the river more habitat would be available to fish. The additional increment would not be sufficient to benefit fish. If other users were to reduce withdrawal rates during critical low water periods in the summer expanded habitat could lower water temperature and provide more space for species that utilize the river during this part of the year. Increasing the water in the river coupled with a lower rate of introduction of pollutants would reduce the concentration of these elements in the river. Fish habitat would improve as water quantity and quality relate to fish habitat.

Short-term effects to water withdrawal would be similar to alternative B, water rights would be maintained to promote establishment of tree and shrub stands, wildlife food and cover plots and upland grasses and forbs. This would be a phased approach to restoration of agricultural fields that would extend over approximately 15 years. Long-term effects would return a greater proportion on water rights to instream uses, which could be leased or transferred to the Water Resources Department and held instream. A small portion of water would be maintained for irrigation to continue riparian and wildlife enhancement projects. Long term, the amount of water left instream would increase slightly, which would have an imperceptible effect on smallmouth bass during the summer months. The return of water to instream use, if combined with similar actions by other water users in the watershed, could improve water quality and quantity and fish habitat.

Alternative D

After native vegetation is established introduction of additional chemicals needed for agricultural production and sediments loosened by cultivation would be eliminated. Eliminating withdrawal of water from the river would increase habitat available for fish. Though greater than any other alternative, the additional increment of water kept instream would not be sufficient to significantly benefit fish. If other users were to reduce withdrawal rates during critical low water periods in the summer expanded habitat could lower water temperature and provide more space for species that utilize the river during this part of the year. This would reduce the concentration of these elements in the river. However, given the small amount of land affected compared to the total amount of land adjacent to the river, the reductions in concentration may not be measurable, and changes in habitat would not be sufficient to affect fish populations. The return of water to instream use, if combined with similar actions by other water users in the watershed, could improve water quality and quantity and fish habitat.

Short-term effects are similar to Alternative B. Transition from commodity and restoration effort to purely natural production would be phased over 20 years. In the long-term, all irrigation would cease on BLM agricultural fields, all restoration effort dependent on irrigation would also cease. This includes black cottonwood plantations and wildlife food and cover plots. This would return all 9.6 cfs (9.0 after 25 acres exchange) to instream use that would be leased or transferred through the Water Resources Department and held as an instream water right. Long-term increases in instream water, from this action alone, would have a negligible effect on smallmouth bass.

Boating Uses Levels

Alternative A

Increased use during May through October as predicted under boating use levels would increase the probability of boat/fish encounters compared to existing boating use level. Boat/fish interactions involve startling migratory or spawning steelhead and chinook. Such an event increases environmental stress levels and the possibility of displacing the fish off spawning areas. Because of the limited time salmon and steelhead are in the mainstream and because they are not present during the main boating season, encounters with floating or drifting boats would not occur with any regularity unless more boaters were to use the river much later in the fall or much earlier in the spring than at present.

As described under impacts on vegetation and impacts on water quantity and quality there is a small potential for impacts on fish. Given the small area affected by pulling boats onto the bank the proportion of riparian area subject to damage would be small.

Increasing use levels would likely result in a proportional increase in fishing. As a result fish populations may be reduced under this alternative.

Alternative B

The increased use and timing of that use predicted under boating use levels would result in the same number of boat/fish encounters as Alternative A but more evenly distributed during the main boating season. Because of the limited time salmon and steelhead are in the mainstream and because they are not present during the main boating season, encounters with floating or drifting boats (i.e. 16 launches per day with an average of 2.3 boats per launch in Segment 2 and 19 launches per day with the same number of boats in Segment 3) would not occur with any regularity unless many boaters began to use the river much later in the fall or much earlier in the spring than at present.

Changes in the stream bank vegetation would be unlikely to result in meaningful changes in fish habitat because the more even distribution of use under this alternative, compared to Alternative A would reduce the need to pioneer new campsites and landing areas.

Alternative C (Proposed Decision)

Interim daily launch targets resulting in the occupancy of not more than 70% of established campsites (8 launches in Segment 2 and 10 launches in Segment 3) would reduce the potential of startling migratory or spawning steelhead and chinook. The likelihood of increased physical stress level of salmon and steelhead due to encounters with boats would be reduced compared to Alternatives A and B.

Increased stream bank vegetation resulting from the new distribution of use under this alternative would be unlikely to result in meaningful changes in fish habitat because the total bank area subject to camping and boat landing is a small proportion of the total river frontage.

Alternative D

Setting interim daily launch targets for boats at 6 daily launches for Segment 2, and 8 daily launches for Segment 3, would have the same impacts as Alternative C, except impacts on chinook and steelhead in October would be slightly greater.

Alternative E

Same as Alternative C. Limiting motorized boat launches in March and April would prevent motorized boating from occurring at a level that would have a high likelihood of disturbing or endangering fish.

Motorized Boating

The analyses of impacts of motorized boating on vegetation and water quantity and quality indicate that motorized boating can result in physical and chemical impacts to the water and shoreline that in turn impact fish and fish habitat. These areas support a specific vegetative community of sedges, rushes and grasses that provide important habitat for fish, especially bass spawning and rearing areas. Loss of riparian vegetation and subsequent erosion reduces cover for fish.

Loss of riparian vegetation reduces riparian functioning which, in turn, may increase water temperature and the presence of pollutants and suspended sediments in the river. Salmon and steelhead are especially sensitive to these conditions.

There are two direct impacts of motorized boating. First, disturbance by the sight and sound of motorized boats can cause increased levels of startling and trigger a vigorous escape response and may disrupt spawning behavior of chinook or migratory behavior of chinook and steelhead. Such a response can lead to increased environmental stress levels in fish that can lead to mortality before spawning can take place. Second, pollution from motors can have detrimental effects on fish populations because small amounts of gasoline can prove fatal to fish. Some estimates suggest that up to 10-20% of fuel used in two-stroke engines is discharged directly into the water (Jackivicz and Kuzminski 1973a).

Alternative A (Proposed Decision for Segment 1)

In addition to the impacts described above, the impacts from motorized boating would include the impacts as described in Boating Use Levels Alternative A. As use increases these impacts would increase proportionally.

Segments 1 and 2 - Continuing to allow motorized boating from October 1 to April 30 would limit potential for impacts from motorized boating to this time period. The number of motorized boats currently using the John Day during these times is expected to increase in the future and as a result would increase the likelihood of the types of interactions described above, especially during the month of October, when migrating steelhead are in this section of the river.

Segment 3 - Continuing existing management would allow for the full range of impacts described above year round. The number of motorized boats currently using the John Day is expected to increase in the future and as a result would increase the likelihood of the types of interactions described above, especially during the months of October and November when migrating steelhead are in this segment of the river.

Common to All Action Alternatives

Closing Segments 10 and 11 to motorized boating would have little impact on fish or fish populations because there is no known motorized boating occurring at this time. This action would eliminate the potential for impacts resulting from motorized boating in the future.

Alternative B

Segment 1 - Same as Alternative A and Boating Use Levels Alternative A. In addition limiting motorized boating use to December through the end of February would reduce the impacts to migratory chinook and steelhead during the closed periods. This would also decrease physical and chemical impacts from motorized boating during the closure. Motorized boating would not be permitted when juvenile smolts are migrating downstream. As a result smolts would be free of potential adverse impacts from motorized boating.

Segment 2 - Same impacts as for Segment 1 except if WSAs become designated wilderness impacts from motorized boating would not occur downstream from Clarno Rapids

Segment 3 - April 1 to October 1 closure would reduce the potential for impacts on spring chinook and summer steelhead. Use of small electric motors during closure would not impact fish.

Alternative C

Segment 1 - Same as Alternative B

Segment 2 - Most of this segment would be closed to motorized boating year round. This would eliminate motorized boating impacts from this section of river, therefore impacts to fish via startling and increased stress levels or displacement off spawning areas would not occur. There would be a decrease in the physical and chemical impacts from motorized boating as described above. Between Clarno and Clarno Rapids impacts would be similar to those described for Alternative B. Allowing the use of small electric motors would not impact fish or fish populations.

Segment 3 - Same as in Alternative B.

Alternative D (Proposed Decision for Segment 2)

Closing any river segment to motorized boating all year would eliminate the possibility that impacts associated with motorized boating could occur in that segment. Since motorized boating occurs at low levels and seldom when use has the greatest potential for impacts eliminating motorized boating is not likely to affect fish or fish populations.

Alternative E (Proposed Decision for Segment 3)

Segments 1 and 2: Same as Alternative A except closing the river to motorized boating in October and November would reduce the period motorized boating could affect migrating steelhead and spawning fall chinook.

Segment 3: Same as Alternative B.

Dispersed Recreation

Alternative A

Impacts of dispersed camping on fish would be the same as the impacts described for boating use levels except where primary access is via road. Where access is by road impacts of dispersed camping would be the same as those described for access.

Common to All Action Alternatives

Segment 1 - Same as in Alternative A.

Segment 2 - Designating a dispersed camping area near Clarno and identifying sites suitable for camping would encourage use of these areas and decrease use in other areas. As described under impacts on water quality this action would provide habitat more suitable to the needs of fish when compared to conditions under existing management. Because the sites impacted are small compared to total drainage area of the river changes in water quality and fish habitat are not likely to be measurable.

Segment 3 - Identification of sites that can best handle human use would have the same impacts described above for Segment 2.

Segments 10-11 - Identification of sites that can best handle human use, providing signs, and installing barricades to prevent motor vehicles from entering riparian areas would have the same impacts as described for Segment 2. In addition, by keeping motor vehicles out of riparian areas, the potential for the spilling of petroleum product that could affect water quality would be reduced.

Developed Facilities

Alternative A (Proposed Decision for Segment 11)

Continuing existing maintenance schedules on developed recreation sites would not change riparian vegetation in these areas and consequently would not change cover conditions or water quality. These sites cover a small portion of the entire river corridor and any changes are not likely to impact water quality or fish habitat.

Alternative B (Proposed Decision for Segment 1-3)

The development of a boat ramp at Rock Creek would provide an opportunity for more use of the river between Cottonwood and Rock Creek. As a result of this opportunity increased harvest on smallmouth bass would occur and an increase in mortality of steelhead would result as more anglers would take advantage of the catch and release steelhead fishery.

Alternative C (Proposed Decision for Segment 10)

Impacts would be the same as in Alternative B plus the impacts associated with the development of a site at Ellingson Mill in Segment 10. Because this site is already a heavily used dispersed site trampling of riparian vegetation and compaction of soils has already occurred. By controlling travel routes and campsite location, and preventing vehicle access to riparian vegetation overland stream runoff would be reduced as would erosion and sediment transport. As a result water quality and habitat would better meet the needs of fish than Alternative A.

Alternative D

Where sites are closed there would be reduced trampling of vegetation and soil compaction than when sites are open to use. As a result vegetation would increase in vigor and density compared to the existing condition in these sites and overland stream runoff, erosion, and sediment transport would be reduced. As a result water quality and habitat would better meet the needs of fish than Alternative A. Given the small area affected the magnitude of the change would be small. In addition, without a subsequent decrease in use, other sites would be subject to increased use by recreationists displaced by the closures. New areas would be likely to be subject to increased use and associated impacts.

Public Access

Common to all Alternatives

Improved access at Priest Hole and designation of Public Access at Twickenham would be expected to result in either no change or a slight improvement in riparian vegetation, since the impacts associated with recreation use at Twickenham would be transferred to a new location, with the same amount of stream footage. Vegetation at the closed site would recover to natural conditions and use at the new site would occur on a gravel bar that is better able to handle the impacts of launching and taking out boats and rafts.

Alternative A

Because public road mileage is low in Segments 1, 2, and 3, the amount of sediment introduced into the river and water quality and fish habitat problems associated with roads is also relatively low. In other segments where roads parallel the river water quality would be subject to higher levels of introduced sediment.

Alternative B (Proposed Decision)

Improving current access would not directly impact fish; however, expected increased river use would have impacts similar to those discussed for impacts of this alternative on Dispersed Recreation. Road effects are the same as in Alternative A with the additional effect of increased disturbance in some areas. These impacts would be mitigated through proper road design and maintenance which would decrease the amount of sediment introduced into the river from roads not currently maintained.

Alternative C

Providing the maximum reasonable access to the river would increase the presence of fishermen and increase fishing pressure on fish. Additional road construction to provide access would increase effects of roads on water quality compared to Alternatives A and B. As in A or B, a reduction in the amount of sediment introduced into the river would result from maintenance of roads not currently maintained.

Alternative D

Closure of access points would decrease use in those areas and allow for the increase in riparian vegetation which would provide cover for fish and provide more filtering of runoff as described in riparian habitat management. By contributing to better water quality fish habitat would be enhanced. Reduction in access would reduce fishing pressure at locations previously accessible.

Commercial Use

Since all users must comply with regulations and since commercial use falls within any boating use level alternative, commercial use would have no impact on fish or fish populations under any alternative.

Energy and Minerals Resources

Alternative A

Continuing existing management of Energy and Minerals Resources would maintain existing risk of erosion, surface runoff, and leaching of mining chemicals and heavy minerals into groundwater. Erosion and surface runoff would continue the introduction of sediment in the river which results in sediment filling cracks in the substrate and eliminating cover for small fish and macroinvertebrates upon which fish feed. Sediment would also continue to become embedded in spawning gravels which reduces the reproductive success of salmonids. Surface runoff from mining operations can introduce toxic chemicals or high concentrations heavy metals into the waterway and create water quality conditions that do not support aquatic life. The current low level of mining has little potential to affect water quality within the Wild and Scenic River Corridor and very little within the planning area.

Alternatives B and C (Proposed Decision)

Where “no surface” occupancy for leasable mineral resources would be implemented the probability of impacts on fish and fish habitat would be reduced. New stipulations for locatable mineral extraction would reduce the probability that sediment and chemicals would be introduced into the river.

Alternative D

Closing the Wild and Scenic River corridor to mining would eliminate mining impacts from within the Wild and Scenic River Corridor.

Land Ownership, Classifications, and Use Authorizations

There are no specific proposals addressed in this plan. Impacts to resources will be discussed in future site specific proposals. Potential impacts could include increases in riparian areas associated with changed grazing management on acquired lands, or degradation or removal of riparian vegetation associated with increased human use via access and dispersed or developed recreation areas.

Wildlife

Actions considered in this plan but not discussed below would have no impact on wildlife and wildlife management.

Riparian and Aquatic Habitat Management

Continuing cottonwood outplanting would lead to increased riparian structure and therefore an increase in riparian habitat available for wildlife species.

Wildlife Management

No specific actions proposed, see description for Wildlife in Chapter 3.

Information and Education

Existing Management

Continuing the current level of information and education about controlling the spread of noxious weeds, reducing the threat of wildfire, and other information that aids in the public's education of wildlife, wildlife habitat needs, and risks to those habitats would increase the opportunity to support the protection and enhancement of wildlife.

Common to All Action Alternatives

Same as Alternative A except that information and education efforts would be increased.

Law Enforcement and Emergency Services

Existing Management

Continuing existing management would have no impact to wildlife.

Common to All Action Alternatives

Increased presence of law enforcement during hunting season would increase compliance with game laws.

Vegetation Rehabilitation and Restoration

Common to All Action Alternatives

Planting of native and desirable non-native vegetation would increase the available habitat and forage for wildlife species, especially in those areas currently occupied by noxious weeds and other non-desirable vegetation. Some non-native species would be highly utilized by wildlife.

Grazing

Upland Wildlife Habitat, Upland Wildlife Species, and Grazing

Livestock management practices that can affect wildlife habitats and populations include livestock numbers, timing and duration of grazing, animal distribution, livestock types, and specialized grazing systems (Kie et al. 1996). These practices can be modified to reduce or eliminate adverse effects on wildlife, and sometimes to enhance wildlife habitat (Severson 1990).

As might be expected, each grazing system varies somewhat in its influence on wildlife. Each may increase or decrease the abundance and quality of food and cover for wildlife, or simply affect the social interactions between livestock and wildlife (Robinson and Bolen 1989). Controlled light-to-moderate grazing will generally not damage wildlife habitat even in arid regions and most wildlife species are tolerant and some may benefit from grazing at light to moderate intensities (Holechek et al. 1989).

Livestock can affect wildlife habitat directly by removal and/or trampling of vegetation that could otherwise be used for food and cover. Unplanned or poor grazing practices frequently result in trampling of nests, reducing cover, and removing food such as insects, seeds, or fruit (Skovlin 1984). Typically poor grazing practices, if allowed to continue, result in changing the seral stage of the vegetative community. This change usually results in a shift from perennial to annual herbaceous species and an increase in woody species. Wildlife species utilizing each vegetative community will generally also shift in abundance and/or diversity.

Some grazing investigators have reported increased rodent species richness under moderate or heavy grazing pressures (Moulton 1978). In Idaho, small mammal density was lower but species richness and species diversity were higher in grazed sites. Deer mice were almost twice as abundant in the grazed area, but montane voles were more common in the ungrazed enclosure (Medin and Clary 1990). Cooperrider et al. (1986) points out that small mammals may be adversely affected by domestic livestock grazing, and added that small mammals that are added or increase in numbers are usually habitat generalists whose habitat requirements are broad.

Songbirds that nest in shrubs or trees may not be directly affected by timing or intensity of grazing, but may be indirectly affected by the stage of plant succession resulting from past grazing practices. Direct effects may be the removal of cover through grazing or browsing which may alter current feeding habits or nesting habitat (Skovlin 1984). Bock et al. (1993) in reviewing the literature reported that of 43 neotropical migratory birds, 8 responded favorably to grazing, 17 were negatively affected, and 18 were unresponsive or showed mixed responses. Wiens and Dyer (1975) suggested that ecological plasticity of many shrubsteppe birds would make them unresponsive to moderate levels of livestock grazing. Unfortunately, there have been no long-term, well replicated studies comparing the avifaunas of grazed and ungrazed shrubsteppe communities and no aspect of grazing effects on shrubsteppe neotropical migratory birds is well understood. (Bock et al. 1993).

Riparian Wildlife Habitat, Riparian Wildlife Species, and Grazing

Riparian vegetation and its structural arrangement have high value for wildlife. Many vertebrate and invertebrate species depend directly or indirectly on riparian vegetation for food, cover, or other life requisites (Kie et al. 1996). For example, of the 363 terrestrial species known to occur in the Great Basin of southeastern Oregon, 288 are either directly dependent on riparian zones or utilize them more than other habitats (Thomas et al. 1979). Riparian habitat is used by more bird species than any other habitat type within the interior Columbia basin, where 84 of 132 migrant birds use riparian vegetation for nesting, brooding, and foraging (Quigley and Arbelbied, 1997). For many riparian birds, presence or absence in a particular habitat is highly dependent on the complexity and density of vegetation structure, especially in the shrub and herbaceous layers (Dobkin 1994). In addition, riparian soils and substrates are important to amphibians, reptiles, and small mammals because these wildlife forms inhabit subsurface environments. Hence, the temperate microclimate, availability of moisture, and greater biomass production provide for complex food webs of which wildlife is a part (Kie et al. 1996).

The most direct effect of livestock on riparian vegetation is the removal of lower vegetation layers. Ground nesting birds appear to be the most negatively affected by livestock grazing (Saab et al. 1995). In a study by Ammon and Stacey (1997), artificial nests were placed in an area that had been traditionally summer grazed and one that had been rested for 30 years. Their findings indicate that livestock grazing may not only affect availability of nesting substrates for riparian birds by reducing stream side vegetation, but could influence bird populations by facilitating nest predation, possibly increasing the detectability of nests or through changes in predator assemblage.

Some ground nesting birds, such as shorebirds or waterfowl, may use emergent aquatic vegetation for nesting and usually feed in or near water. Grazing at certain seasons may disrupt nesting but not feeding, or visa versa. On the other hand, a few birds such as the killdeer benefit from grazing (Skovlin 1984).

Where grazing can be controlled in riparian habitats and seasonally light-to-moderate forage removal is practiced, the impact can be small to riparian vegetation and wildlife (Cooperrider et al. 1986). When riparian systems are grazed, moderate use during late-fall and winter, or short-term use in spring, will be less damaging than continuous or growing-season grazing (Bock et al. 1993), and would thus have less of an impact on wildlife species that use these habitat types. Impacts to wildlife by heavy domestic livestock grazing vary from moderate to extreme depending on whether grazing is seasonal or year-long. Seasonal grazing generally allows limited tree and shrub regeneration that provides some habitat and forage for wildlife, whereas heavy, year-long grazing eventually leads to removal of most, if not all, of the palatable riparian vegetation (Cooperrider et al. 1986).

It should also be noted that elk, deer, and other wildlife can also contribute to overuse of riparian areas (Kie and Loft 1990).

Grazing and Wildlife Habitat Conclusion

Food and cover requirements of one wildlife species or group are often directly opposite of another. Vegetation requirements for cover of many wildlife species are often much different than those for feeding. These requirements may also vary drastically between seasons for some wildlife species. Therefore, diversity in vegetation structure, vegetation composition, and terrain favors the highest diversity and density of wildlife. If carefully controlled, livestock grazing can be a useful tool to obtain and maintain habitat diversity (Holechek et al. 1989). Bock et al. (1993) reject the notion that livestock grazing is either universally detrimental or beneficial to rangelands and their wildlife. However, livestock are the organisms largely responsible for determining structure and function of ecosystems of which they are part.

Livestock grazing systems that provide for the physiological needs of riparian and upland vegetation would increase the suitability of these habitats for wildlife use. Even if the general trend in riparian and upland habitat is upward it is expected that some areas would respond more quickly than others. The vegetation, and therefore the different wildlife species, that different riparian and upland sites will support is based on site potential and the ability of those sites to harbor vegetation adapted to those sites.

Fences, Grazing Management, and Wildlife

Fences provide an opportunity to manage livestock grazing and can be used to attain a desired status of vegetation (Kimball 1957, Scotter 1980, Holechek et al. 1982, Kindschy 1986, Kie and Loft 1990, Severson 1990).

Fences, however, have the potential to disrupt normal movement patterns for big game (bighorn sheep, mule deer, elk, and pronghorn) which, under extreme situations, may result in death from collisions, entanglement, or entrapment (Kindschy 1996). Proper fence design and use of appropriate construction materials can reduce the adverse effects of fences. Examples of this are flagging new fences with white flagging or using white-topped fence posts to increase visibility of a newly constructed fence to wildlife (Kie et al. 1996).

Many livestock fences are built on survey lines, such as "section" boundaries, with no regard to local topography, location of water, or other biological considerations. The result, in many instances, is poor livestock distribution

and forage utilization (Sanderson et al. 1990). Big game are more likely to encounter obstruction to movement when fences contour around steep hill slopes. All wildlife suffers when portions of improperly fenced range are constantly stripped of vegetation (Kindschy 1996).

Alternative A

See description of effects of grazing management to vegetation and Table 3-E and Appendix L, which describe grazing management and changes by alternative. Riparian habitat and wildlife species associated with riparian habitat should increase with riparian oriented grazing strategies designed to improve riparian vegetation. Riparian structure, density, and diversity appear to be the most important attributes for riparian associated wildlife species, and these attributes should increase with riparian oriented grazing strategies.

Some grazing strategies generally do not implement riparian oriented grazing. These strategies include season long grazing, spring-summer grazing, and summer grazing and have the potential to decrease available riparian habitat, thus impacting those wildlife species that use riparian habitat. These types of uses can be mitigated by activities such as regular herding, short grazing periods, or close monitoring of utilization levels. In those areas where these grazing strategies are mitigated, impacts to wildlife would also be decreased.

In allotments where riparian areas would be grazed early in the spring, the potential for trampling of nests and reducing vegetative cover, thus increasing chances of predation, would affect ground nesting birds. Allotments that are grazed between March 1 and April 15 would experience conflicts between grazing and nesting waterfowl in those areas where livestock have access to riparian vegetation (see environmental consequences of recreational activity to wildlife). This is most prevalent in Segments 1 and 2.

Desired wildlife habitat conditions would be attained in upland habitats with perennial grass, forb, shrub, and tree components under this alternative for those grazing systems that are designed to maintain or increase herbaceous perennial vegetation. Some of the desired wildlife cover and structure conditions in rangelands currently influenced by annual grass species (cheatgrass and medusahead rye) may be difficult to obtain in the short or long term without rehabilitation efforts, regardless of the grazing system.

The planned construction of approximately 5 miles of new fence could result in increased wildlife collisions, entanglement, or entrapment problems.

Alternative B (Proposed Decision)

Same as Alternative A except that riparian oriented grazing strategies would be implemented on more pastures within allotments, thus having the potential to increase riparian habitat and associated wildlife species in those areas.

By eliminating the potential to graze sheep and goats (domestic or exotic) on public lands in those allotments where interactions between California bighorn sheep have the potential to occur (Appendix P), the chance of bighorn sheep/ domestic sheep and goats interactions would be reduced. This would also reduce the threat of disease transmission between domestic sheep and bighorn sheep.

The construction of 13 miles of new fence could result in increased wildlife collisions, entanglement, or entrapment problems.

Alternative C

Same as Alternative A except that, by eliminating grazing on public lands within the riparian area, ground nesting birds and nesting waterfowl in riparian areas on public land would not be affected by livestock.

This alternative would potentially include 147 miles of fence on public land and 141 miles of fence on private land for a total of 288 miles of fence along the riparian corridor. The necessity for high levels of additional fencing would increase the likelihood of some unavoidable disruption to some big game movements, increased vulnerability to predation, and injury or death due to collision or entanglement.

Where there is a need for escape from human disturbance, death losses or injury that are ultimately attributable to fencing can result. Properly designed fencing reduces the likelihood of death or injury to wildlife, but it does not completely eliminate potential for harm.

This alternative significantly increases the physical barriers that bighorn sheep would have to navigate as they utilize the river for a water source or cross back and forth to utilize habitat on both sides of the river, especially in Segment 2. An increased risk to bighorn sheep by entanglement in fences would occur because these fences would be constructed to maximize livestock control and not to recommended bighorn sheep specifications (USDI BLM Manual H-1741-1, 1989). Fencing in bighorn sheep habitat can limit bighorn use of available habitat and increase mortality. The principal limitation of fencing in areas having bighorn sheep is that they typically try to go through or under fences. Larger rams can become entangled when trying to move between the strands of wire (the wire becomes caught inside the curl of their horns). Death typically results from fighting the fence unless the wire is weak and breaks.

Alternative D

Same as Alternatives A, B, and C except more upland wildlife habitat within the Wild and Scenic River corridor would be excluded from livestock grazing.

This alternative would likely include 147 miles of fence on public land and 108.5 miles of fence on private land for a total of 253.7 miles of fence along public/private boundaries within wildlife habitat areas. The entire landscape could not be managed in a full cooperative partnership. The livestock fences that would be built on survey lines, such as "section" boundaries, generally do not take in to consideration topography and other biological considerations and would increase the collision, entrapment, and entanglement problems of fences on wildlife.

Agricultural Lands

Common to All Action Alternatives

Disposal of public parcels that constitute a portion of a larger agricultural field owned by a private party would have no impact on those wildlife species that utilize the agricultural lands. The management of the parcels is not expected to change when they are transferred from public to private ownership. The opportunity to acquire more riparian or sagebrush/grassland habitat would be realized. This would slightly increase (by approximately 25 acres) the number of acres of these types of habitats available for wildlife.

Alternatives A and B

Continuing to manage public agriculture lands under the existing guidance would provide a diversity of both agriculture land production, and the vegetation species associated with that production, and native vegetation for the use by wildlife species.

Species that would benefit from the continuation of agriculture production include: mule deer, elk, and pronghorn that utilize agriculture crops year round, but mainly during the late summer and fall months when native vegetation has cured out and many agriculture crops are still green. The tricolored blackbird, a Bureau Sensitive Species, feeds on a variety of seeds and waste grain following breeding season. Pheasants, valley quail, Hungarian partridge, and mountain quail all utilize grain crops and food/cover crops produced on agriculture fields. These species would continue to utilize those crops where these types of vegetation are grown.

On those fields where riparian shrub/tree propagation is conducted an increase in habitat for several species of neotropical migratory birds, including but not limited to mourning dove, western kingbird, American robin, yellow warbler, yellow-breasted chat, lazuli bunting, song sparrow, white-crowned sparrow, and Bullock's oriole, would occur.

Since no increase in agriculture production is proposed under this alternative, those species associated with the sagebrush/bunchgrass habitat type would not experience a decrease in available habitat.

Alternative C (Proposed Decision)

Same as Alternatives A and B except that those species that utilize commodity agriculture would have a slightly reduced available habitat and those species that utilize native habitat would have slightly increased available habitat.

Alternative D

Same as Alternatives A and B except those species that would utilize food and cover plots and annual grain crops would have reduced habitat once this alternative is completed. Those species that utilize native habitat would have slightly increased available habitat.

Recreational Activity

Recreational activity and its effects on wildlife can range from relatively minor to so severe that virtually all the vegetation is destroyed locally (Cooperrider et al. 1986). Riparian systems are very attractive to recreationists when they contain water, interesting plants and animals, shade, and numerous other enjoyable features in the otherwise arid and semiarid environments (Cooperrider et al. 1986). Recreational activities that can affect wildlife include, but are not limited to; boating, angling, bird watching, swimming, camping, picnicking, and walking.

Construction of campgrounds/campsites in riparian zones enhances the opportunity for human/wildlife conflict but simultaneously decreases the value of the riparian zone as wildlife habitat because of disturbance by humans, trampling, soil erosion, compaction, and loss of vegetation (Settergren 1977). Many forms of wildlife leave areas with recreational impacts and others, such as lizards, snakes, frogs, and salamanders, are either intentionally or accidentally destroyed (Cooperrider et al. 1986). The more campsites that occur in an area, the more riparian habitat that potentially could be impacted, and the more chances of human/wildlife interaction.

Liddle and Scorgie (1980) state that all recreational activities carried out on the shores of water bodies are potentially disturbing to animals living at the water margin and also occupying the surface. Birds are apparently most seriously affected and other groups may be equally sensitive to public pressure but, because they are less conspicuous and less easily studied, their responses may go undetected. Species such as beavers, river otters, California bighorn sheep, mule deer, upland game birds and neotropical migratory birds are also affected by recreational disturbance in the John Day River corridor.

Because Segment 1 and most of Segment 2 occur in the John Day Wildlife Refuge, waterfowl, namely Canada geese (*Branta canadensis*), will be discussed in detail. To determine impacts of recreational activity to Canada geese, a closer examination of the breeding and post-breeding season is needed. The BLM found no studies on the chronology of breeding and post-breeding activity on the John Day River. Information by Bellrose (1976) will be used to describe, generally, the breeding and post-breeding activity by Canada geese. Canada geese appear to begin nesting along the John Day River as early as the first part of March, the earliest of the waterfowl species. Females incubate the eggs for an average of 25 to 30 days. The average clutch size is 4 to 7 eggs. On average, goslings fly within 50 to 75 days of hatching. Adult Canada geese generally molt, rendering them flightless for a period of 3 to 5 weeks while raising their clutches, and regain their flight feathers about the time their young reach flight stage. If a nest fails, adults generally will attempt to re-nest.

Disturbance appears to affect waterfowl most during the nesting and brood rearing stages of development. The biggest losses come when parents get flushed from the nest disrupting incubation, predation or destruction of the nest itself, and separation of goslings from their parents early after hatching increasing mortality and predation.

Broods of Canada geese seem to be most susceptible to human disturbance during the first few weeks after hatching, but older broods seem to be relatively tolerant of repeated human disturbance (Eberhart et al. 1989). Sherwood (1965) also found that family ties of Canada geese are fragile during the first 3 to 4 weeks of life, and a brood unit could be easily broken up. Parents in this study headed for the water after a disturbance and some goslings were lost in dense vegetation. Parents usually swam off without goslings that could not follow. Desertion of Canada geese nests can be minimized in areas with much human activity by regulating fishing seasons and access during the nesting season (Krohn and Bizeau 1980). The greatest recreational damage to a Canada goose population on the Columbia River was harassment caused by picnics, beach parties, and photographing nests (Hanson and Eberhardt 1971). If waterfowl use heavily fished bodies of water for breeding, resting, or feeding, they will be disturbed often by anglers who use boats or fish from the banks (Johnson 1964).

Motorized boats caused goose families to flee and broods to separate making goslings susceptible to predation in a study by Mickelson (1975). The author suggested that human activities such as boating be restricted on waterfowl nesting and brood-rearing grounds to reduce predation on young birds.

For analytical purposes it is assumed that the majority of the Canada geese on the John Day River initiate nesting between March 1 and March 15. Incubation would end between March 26 and April 15. The average date at which adults would fly after molting and young would begin the flight stage would be sometime between May 15 and June 29.

Boating Use Levels

Alternative A

Unrestricted numbers of boaters proposed in Alternative A would have the potential to displace many riparian wildlife species including nesting waterfowl, and could lead to the degradation of riparian vegetation, further affecting wildlife species that use the riparian habitat type. The majority of the boating use in Segments 1,2, and 3 in 1998 occurred in May, June, and July (852 launches and 2075 boats). This is after most waterfowl nesting and incubation has occurred, and throughout the period in which waterfowl are raising young. There was some use during March and April (77 launches and 127 boats) which would potentially cause disturbances to nesting and incubating waterfowl. Boating use is expected to grow at a 4% annual rate which would increase the number of disturbances to wildlife. Increased use is expected to occur from May through October, with most additional launches occurring on weekends and holidays in May through July.

Disturbance to other wildlife species that utilize the river corridor such as beaver, river otters, California bighorn sheep, mule deer, upland and neotropical migratory birds would potentially occur with the most disturbances occurring during the time that these species are actively involved in the raising of their young.

Alternative B

Targeting the number of launches for overnight trips at 1998 levels would have impacts similar to Alternative A except this alternative has the potential to spread boating use throughout the week, instead of just on the weekends. New and repeat boaters would be asked to voluntarily launch on weekdays to maintain daily launch levels at or below 1998 levels. This would potentially increase the number of disturbances to wildlife on weekdays where there were typically less launches. It is assumed that the total number of disturbances would still continue to grow at 4% annually.

Fewer numbers of launches per day would mean less campsites are needed per day, which would decrease the likelihood that new campsites would be pioneered and habitat and associated wildlife species would be less likely to be disturbed.

Alternative C (Proposed Decision)

Alternative C is similar to Alternatives A and B except that targeting a further reduction in daily launches for overnight trips would increase the numbers of launches on weekdays, decreasing the number of disturbances per day on weekends, and shifting some new and existing use to the month of April during waterfowl nesting and incubation periods.

Alternative D

This alternative is the same as Alternatives A and B except that target launch levels for overnight trips would be the most restrictive, allowing the least number of launches per day. In addition to moving the new and repeat use to weekdays, this alternative would move more use to the months of March and April during waterfowl nesting and incubation periods.

Alternative E

This alternative is the same as Alternative C, except that limiting launches of motorized boats to 1 per day in March and 2 per day in April would limit the amount of disturbance of wildlife by motorized boats during those months.

Motorized Boating**Alternative A (Proposed Decision for Segment 1)**

Continuing to close Segments 1 and 2 to motorized boat use from May 1 to October 1 would provide protection to waterfowl in the John Day Wildlife Refuge during post hatching activities, but not during the most critical times of nesting, incubation, and brood rearing.

Disturbance to other wildlife species that utilize the river corridor such as beaver, river otters, California bighorn sheep, mule deer, upland and neotropical migratory birds would potentially occur.

Winter use by motorized boats, which would also occur under this alternative beginning October 1, can be detrimental to waterfowl if it reduces energy intake so much that it cannot be compensated by either increasing the rate of food intake during undisturbed periods or avoiding disturbance by nighttime feeding. In a study by Belanger and Bedard (1990) the energetic consequences of snow goose (*Chen caerulescens*) responses to disturbance were examined. The study found that more than 2.0 disturbances per hour may cause an energy deficit that no compensatory behavior mechanism (e.g. feeding at night) can counterbalance. The BLM assumes the consequences to Canada geese would be similar to those found in this study. However, current motorized boating use on the John Day River during the winter (registered users show 2 total launches in 1998 for the combined months of October - February, **Table 2-V**) is far less than that level which was determined by Belanger and Bedard (1990) to cause a detrimental energy deficit. An increase in motorized boating to a level that approaches 2.0 disturbances per hour would cause justified concern. It should be noted that one motorized boat, depending on the length of time on the river and the number of trips up and down the river, can cause multiple disturbances.

Although no motorized boating occurs in Segments 10 and 11, the potential for disturbance would still be possible under this alternative.

Alternative B

Closing Segments 1 and 2 to motorized boating from March 1 to December 1 would provide protection to waterfowl from motorized boats during nesting, incubation and brood rearing activities in the John Day Wildlife Refuge. Disturbance to wintering waterfowl would still have the potential to occur from December 1 to March 1. If the WSA's in Segment 2 become designated and recommendations to allow no motorized boating are adopted, no disturbances from motorized boats to waterfowl would occur within the boundaries of those WSA's. Closing Segment 3 from April 1 to October 1 would provide protection to waterfowl after the majority of clutches are hatched, but would not provide protection during the incubation and start of the hatching period. Disturbance to wintering waterfowl would still have the potential to occur.

Although no motorized boating currently occurs in Segments 10 and 11, this Alternative would ensure that no future disturbances to wildlife would occur.

Alternative C

Closing Segment 1 from April 1 to December 1 (within the John Day Wildlife Refuge), and Segment 2 between Clarno and Clarno Rapids from April 1 to October 1 (outside the John Day Wildlife Refuge) would provide protection to waterfowl after the majority of clutches are hatched, but would not provide protection during the incubation and start of the hatching period. Disturbance to wintering waterfowl and other wildlife species would still have the potential to occur.

Closing Segment 2 below Clarno Rapids year round would provide protection to waterfowl and other wildlife from motorized boating disturbance within that portion of the John Day Wildlife Refuge.

Segment 3, Same as Alternative B.

Segments 10 and 11 would have the same impacts described for Alternative B.

Alternative D (Proposed Decision for Segment 1)

No impacts to waterfowl or other wildlife species would be observed.

Alternative E (Proposed Decision for Segment 3)

Same impacts as Alternative A in Segments 1 and 2 except extending closure to motorized river travel during October and November would eliminate impacts from motorized boating on wintering waterfowl during these months. Impacts to Segment 3 would be the same as Alternative B.

If WSAs are designated Wilderness, closing WSAs to motorized travel would eliminate potential impacts from motorized river travel from within Wilderness segments of the river.

Dispersed Recreation

Alternative A

See impacts to vegetation and fish from Dispersed Recreation.

Common to All Action Alternatives

The LAC would determine what changes need to be made to prevent damage to wildlife resources.

Developed Recreation

Alternative A (Proposed Decision for Segment 11)

See impacts to vegetation and fish from developed recreation.

Alternative B (Proposed Decision for Segment 1-3)

Development riparian areas would result in a small loss of riparian habitat. See impacts to riparian vegetation.

Alternative C (Proposed Decision for Segment 10)

Similar to Alternatives A and B. See impacts to riparian vegetation.

Alternative D

See impacts to riparian vegetation

Public Access

Alternative A

Existing levels of human/wildlife disturbance would continue.

Alternative B (Proposed Decision1)

Improving existing access has the potential to cause a slight increase in human/wildlife disturbances.

Alternative C

Same as Alternative B except that the potential for human/wildlife disturbances would increase. See also impacts to riparian vegetation and fish.

Alternative D

Reducing public access would reduce the potential for human/wildlife disturbances.

Commercial Use

Commercial use would not affect wildlife under any alternative, because use levels are determined by boating use levels.

Native American Uses

A number of alternatives would impact Native American Indian uses, although the degree to which those uses would be affected is unknown. Action alternatives related to access and vegetation would have the most direct effect. Preventing vehicle access to selected public lands, for example, would certainly limit use of those areas by a segment of the Native American Indian population, but not all. Alternatively, the same action could protect known use areas from the effects caused by general, unrestricted activities. Action alternatives which aim to increase the habitat structure and diversity of riparian and upland vegetation within the scope of the plan can provide increased opportunities for Native American Indians to collect traditional food and product species.

Impacts of the Alternatives on Issues Resolved by Continuing Existing Management and Additional Actions

Water Quantity and Quality

Alternatives involving actions directly addressing the following issues would have no impact on water quantity and water quality: Fish Management, Wildlife, Native American Uses, Paleontological Resources, Cultural Resources, Law Enforcement and Emergency Services, Boating Use Allocation, and Commercial Use.

The following describes or references impacts of the alternatives on water quantity and quality.

Riparian and Aquatic Habitat Restoration

A properly functioning riparian area performs various functions:

Dissipation of stream flow energy - Riparian vegetation functions to reduce the velocity of water at high flow periods by increasing the hydraulic resistance to flow and therefore reduces the energy and erosive capacity of the water (Schumm and Meyer 1979). Riparian areas also function to dissipate energy associated with surface runoff by dispersing and slowing the surface runoff from agricultural land areas and other up slope areas thereby decreasing the water's erosive potential. The ability of a site to dissipate stream flow energy is unique to each site.

In most of the John Day River the majority of the riparian zone is flooded during part of the growing season and dry during the mid to late summer. There are several riparian ecological sites that have distinct potential plant communities. Some of these sites have potential for dense riparian plant communities, others do not. In areas where the soils are not developed enough to moderate the annual wet - dry cycle, vegetation is either lacking completely or restricted, above the normal high water line, to plants like service berry, hackberry, mock orange and various annual and perennial grasses and forbs. These plants have only a limited ability to dissipate stream flow energy, filter sediment and nutrient, or store and recharge groundwater.

Where management has been implemented which meets the physiological needs of plants, vegetative communities are coming into balance with the potential of the site. In areas where soils are developed and well-drained, more shrubs occur which are traditionally considered 'riparian', such as willow and alder, and some sites historically supported Cottonwoods. Willow communities along the river have been increasing (see BLM, 1996a, monitoring studies presented in Appendix L) Where water flow is slow or where saturated soil conditions last longer into the growing season, sedges and rushes define more of the plant composition.

The riverine terrace includes the primary terrace immediately adjacent to the river, as well as any secondary or tertiary terraces above. Depending on the subsurface water regime, the zone is more or less a transition between riparian and upland vegetation. The vegetation on these (typically) deeper soils is sagebrush, annual grasses, Great Basin wild rye, a mix of perennial bunchgrass and forb species, and western juniper.

Riverine terraces are formed from abandoned flood plains. When the John Day River channel eroded, the water table dropped and the flood plain soils drained. Vegetation on the abandoned flood plain changed because of lack of subsurface water to more xeric plants, such as sagebrush and annual grasses. These terraces are no longer available to the River during bankfull stage to dissipate stream energy or filter sediment and nutrients. The latest erosional event which developed these terraces could have been exacerbated by land management activities which increased the susceptibility of the basin to erosion and disrupted the hydrological function of the watershed. The period of adjustment which follows down cutting of a channel includes a widening of the channel and the construction of a new flood plain within the confines of the eroded channel.

Sediment and Nutrient Filtration - During high flow periods much of the sediment load within the stream is the result of bank erosion from unstable streambanks. Riparian vegetation reduces the transport rate of sediment and nutrients by holding streambank soil intact via roots and also increases the hydraulic resistance to water at high flows. This, in turn, decreases water velocities while increasing sediment deposition within riparian areas. Sediment deposition is part of the process that builds and stabilizes streambanks. Nutrient filtering performed in riparian areas can help control agricultural non-point source pollution (Lowrance et al. 1985).

Store water and recharge the groundwater aquifer - Infiltration of surface runoff is high in properly functioning riparian areas due to the dissipation and slowing of overland flow which allows more water to seep into the riparian soils and subsequent groundwater aquifer. This allows for some storage of water during periods of high runoff that is discharged during later, drier periods and serves to maintain stream flow.

Shade-Producing Capability - Riparian vegetation produces shade according to size and extent of vegetation, and proximity to the stream. Black cottonwood, when mature, will produce more streamside shade than the mature, low growing willow now present within the John Day River corridor. Shade presence along stream banks reduces the input of heat energy from solar radiation into the stream. Reduced input will decrease the amount of stream temperature fluctuation experienced during the summer. This leads to reduced summer maximum water temperatures. Elevated stream temperatures affect fish, salmonids in particular, in two important ways: 1) body metabolism in cold-blooded species is controlled by environmental temperatures, the warmer the environment (i.e. the water) the higher the metabolic rate. Salmonids such as trout, salmon and steelhead function optimally at lower environmental temperatures than warmwater species, such as smallmouth bass, located within the John Day River. When water temperatures rise and the metabolic rate of salmonids increases, energy needs, even when at rest, increase. In order to compensate for this condition the salmonid must consume more food or convert stored body reserves to energy. Either response increases the need for food and the expenditure of more energy in the search for more food. If high temperatures occur over a sufficient time mortality can be the result. Conversely, warm water species, such as smallmouth bass, can be stressed when water temperatures drop below their optimum range, decreasing metabolism and thereby decreasing the amount of energy the fish has for evading predators, foraging, and reproducing. This condition can also lead to mortality if the condition persists for a sufficient period of time. 2) Oxygen-carrying capacity of water is lowered as temperature increases; therefore, the warmer the water, the less 'breathable' oxygen is available for fish to use. Higher water temperatures create higher environmental stress levels in fish and low oxygen levels over a sufficient period can lead to fish mortality. The specific level that is detrimental depends on species. For example, cold water fish species (such as trout and salmon) require more dissolved oxygen for survival than do warm water species (such as smallmouth bass). Therefore, an increase in stream temperature could be detrimental to salmon and trout while actually improving habitat for smallmouth bass.

Food Production Capability - riparian areas are important nutrient cycling areas with respect to instream ecosystems. Riparian vegetation produces most of the detritus (such as dead leaves, plants, twigs, and insects) that supplies as much as 90 percent of the organic matter necessary to support aquatic communities (Campbell and Franklin 1979), or 54 percent of the organic matter ingested by fish in a large river (Kennedy 1977).

Net changes in aquatic conditions resulting from improved functionality of riparian sites would not be immediately detectable. Riparian influence in the river corridor is inversely proportional to the width of the river, i.e. the wider the river the less influence the riparian vegetation exerts on the river. As management continues, increases in riparian functionality will be observed as more riparian areas are treated with cottonwood outplantings and the trees planted previously grow and mature.

Impacts of Water Quantity and Quality Management

Existing Management

Existing cooperative and coordinated efforts would contribute to increased water quantity and reduced introduction of sediment and other pollutants, and lower water temperature during warmer periods of the year.

Additional Actions

Implementation of additional coordination between John Day River watershed stakeholders would increase the likelihood that additional water could be made available for instream beneficial uses while still meeting the offstream needs of agricultural users. This would encourage watershed stakeholders to better identify pollutant sources and pool resources to implement land management practices that protect and enhance instream water quantity and quality. Such combined efforts would ultimately contribute to increased water quantity and reduced introduction of sediment and other pollutants, and lower water temperature during warmer periods of the year.

Implementation of Alternatives A and B (**Proposed Decision**) for Grazing and Alternatives A, B, and C (**Proposed Decision**) for Agricultural Lands require that the BLM continue to actively manage much of the BLM land adjacent to the river. By protecting and enhancing river values while employing specific management techniques appropriate for specific sites, the BLM would continue to influence private land management by both example and by participation in watershed councils and other cooperative management opportunities. When coupled with management of BLM lands the likelihood of significant improvement in instream condition would be increased compared to relying simply on management of BLM lands to improve water quantity and quality within the designated Wild and Scenic River.

Implementation of and Alternative D for irrigated agricultural lands would be likely to reduce the BLM's opportunities to influence cooperative management. The BLM is not likely to be viewed by private landowners as a potential cooperator regarding agricultural land management if it no longer manages lands for agricultural commodity production.

Similarly, withdrawing grazing from BLM managed riparian areas (Alternative C) or from BLM managed lands within the Wild and Scenic River Boundary and from BLM managed lands within 1/4 mile of the river in undesignated segments (Alternative D) would reduce the BLM's opportunity for implementing cooperative grazing practices within the John Day Basin. These alternatives would depart from recent changes in the management of BLM lands adjacent to the river that have resulted in increases in the density and diversity of vegetation at monitored sites. They would effect change by removing grazing from these areas rather than managing grazing within these areas. By eliminating grazing the BLM would no longer "share" the same set of issues with other landowners who continue to graze cattle within the river corridor and would lose the opportunity to demonstrate within the river corridor how riparian oriented grazing can protect and enhance ORV's but still provide economic benefits equal to or better than other land management techniques. An example of the anticipated response to implementation of the alternatives for grazing and agricultural lands is found in the following comment on the Draft Management Plan and EIS,

The restoration efforts that the landowners, BLM, ODFW, Tribes, Counties and others have implemented have made a beneficial difference in the overall health of the John Day River. These efforts have overflowed into the tributaries as well as with the different watershed groups such as Ferry Canyon, working toward improving the conditions in the John Day Basin. The Preferred Alternative B is best for all stakeholders involved. It keeps the positive progress with regards to watershed restoration moving forward and will not alienate the stakeholders. Alternatives C and D are too extreme, and we believe will lead to dissolution of the partnering and cooperation that has been built.

Information and Education

Specific attention to water quality and quantity issues at user sites along river could lead to behavior modifications that lead to an increase in water quality and water quantity. Continued work with all user groups to educate and become more involved with water quality and water quantity management would increase water quality and water quantity in proportion to the amount of education and application of water quality and water quantity enhancing management actions.

Private Land Uses

See discussion of water quality issues with respect to Senate Bill 1010 under impacts of private land uses to fish and fish management.

Scenery

There would be no negative impacts to water quantity and quality as a result of any actions described for scenery. State Scenic Waterway Rules involving scenic quality would reduce the potential for development and therefore would decrease the potential for water quality and water quantity impacts. Where these rules require vegetative screening of developments an increase in vegetation and/or large tree component would lead to an increase in plant diversity and an increase in surface water infiltration into soils.

Vegetation Management

Management of vegetation through management of grazing, cultivated agriculture, and restoration activity has the potential to impact water quantity and water quality by altering the ability of the land to, as described by Bedell and Borman (1997), capture and store water and as a result to delay and spread, over time, the release of water. These functions are achieved by increasing infiltration of moisture, reducing overland flow in response to precipitation, and increasing the time and amount of water temporarily stored in the ground. Lowrance (1985) has demonstrated that the greater the percentage of ground covered by native grasses the more infiltration into the ground occurs and the less overland flow occurs. As a result the contribution of groundwater to stream flow increases but is delayed when compared to overland flows, thus increasing the amount and duration of flow during natural low flow periods (summer and fall) when compared to flows occurring when lower levels of native perennial grasses are present.

Most desirable non-native species have roots systems similar to native species. When both native and non-native species are planted on sites that are dominated by noxious weeds, annual vegetation and/or reduced perennial vegetation, and other disturbed sites, an increase in watershed functions as described above would be observed.

Management actions such as excluding grazing from riparian areas (by fencing and creating water developments away from the river), limiting duration and season of use in riparian areas, rangeland seeding of perennial vegetation, and creating riparian buffers between cultivated lands and the river) (USDI-BLM 1993, 1998) have been demonstrated to increase water tables and subsequently increase late summer instream flow (Barber 1988; Elmore 1998; Elmore and Beschta 1987; Jensen et al. 1989).

Such management actions do more than increase summer and late season flow. Increased upland and riparian vegetation retains more sediment than lesser amounts of vegetation. Retaining sediment consequently builds up streambanks, thereby creating narrower and deeper stream channels. Because retained sediments are not available for suspension in the river turbidity levels are reduced and the amount of sediment available to precipitate to the bottom of the channel also decreases. Thus not only does retention of sediment build up streambanks but it also reduces the tendency of streams that would otherwise have a high sediment load to build up layers of sediment on the bottom of the channel and thus decrease depth and spread out water over a wider area. Because of a smaller capacity to absorb energy narrower, deeper rivers are cooler than wider, shallower rivers (all conditions otherwise being equal).

Groundwater contributed to the stream channel in summer stream is generally cooler than surface water. Therefore, increasing groundwater flow can increase vegetation, which can reduce the temperature of instream flows.

In summary, any action that would promote appropriate upland and riparian vegetation would be likely to delay runoff, increase summer and late season flow, and decrease water temperature during the summer and turbidity during high flow periods.

As described in Chapter 2, the John Day River system is subject to dramatic fluctuations in flow from year to year, season to season, and even day to day. As a consequence, the impacts of any actions on water quantity and quality are likely to be measurable as broad trends only after many decades of monitoring, with continued dramatic yearly, seasonal, and daily fluctuations.

Vegetation Rehabilitation and Restoration

Common to All Action Alternatives

The emphasis on use of native and, where appropriate, desirable non-native species mixtures would increase the vegetative diversity. This is especially true on those typical sites that native/non-native seed mixtures would be used such as noxious weed infested areas, areas dominated by annual grasses, and disturbed or degraded sites. Some desirable non-natives will eventually disappear from the stand leaving room for native expansion. For those desirable non-natives that persist, the potential to replace those species with native vegetation would be lost. In many cases, if desirable non-natives are not used initially for competition, an undesirable non-native or noxious weed community would persist.

Agricultural Land Management

Alternative A

Continued existing management of the commodity and non-commodity crops located on public land would maintain existing riparian conditions. Removing water from instream and spreading it over agricultural fields would decrease instream flow but some portion of this water would seep into the ground and pass through the soil and eventually back into the stream. Other portions would be completely lost to instream uses through evaporation, transpiration, and metabolism/photosynthesis within the agriculture crop.

As described in Chapter 2, specific crops require different amounts of water at different stages of growth. Lack of a riparian vegetation buffer strip between many agricultural fields and the river reduces the opportunities for chemical filtering, retarding overland flow, or seepage into groundwater before irrigation water re-enters the river.

Water use for public land irrigation and subsequent reduction of river discharge would vary within the legal allocation identified in the water right, not to exceed 1/40 cfs per acre, with a theoretical maximum use in the John Day River of 9.6 cfs over 114 miles of river. This is approximately equivalent to 0.37% of the John Day River basins total water rights estimated in OWRD (1986). Changes in the John Day River discharge and water quality (such as temperature and turbidity) would likely not be measurable due to relative amount of water used at each location, spatial relation between agricultural lands, and variation in actual use both in duration (time), rate (cfs), and duty (acre-feet).

Potential nutrient and pesticide inputs are expected to be minimal and have no observable consequences due to the slope of the fields (less than 1%), elevation of the fields relative to water surface during irrigation (approx. 5 to 10 feet), and the existence of vegetation and lateral distance between fields and river during irrigation. The primary source of nutrient and pesticide input from agricultural fields into water is through surface soil erosion from agricultural fields. Surface erosion associated to agricultural fields would be minimal to non-existent due to the above parameters. In addition, irrigation is primarily conducted with sprinkler systems which further limits potential runoff. Where flood irrigation is conducted runoff from irrigation would not flow into the river because fields are sloped away from the river. Potential subsurface movement of nutrients and pesticides would again be limited by the parameters previously discussed. Existence of vegetation and soil micro-organisms between fields and the river would further reduce potential input into the river. Where active bank erosion along agricultural fields occurs, the potential for sediment, nutrient, and pesticide introduction does exist. This is limited to approximately 500 feet of river bank. It is possible that fertilizers and pesticides would remain in the watershed, although not introduced into the river

Management Common to All Action Alternatives

Exchange of 25 acres of agricultural lands not immediately adjacent to the river and associated water rights would not result in any observable environmental consequences.

Alternative B

Same as Alternative A, plus: Designation of a 20-foot buffer strip between public agricultural lands directly adjacent to the active floodplain would enable this area to filter herbicides, pesticides, and other chemicals as described in Riparian Habitat Management. Buffers that are properly installed and maintained have the ability to: 1) remove up to 50% of nutrients and pesticides; 2) remove up to 60% of certain pathogens; and, 3) remove up to 75% of sediment as noted in a Natural Resources Conservation Service's information bulletin - Buffer Strips: Common Sense Conservation. Cooperation and coordination with lessees to improve water management practices with regard to crop production and irrigation water removal would increase the efficiency of water use and decrease the amount of water removed from the stream. This would increase water quantity in the river and increase the buffering capacity with regard to chemicals and temperature of the water remaining in the river. The amount of additional water kept instream would be small compared to total river flow, even during the low flows of August.

Alternative C (Proposed Decision)

Eliminating all public land commodity production would provide more water for instream use since less would be needed for commodity production. Less water would be removed from the stream during low flow periods, this would increase water quantity and quality during low flow periods. This alternative would also eliminate the pesticide and fertilizer inputs to the watershed that are associated with commodity production.

Alternative D

Eliminating irrigation and restoring natural vegetation in these fields would eliminate presence of pesticide and fertilizer chemicals that could move into the water table and eventually the river. In addition this alternative would promote native vegetation within agricultural fields that would function to reduce surface flow and overland runoff. This would increase water quality and quantity and fish habitat as discussed in Riparian Habitat Management.

Boating Uses Levels

Alternative A

Water quality would not change dramatically, because bank area affected by camping and boating use is small compared to the total mileage of river bank.

Alternative B

Maintaining peak use levels would not change water quality because overall use level would remain the same and changes in the condition of campsites are not expected.

Alternative C (Proposed Decision)

Reducing peak use levels would have no immediately measurable impact on water quality, because the riparian area that would have increased riparian vegetation would small compared to the total miles of riverbank.

Alternative D

Same as Alternative C.

Alternative E

Same as Alternative C, except that limiting launches of motorized boats to 1 per day in March, and 2 per day in April, would reduce the potential for introduction of pollutants or other consequences during those months compared to alternatives that permit unlimited motorized boating during the same months.

Motorized Boating

Motorized boating can result in physical and chemical impacts to the water and shore-line. These impacts include: wash (movement of water resulting from its displacement by the movement of a boat across the water), propeller action, direct contact, and pollution from petroleum powered motors. These impacts depend on amount and extent of boat use within the water body. Wash associated with motorized boating depends on the size of craft (related to amount of water displacement) and the speed and power of the craft. Wash causes bank erosion when water crashes against the bank. The amount of erosion depends on the size, force and extent of the wash. Wash also causes turbulence which stirs up sediment on the stream bottom, increasing turbidity. Erosion results in a loss of root stabilization which leads to a decrease of submerged, emergent and floating plants, loss of plants in turn leads to less stable banks and more erosion. Propeller action from an outboard motor can disrupt the stream bottom and uproot vegetation. Direct contact involves collision with the stream bank that results in removal of emergent or submerged vegetation. These areas usually coincide with dispersed camping or day use areas and also are chosen from the sand/small gravel/sediment substrate that does not scratch or damage boat hulls when put aground. There is a much higher potential of fuel and oil being introduced into river from motorized boats (either accidentally or through the normal functioning of two-stroke engines) than other recreation uses. Although magnitude of leaks or spillage is very small in relation to the amount of water in the river, it only takes a 1 ppm (part per million) concentration to be lethal for fish. This could decrease water quality and prove lethal in small localities to fish species within the river. Some estimates suggest that up to 10-20% of fuel used in two-stroke engines are discharged directly into the water (Jackivicz and Kuzminski 1973a).

Alternative A

With predicted levels of increased usage this alternative would have the highest probability of the types of impact described above compared to the other alternatives.

Segments 1 and 2 - Allowing motorized boating from October 1 to April 30 would limit potential for impacts from motorized boating to this time period. The small number of motorized boats currently using the John Day during these times would reduce the likelihood of the types of impacts described above.

Segment 3 - Continuing existing management would allow for the full range of impacts described above. The small number of motorized boats currently using the John Day during these times would reduce the likelihood of the types of impacts described above.

Common to All Action Alternatives (Proposed Decision)

Closing Segments 10 and 11 to motorized boating would have little impact on water quality because there is no known motorized boating occurring at this time. This action would eliminate the potential for impacts resulting from motorized boating in the future.

Alternative B

Segment 1 - Same as Alternative A and Boating Use Levels Alternative A. In addition limiting motorized boating use to December through March 30 would reduce the physical and chemical impacts on water quality during these closed times.

Segment 2 - Same impacts as for Segment 1 except that duration of motorized boating closure would be reduced and physical and chemical impacts on water quality would occur during these open times.

Segment 3 - Same as Segment 2. Use of small electric motors during closure would result in low levels of impacts on water quality, compared to internal combustion motors, because of reduced wash, propeller action, direct contact, and the absence of fuel.

Alternative C

Segment 1 - Same as Alternative B

Segment 2 - Most of this segment would be closed to motorized boating year round. This would decrease the duration that physical and chemical impacts from motorized boating could occur. Between Clarno and Clarno Rapids impacts would be similar to those described for Alternative B. Use of small electric motors during closure would result in low levels of impacts on water quality, compared to internal combustion motors, because of reduced wash, propeller action, direct contact, and the absence of fuel.

Segment 3 - Same as in Alternative B.

Alternative D

Closing all river segments to motorized boating all year would eliminate the possibility that impacts associated with motorized boating could occur. Since motorized boating now occurs at low levels, eliminating motorized boating would not be likely to measurably affect water quality based on existing use level. Eliminating motorized boating could make a measurable difference compared to Alternative A (if large numbers of motorized boats were to operate on the river in the future).

Alternative E

Closing Segments 1 and 2 to motorized boating from May to December and Segment 3 to motorized boating from May to October would eliminate the possibility that impacts associated with motorized boating could occur during those months. Since motorized boating now occurs at low levels, eliminating motorized boating would not be likely to measurably affect water quality based on existing use level. Restricting motorized boating could make a measurable difference compared to Alternative A (if large numbers of motorized boats were to operate on the river in the future).

Proposed Decision

Maintaining the existing motorized boating restrictions in Segment 1, closing Segment 3 to motorized boating from May to October, and closing Segment 2 year-round, would eliminate the possibility that impacts associated with motorized boating could occur during these months. Since motorized boating now occurs at low levels, eliminating motorized boating would not be likely to measurably affect water quality based on existing use levels. Eliminating motorized boating during these time periods could make a measurable difference compared to Alternative A (if large numbers of motorized boats were to operate on the river in the future).

Dispersed Recreation

Alternative A

Under existing management riparian vegetation in areas accessible only by river would be reduced in density and diversity with impacts on water quantity as described for the impacts of boating use levels on water quantity and quality.

In areas with roaded access the impacts of dispersed recreation would be the same as the impacts of public access on water quantity and quality.

Common to All Action Alternatives

Segment 1 - Same as Alternative A

Segment 2 - Designating camping areas near Clarno and identifying sites suitable for camping would encourage use of these areas and decrease use in other areas. This would direct use away from riparian areas and allow riparian vegetation to grow without the trampling and soil compaction associated with camping. As a result vegetation would increase in vigor and cover more area thus reducing overland waterflow and erosion. This, in turn would reduce the introduction of sediments into the river, reduce turbidity levels, and contribute to improved water quality as described under impacts of riparian restoration on water quality. Because the sites impacted are small compared to total drainage area of the river changes in water quality are not likely to be measurable.

Segment 3 - Identification of sites that can best handle human use would have the same impacts described above for Segment 2.

Segments 10-11 - Identification of sites that can best handle human use, providing signs, and installing barricades to prevent motor vehicles from entering riparian areas would have the same impacts as described for Segment 2. In addition, by keeping motor vehicles out of riparian areas, the potential for the spilling of petroleum products that could affect water quality would be reduced.

Developed Recreation

Alternative A (Proposed Decision for Segment 1)

Continuing existing maintenance schedules on developed recreation sites would not change riparian vegetation in these areas and consequently would not change cover conditions or water quality.

Alternative B (Proposed Decision for Segment 1-3)

Improving facilities would not affect water quality.

Alternative C (Proposed Decision for Segment 10)

By controlling travel routes and campsite location and preventing vehicle access to riparian vegetation, overland stream runoff would be reduced as would erosion and sediment transport. Small changes in water quality would not be measurable.

Alternative D

Closing sites would initiate processes that would reduce overland stream runoff, erosion, and sediment transport. Given the small area affected the magnitude of the change would be small. Recreationists displaced by campsite closures would increase use of other sites which are likely to be subject to trampling, soil compaction and vegetation loss which would increase overland stream runoff, erosion, and sediment transport.

Public Access

Roads used for public access are likely to have the following impacts to water quality and water quantity : 1) they reduce infiltration rates, 2) increase surface runoff at the expense of groundwater flow, 3) increase erosion, 4) compact soils, and 5) have the greatest impact on soil mass movement (Brooks et al. 1991).

Common to all Alternatives (Proposed Decision)

Improved access at Priest Hole and relocation of Public Access at Twickenham would decrease the effects of roads on water quality. Maintenance of the Priest Hole road would decrease the potential for erosion and runoff, as would relocating the river access point at Twickenham from an eroding dirt road to a hardened gravel bar.

Alternative A

Continuing existing road access would maintain existing levels of soil compaction, surface runoff, and increased erosion. These conditions contribute to rapid fluctuation in water quantity and to the introduction of sediment into the river system. Because road mileage is low in Segments 1, 2, and 3, the amount of sediment introduced into the river and water quality and fish habitat problems associated with roads is also relatively low. In other segments where roads parallel the river water quality is more likely to be lower.

Alternative B (Proposed Decision)

Road effects are the same as in Alternative A with the additional effect of increased disturbance in some areas. Proper road design and maintenance would decrease the impact existing non-maintained roads have on water quality.

Alternative C

Additional road construction and/or maintenance to provide access would increase effects of roads on water quality. As in Alternative B, proper road design and maintenance would decrease the impact existing non-maintained roads have on water quality.

Alternative D

Introduction of sediment would decrease as closed roads are reclaimed by natural vegetation and overland flows are reduced. This would increase water quality and water quantity.

Energy and Minerals Resources

The impacts of energy and minerals on water quantity and water quality are covered in the discussion of impacts on fish.

Land Ownership, Classifications, and Use Authorizations

Proposed acquisitions would provide the opportunity to improve management of riparian resources. At the same time, if these lands become more accessible to the public than at present, it is possible that the development of user trails, trampling of vegetation, and soil compaction would lead to additional runoff and subsequent erosion and sediment transport into the river and reduced infiltration into the soil. As a result, turbidity levels would increase and late season flow would decrease.

Paleontological Resources

Except for alternatives that result in increased recreational use or access, impacts resulting from actions planned under this alternative would be mitigated through adherence to Bureau manual guidance and consultation with the John Day Fossil Beds National Monument (in accordance with the co-management agreement).

Recreation Management

Disturbances related to increased numbers of users can include inadvertent damage, opportunistic removal or destruction of fossil specimens or fossil exposures, or the planned removal or destruction of fossil specimens and fossil exposures. The most common disturbance occurs when camping takes place near paleontological resources. Frequently, people opportunistically recognize and collect surface specimens. Impact by off-highway vehicle (OHV) use on the highly erodible slopes of fossil exposures can be very damaging. Specimens can be destroyed by being run over by OHVs and trails resulting from OHV use can accelerate erosion and obliterate contextual settings. A more intentional type of impact is the planned collection of specimens which is believed to occur in the river corridor during low use periods (winter). Motorized boating provides the opportunity for rapid access to the most remote river segments (and some paleontological resources) during the winter and spring. Motor boats also enable specimen seekers to bring more tools and remove more specimens in a single trip. Unauthorized excavation removes or damages specimens without using proper preservation techniques or documenting contextual information. Some of these disturbances are conducted by the curious, although others are motivated by profit.

Alternative A

As recreational use increases the likelihood of disturbances to paleontological resources would increase. Increased use of some campsite areas would elevate the probability for disturbances to paleontological resources. Opportunistic surface collecting would be the major source of disturbance, though disturbance by OHVs and planned disturbances would also occur.

Alternative B

Limiting user numbers to 1998 levels and spreading use between peak and off peak periods would have impacts similar to Alternative A.

Alternative C (Proposed Decision)

Because use is expected to remain at about the same level as at present, the rate of disturbance would remain about the same as for Alternative A.

Alternative D

Reduction in peak and overall use and elimination of motorized use would reduce the incidence of disturbance to localities that are accessible only by boat.

Alternative E

Same as Alternative C, except that limitations on motorized boating would reduce opportunities for planned disturbances.

Public Access

Access to some segments of the river corridor (and certain paleontological resources) provides an opportunity for planned removal or disturbance of paleontological resources. Access to the river corridor on roads through private lands has probably contributed to the continued loss of certain fossil resources.

Alternative A

Disturbance and removal of paleontological resources would continue to occur due to casual use activities at some localities.

Alternative B (Proposed Decision)

Improving access to certain river segments would likely increase the probability for planned and inadvertent removal of, and disturbance to, paleontological resources. The impacts of limiting access to Burnt Ranch or creating access to Lower Burnt Ranch are unknown at this time.

Alternative C

Same as Alternative B.

Alternative D

Same as Alternative A, except that the frequency of disturbance may be reduced.

Paleontological Resources

Maintaining or expanding the existing systematic scientific research program would result in documenting the location and extent of fossiliferous exposures, mapping associated lithostratigraphy (rock/soil layers), establishing a biochronological sequence (different fossil specimens through time), assessing the relative significance of each fossil-bearing locality, and conducting cyclic prospecting (periodic inventory and specimen collection). Much of this work would be completed in cooperation with the John Day Fossil Beds National Monument. Sometimes cost-share contracts are developed between the BLM and university researchers, under the guidance of the National Park Service (NPS), to conduct baseline studies of the kind described above for specific areas. Costs for services and/or materials typically range from \$2,500 to \$10,000, depending on the size of the area and the tasks to be performed.

Existing Management

For the most part, costs associated with planned actions in-house will vary in proportion to the number of proposed projects. Adjustments are made when unplanned projects arise and are assigned a high priority. When larger, more complex projects are proposed the associated expenses are subject to prioritization with other workload costs under the same budget process. Much of the budgeting for the latter situation is done on a case by case basis.

Common to All Action Alternatives

Under this alternative, the associated costs are expected to be higher. A proactive approach involves substantial additional time for networking, contract/agreement development, logistical planning, implementation, monitoring and follow up. It is not unreasonable to expect a 20% increase in costs relative to existing management time.

Cultural Resources

Except for increases in use resulting from some alternatives for recreational use and public access, impacts resulting from all alternatives would be mitigated by implementing the requirements of Section 106 of the National Historic Preservation Act (as amended in 1999).

Recreation Management

A range of potential impacts can occur as a result of recreation use within the river corridor. The most common disturbance occurs when camping takes place on or near cultural resources. Potential impacts include opportunistic collection of surface artifacts and use or destruction of wooden historic structures or features for firewood or camp furniture, opportunistic defacing (vandalism) of both historic (cabins) and prehistoric (rock art) features, inadvertent destruction of surface features and subsurface deposits resulting from the construction of

camp fires and tent flats and the use of off highway vehicles (OHVs). Fishing or hiking activities are less likely to result in substantial impacts to cultural resources except for the occasional opportunistic collection of surface artifacts. The timing and number of users can affect the frequency of such disturbances. A more intentional type of impact is the planned vandalism of sites or artifact collection which is believed to occur in the river corridor during low use periods (winter). Motorized boating provides the opportunity for rapid access to the most remote river segments (and some cultural resources) during the winter and spring. Motor boats also enable artifact seekers to bring more tools and remove more artifacts in a single trip. Digging, which disturbs the integrity of subsurface sediment deposits, and removal of rock art or historic artifacts are some of the impacts associated with these activities.

Alternative A

Under existing management, user numbers would increase, especially during peak periods (weekends). By increasing use of both popular and less desirable campsites, this alternative would increase the probability of disturbances (removal and vandalism) of cultural resources. Low use period access via motorized water craft would continue to provide opportunities for more planned disturbances to cultural resources.

Alternative B

By limiting user numbers to 1998 levels and spreading use between peak and off-peak periods, impacts to cultural resources would be reduced compared to Alternative A. Designating a dispersed camping area near Clarno would increase opportunities for casual collecting and, if the facility attracts increased OHV use, may lead to the inadvertent destruction of cultural resources.

Alternative C (Proposed Decision)

Similar to Alternative A except less desirable campsites would not be subject to use or disturbance. However closing a large portion of Segment 2 to motorized boating would lower the rate of planned removal of cultural resources.

Alternative D

Reduction in peak and overall use and elimination of motorized boating would reduce opportunities for both opportunistic and planned removal of resources and the inadvertent destruction of sites.

Alternative E

Same as Alternative C, except that limitations on motorized boating would reduce opportunities for planned disturbances.

Public Access

Access to some segments of the river corridor (and certain cultural resources) provides an opportunity for planned removal of or disturbance to cultural resources. Access via motorized vehicles expedites intentional removal by providing a more convenient means to transport equipment to and from remote locations than non-motorized travel. Access to the river corridor on roads through private lands provides an opportunity to destroy or remove cultural resources.

Alternative A

By maintaining existing access, destruction and removal of cultural resources would continue to occur at current levels.

Alternative B (Proposed Decision)

Improving existing access would increase opportunities for opportunistic, inadvertent, and planned user activities. The impacts of limiting access to Burnt Ranch or creating access to Lower Burnt ranch are unknown at this time.

Alternative C

Similar to Alternative B, with the addition that opening up new areas would increase the probability of opportunistic, inadvertent, and intentional destruction or removal of cultural resources not presently accessible to the general public.

Alternative D

Reducing road access would reduce opportunities for opportunistic, inadvertent, and planned destruction and removal of cultural resources from sites that have already been disturbed.

Cultural Resources Management

The nature of cultural resource information gathering has different effects on the resource itself. Inventory efforts are typically nondestructive, because information about surface manifestations (including setting and artifact or feature attributes) are normally all that is gathered from a site. However, sometimes artifacts from the surface are found, mapped/recorded, collected and curated to preserve and protect them. The difference between formal excavations conducted by professionals and indiscriminate digging by unauthorized collectors is the recording effort. The relationship (or context) of the sediments and artifacts which are excavated by professionals can be reconstructed, while those same elements collected by amateurs or vandals cannot.

The cost of conducting inventory or excavation varies depending on the circumstances. For example, the cost of an inventory is calculated by the expected number of acres one person can reasonably cover in a day. Factored in to this is the expected sensitivity of the area for finding sites and accessibility. The higher the expected site density of and/or the more difficult access to an area, the more time would be required for recording. This situation results in a lower number of acres and more expense. Costs can range from \$15 to \$30 per acre for both in-house and contract services. Excavation at a site is typically limited and calculated by a cost per cubic meter (m³) of fill. Other factors that must be considered are the expected complexity of the subsurface deposit and accessibility. A figure of \$3000/m³ is an applied average when estimating cost. Additional costs may be added for ancillary studies (such as carbon dating, micro/macro botanical and faunal analysis), which contribute to our understanding of the significance and how to assess the effects of impacts to any particular site.

Existing Management

Costs associated with planned actions in-house would vary in proportion to the number of proposed projects. Adjustments are made when unplanned projects arise and are assigned a high priority. When larger, more complex projects are proposed and contracting or seasonal hires are expected, the associated expenses are subject to prioritization with other workload costs under the same budget process. Much of the budgeting for the latter situation is done on a case-by-case basis.

Common to All Action Alternatives

Under this alternative the associated costs are expected to be higher. A proactive approach involves substantial additional time for networking, contract/agreement development, logistical planning, implementation, monitoring and follow up. It is not unreasonable to expect a 20% increase in costs relative to existing management time.

Public Information and Education

Alternatives that focus on Fish, Native American Uses, and Private Land Use would not impact Public Information and education alternatives.

The remaining alternatives may have impacts on Public Information and Education alternatives.

Riparian and Aquatic Habitat Restoration

Continuing restoration projects such as cottonwood planting would require interpretation through brochures, watershed council meetings, and other forms of public contact. See also Agricultural Lands.

Wildlife

See Agricultural Lands.

Water Quantity and Quality

Existing Management

Continuing existing Water Quantity and Quality management through a cooperative approach would result in a continued need for public education through brochures, watershed council meetings, and other forms of public contact.

Additional Action

Increased cooperative management activities would increase the need to keep the public informed.

Paleontological Resources

Under all action alternatives, communicating the importance of paleontological resources and the laws that apply to their protection would require outreach programs and other interpretative techniques.

Cultural Resources

Under all action alternatives, communicating the importance of cultural resources and the laws and treaties that apply to their protection would require outreach programs and other interpretative techniques.

Public Information and Education

Existing Management

Continuing existing management would maintain the existing level of Public Information and Education.

Additional Actions

Increasing Public Information and Education efforts would have the same effects as Existing Management, except that more people would be reached through a variety of media such as brochures, maps and interpretive signs and the cost of information and education efforts would increase.

Law Enforcement and Emergency Services

Existing Management

Continuing existing management of Law Enforcement and Emergency Services would not have an effect on Public Information and Education.

Additional Actions

Increasing interagency coordination of law enforcement and emergency services efforts would result in an increase in law enforcement personnel from different agencies who would be tuned in to Wild and Scenic River regulations, an increase in law enforcement presence, and an increased likelihood of detection and enforcement of use regulation violators. More law enforcement personnel would be actively participating in public information and education goals and objectives. Increased enforcement of use regulations would improve the effectiveness of launch point signing and public contact efforts, as users are more likely to take regulations seriously if enforcement efforts are visible.

Scenery

Alternative A

Continuing existing management of Scenery would not be expected to have an effect on public information and education.

Common to All Action Alternatives (Proposed Decision)

Assigning VRM Classifications to river segments would require that any new bulletin boards or signing proposed for information and education needs meet VRM standards. Oregon State Scenic Waterway standards would also be considered prior to development of signing.

Grazing

Under all action alternatives communication with the public concerning the methods and importance of proper grazing management would require presentations and one on one discussions with public groups or individuals. Flyers and signs asking the public to close gates and not cut fences would be necessary to help maintain proper grazing management.

Agricultural Lands

Under all action alternatives communication with the public concerning the use and methods on public owned agricultural lands to raise cottonwoods and other woody species for riparian restoration, to create buffers, or to grow crops for wildlife would require interpretive signs, brochures and presentations to public groups.

Recreation

Implementing a Limits of Acceptable Change (LAC) planning and monitoring program to study the effects of recreation use on physical resources and social experience would create a need for public information to explain the process to the public.

Boating Use Levels

Alternative A

Continuing existing management of Boating Use Levels would result in increased boating use during the peak season. To reduce the cumulative effects of increased use on resource conditions, an expanded information and education effort would be needed to educate users about the importance of each person's behavior in the effort to protect river resources.

Alternatives B, C, D and E (Alternative C is Proposed Decision)

Setting interim daily launch targets, would have the same effect on the need for public information and education as in Alternative A.

Allocation

Alternative A

Continuing existing management by not selecting an allocation system would maintain existing needs for information and education.

Common to All Action Alternatives

Selecting a specific allocation system would create a need to inform and educate the public concerning the system prior to implementation.

Motorized Boating

Alternative A (Proposed Decision for Segment 1)

Continuing existing management of Motorized Boating would not change the needs for information and education.

Common to All Action Alternatives

Closing Segments 10 and 11 to motorized boating would require a minimum of interpretation and public contact since flows in these segments are rarely high enough to accommodate the use of motorized boats.

Alternative B

Adjusting areas and seasons of use would increase the need for signs and one on one contact with boaters to explain the new restrictions.

Alternative C

Adjusting areas and seasons of use would have the same effect on information and education as Alternative B, except that the need for one on one contact with boaters to explain the new restrictions would be greater because the restrictions would be more complex.

Alternative D (Proposed Decision for Segment 2)

Prohibiting motorized boating would require a public information and education effort, including signing, public presentations to boating groups and one on one contacts to explain the necessity for this restriction.

Alternative E (Proposed Decision for Segment 3)

Same as Alternative B

Dispersed Recreation

Alternative A

Management of dispersed sites on a case-by-case basis to protect resources would continue to require signing at river access points and one on one contacts with campers to explain no-impact camping requirements designed to protect resources.

Common to All Action Alternatives

Encouraging dispersed use in areas that can best sustain impacts of camping would require signing and one on one contacts to explain new restrictions adopted to reduce vehicle impacts to riparian areas. Signing of dispersed campsites would be required in Segments 2, 3, 10 and 11. Signing of riparian areas closed to vehicle use would be required in Segments 10 and 11.

Developed Facilities

Alternative A (Proposed Decision for Segment 11)

Continuing existing management of developed facilities would not change needs for information and education.

Common to All Action Alternatives

Improving or upgrading existing facilities to protect resources would not alter the need for public information and education.

Alternative B (Proposed Decision for Segment 1-3)

Improving or upgrading existing facilities where needed to better meet the needs of the recreation user, and developing new recreation sites to replace sites that are closed for resource protection, would require additional signing to identify closed areas, new parking areas, boat ramps and other facilities in Segments 1, 2, and 3.

Alternative C (Proposed Decision for Segment 10)

Developing new facilities where needed to provide better resource protection would have the same impacts on the need for public information and education as Alternative B, except that new facilities in Segment 10 would also require signing.

Alternative D

Reducing facilities at selected sites, or closing selected sites, in an attempt to discourage use and protect resources, would be expected to require signing, one on one contacts and public presentations to explain the reasons for facilities closures in Segments 1, 2 and 3.

Public Access

Common to All Alternatives

Acquiring public river access at Twickenham to replace the current private access would require signing to direct use to the new site. There would be signing for public access routes to the Oregon Trail Interpretive site at McDonald's crossing contingent on negotiations with Wasco County.

Alternative A

Maintaining public access at existing levels would not alter the existing need for public information and education.

Alternative B (Proposed Decision)

Improving existing access by upgrading current access routes across public land would be expected to increase the need for signing and one on one contact with users. Closing the existing Burnt Ranch site to vehicle access and providing access to Lower Burnt Ranch would require signing to make the change and explain the reasons. See Dispersed Recreation for effects on information and education in Segments 10 and 11.

Alternative C

Providing maximum reasonable access to the river via roads and trails would be expected to have the same effects on the need for information and education as Alternative B in Segments 3, 10 and 11. New access in Segments 1 and 2 would require additional signing.

Alternative D

Reducing public access to protect and enhance resources would be expected to require signing, and person to person contact with users to explain the reasons for reduced access in Segments 2 and 3.

Commercial Use

Alternative A

The the expected increased number of commercial permits to be administered by the BLM would make it difficult for BLM staff to maintain communications with individual permittees and to monitor each permittee's commercial use as required by BLM policy. Rather than continue the current practice of communication with permittees in person or by telephone, the BLM would be forced to rely mostly on mass communication techniques such as mailings and large outfitter meetings to provide information and education to permittees and their employees concerning permit stipulations, river safety, protecting river resources, and minimum impact camping.

Common to All Action Alternatives

Issuing commercial permits according to the results of a needs assessment would not be expected to have an effect on the existing methods of communicating information and education, nor the need for that communication.

Energy and Mineral Resources

If claims are established within the Wild and Scenic River corridor under alternatives A or B, it would be important to communicate with individuals and public groups the laws regarding mining and the impacts and mitigation of those impacts.

Land Ownership, Classification and Use

Impacts will be discussed in future site specific proposals. Acquisitions would require signing, updating of maps and other forms of communication to inform the public of the new land ownership.

Law Enforcement and Emergency Services

Alternatives directly concerned with Riparian and Aquatic Habitat Restoration, Fish, Wildlife, Native American Uses, Water Quantity and Quality, Scenery, Private Land Use, Grazing, Agricultural Lands, Boating Use Allocation, and Energy and Mineral Resources would not create new needs for Law Enforcement and Emergency Services.

Paleontological Resources

Existing Management

Continuing existing management of Paleontological resources would not create new needs for Law Enforcement and Emergency Services.

Common to All Action Alternatives

Increasing efforts in inventory and interpretation of paleontological resources, as well as soliciting more involvement from the National Park Service and other individuals or organizations, would discourage fossil hunting and reduce the need for law enforcement measures because resource sites would be frequently visited by field staff. When these visits result in the discovery of violations, however, there would still be a need for investigations by trained law enforcement personnel.

Cultural Resources

Existing Management

The existing management of cultural resources might require more attention from law enforcement.

Common to All Action Alternatives

Under these alternatives more effort in salvaging, rehabilitating, and interpreting cultural resources as well as soliciting more tribal involvement would tend to discourage theft and vandalism reducing the need for law enforcement measures.

Public Information and Education

Existing Management

Continuing existing management of Public Information and Education would not alter the existing need for Law Enforcement and Emergency Services.

Common to All Action Alternatives

Increasing the amount of public information and education provided to prospective river users including signs and maps showing rapids, access routes, and discussing boater safety would be expected to reduce the need for emergency services. Information on use regulations and no-impact camping would normally be expected to reduce the need for law enforcement patrols, however, enforcement of regulations is necessary in order for signs and river rangers to be taken seriously. Enforcement would remain an important component of a successful information and education program in both Alternatives A and B. Installation of additional signing would increase the opportunity for vandalism, and the need for law enforcement patrols to deter the vandalism.

Law Enforcement and Emergency Services

Existing Management

Continuing existing management of Law Enforcement and Emergency Services would be expected to result in no change to the existing level of law enforcement and emergency services.

Common to All Action Alternatives

Increasing interagency coordination of law enforcement and emergency services efforts would be expected to result in a better trained, interagency staff who share scarce time and resources more efficiently to offer increased coverage and service along the river corridor.

Recreation

Common to All Alternatives

Implementing mandatory launch limits based upon the Limits of Acceptable Change study would increase the need for law enforcement to ensure compliance with the specific permit system selected.

Boating Use Levels

Alternative A

The anticipated 4% annual increase in visitors is likely to increase the need for law enforcement and emergency services in proportion with increases in visitation.

Alternative B

Setting interim daily launch targets for overnight use at or below 1998 levels and spreading use between peak and off-peak periods, would result in the same needs for Law Enforcement and Emergency Services as existed in 1998.

Alternative C (Proposed Decision)

Setting interim daily launch targets for overnight use at 70% of available campsites, reducing boating use on weekends, and spreading use between peak and off-peak periods, would increase the need for Law Enforcement and Emergency Services during off-peak periods.

Alternative D

Setting interim daily launch targets for overnight use at approximately 60% below 1998 levels, reducing boating use on weekends, spreading use between peak and off-peak periods, and reducing the expected annual increase in use from 4% to 2%, would have the same effect on the need for Law Enforcement and Emergency Services as Alternative C.

Alternative E

Same as Alternative C

Motorized Boating

Alternative A (Proposed Decision for Segment 1)

Continuing existing management of Motorized Boating would increase the existing need for Law Enforcement and Emergency Services if motorized boating use increases.

Common to All Action Alternatives (Proposed Decision for Segment 10 and 11)

Closing Segments 10 and 11 to motorized boating would require a minimum of law enforcement effort since flows in these segments are rarely high enough to accommodate the use of motorized boats.

Alternative B

Adjusting areas and seasons of current restrictions to better reflect the needs of fish and wildlife would increase the need for law enforcement to enforce new restrictions proposed for Segments 1, 2, and 3.

Alternative C

Adjusting areas and seasons of current restrictions to protect a wide range of river values would have the same impact on Law Enforcement as Alternative B, except in Segment 2 where the closure and the need for enforcement would be changed from seasonal to year round.

Alternative D (Proposed Decision for Segment 2)

Prohibiting motorized boating would greatly increase the need for law enforcement efforts compared to all other alternatives, in order to enforce the closure.

Alternative E (Proposed Decision for Segment 3)

Same as Alternative B

Dispersed Recreation

Alternative A

Management of dispersed sites on a case-by-case basis to protect resources, would not change the existing need for Law Enforcement and Emergency Services.

Common to All Action Alternatives

Encouraging dispersed use in areas that can best sustain impacts of camping would be expected to increase the need for law enforcement in Segments 10 and 11 to enforce vehicle closures in riparian areas, and minimize vandalism to new signs.

Developed Facilities

Alternative A (Proposed Decision for Segment 11)

Continuing existing management of developed facilities would not alter the existing need for Law Enforcement and Emergency Services.

Common to All Action Alternatives

Improving or upgrading existing facilities to protect resources would not alter the existing need for Law Enforcement and Emergency Services.

Alternative B (Proposed Decision for Segment 1-3)

Same as A, except additional law enforcement coverage would be needed to enforce the vehicle closure at the existing Burnt Ranch site.

Alternative C

Developing new facilities where needed to provide better resource protection would have the same impacts on law enforcement as Alternative B except that new facilities and signing in Segment 10 would create more opportunities for vandalism and would increase the need for law enforcement.

Alternative D

Reducing facilities at selected sites, or closing selected sites, in an attempt to discourage use and protect resources, would be expected to increase the need for law enforcement to enforce facilities closures in Segments 1, 2 and 3.

Public Access

Common to All Alternatives

Acquiring public river access at Twickenham to replace the current private access would not increase the need for law enforcement.

Alternative A

Maintaining public access at existing levels would not alter the existing need for law enforcement and emergency services.

Alternative B

Excluding motor vehicles from the existing Burnt Ranch site would require increased law enforcement. See Dispersed Recreation for effects on law enforcement in Segments 10 and 11.

Alternative C

Providing maximum reasonable access to the river via roads and trails would be expected to have the same effects on law enforcement and emergency services as in Alternative A in Segments 3, 10 and 11. New access in Segments 1 and 2 would require additional law enforcement coverage. Where access to reach cultural sites such as Tumwater Falls would be improved, increased looting and vandalism of sites would be more likely to occur than at present. This would increase demands on law enforcement personnel.

Alternative D

Closing Sorefoot Creek in Segment 2 and the existing Burnt Ranch site in Segment 3, to public access would increase the need for law enforcement to enforce the closures.

Commercial Use

Alternative A

The expected increase in the number of commercial permits to be administered by the BLM would make it difficult for BLM staff to maintain communications with individual permittees and to monitor each permittee's commercial use as required by BLM policy. Increased law enforcement efforts would be necessary to enforce permit stipulations. There would be fewer non-permitted outfitters using the river because commercial permits would be easier to obtain. This would reduce the need for law enforcement investigations into possible illegal outfitting.

Common to All Action Alternatives

Issuing fewer commercial permits would reduce the need for law enforcement efforts to enforce permit stipulations. However, issuing permits according to the results of a needs assessment would result in increased levels of non-permitted guiding which would need to be investigated by law enforcement personnel.

Land Ownership, Classification and Use

Acquisitions that increase public access would increase the area to be patrolled and the number of contacts with the public for law enforcement personnel.

Private Land

Alternatives concerned with boating use levels and public access can affect private land owners by increasing or decreasing opportunities for trespass by determining the number of recreational users traveling through or adjacent to private lands.

Impacts on Issues Resolved by Alternatives

Scenery

Alternatives that directly address Fish, Wildlife, Native American Uses, Water Quantity and Quality, Paleontological Resources, Cultural Resources, Allocation, and Motorized Boating would not impact Scenery.

The following discussion compares the effects of actions that would impact scenery.

Riparian and Aquatic Habitat Restoration

Continuing existing Riparian and Aquatic Habitat Restoration management including planting native cottonwoods along the river and its tributaries, and other potential projects designed to enhance riparian vegetation, would increase vegetation and enhance scenery of the river corridor in the long term. Proposed projects would be designed to be consistent with BLM's Interim Visual Resource Management Policy and State Scenic Waterway standards. Temporary fencing designed to protect cottonwood outplantings may be visible from the river or from campsites in the short term. In the long term, re-introducing native cottonwoods would enhance the color and texture, and create a more natural viewshed.

Public Information and Education

Existing Management

Continuing existing management of Public Information and Education would result in an informed public that would be expected to gradually help improve scenic quality by practicing no-impact camping techniques to reduce litter, fire rings, human waste, user trails, cut and limbed trees, and the spread of noxious weeds.

Additional Actions

The effects of increasing the level of information and education available to the public would be expected to be the same as Existing Management, except that sharing information and education messages with more users would be expected to lead to a greater proportion of users practicing no-impact camping techniques, resulting in a greater reduction in litter, fire rings, human waste, user trails, cut and limbed trees, and the spread of noxious weeds. Proposed signing projects would be designed to be consistent with BLM's Visual Resource Management policy and State Scenic Waterway standards (see Chapter 4).

Law Enforcement and Emergency Services

Existing Management

Continuing existing management of Law Enforcement and Emergency Services would maintain existing effects on scenery, as actions that would affect scenery such as litter, fire rings, human waste, cut and limbed trees, illegal fires and vandalism would be expected to occur at the same rate.

Common to All Action Alternatives

Increasing interagency coordination of Law Enforcement and Emergency Services efforts would be expected to lead to an increase in law enforcement patrols to enforce recreation regulations, resulting in a reduction in litter, fire rings, human waste, cut and limbed trees, illegal fires and vandalism.

Private Land Use

Proposed State Scenic Waterway regulations will have an impact on scenery, however the extent of this impact is unknown.

Scenery

Alternative A

Continuing existing management of Scenery or “visual resources” in compliance with existing RMP guidance would result in consistent protection of scenic qualities within each VRM Class. Each project or activity proposed for public lands would be analyzed for its effects on visual resources according to established standards and guidelines of BLM’s Visual Resource Management Policy. Those lands classified as VRM Class II (most WSR and non-designated river segments) would receive higher VRM protection than those lands classified as VRM Class III (the Upper South Fork) or VRM Class IV (the middle reach of the North Fork). Within those river segments classified as VRM Class II management activities resulting in changes to the existing character of the landscape are allowed, provided they do not attract the attention of the casual observer. (The VRM Class II management standards are generally consistent with Oregon State Scenic Waterway rules for Scenic River Areas, Accessible Natural River Areas, and Recreational River Areas as proposed in Chapter IV.) Within those areas classified as VRM Class III, management activities resulting in changes to the existing character of the landscape are allowed, but should not dominate the view of the casual observer. Within those areas classified as VRM Class IV, major modifications of the existing character of the landscape are allowed, but every attempt should be made to minimize the impact of activities. Some existing recreation developments in Segments 1 through 4 may be out of compliance with VRM Class II standards, which apply to these segments. Continuing to manage WSAs as VRM Class II would be out of compliance with current BLM policy which requires all WSAs to be classified as VRM Class I, the most protective classification.

Common to All Action Alternatives

Same as Alternative A, except classifying existing and proposed BLM recreation facilities as VRM Class III “islands” within the river corridor VRM Class II designation would allow continued use, maintenance and expansion of existing sites, and development of proposed sites in compliance with VRM Class III standards when constructed. Reclassifying VRM classifications for portions of Segment 7 on the North Fork from VRM Class IV to VRM Class III would provide greater VRM protection for existing BLM lands as well as any acquired lands until the John Day RMP is amended or revised.

Changing the VRM classification in WSAs within the Prineville District to VRM Class I would amend the Two rivers and John Day RMPS to be in compliance with current BLM policy. Classifying WSA lands as VRM Class I would afford these areas the highest level of VRM protection, in which requires that natural processes dominate the landscape, allowing limited management activity, provided it does not attract attention.

The management standards for VRM Class II are generally consistent with Oregon State Scenic Waterway rules for Scenic River Areas, Accessible Natural River Areas, and Recreational River Areas as proposed in Chapter IV.

Vegetation Rehabilitation and Restoration

Common to All Action Alternatives

Planting native and desirable non-native vegetation in areas where native vegetation is not dominant and in disturbed or degraded areas would affect scenic quality by increasing the appearance and functionality of a more healthy landscape.

Grazing

Alternative A

Continuing existing management through proper grazing strategies would affect scenery by increasing the density and diversity of riparian vegetation. Hedging or trampling of vegetation and the trampling of some banks would continue on the allotments where riparian oriented strategies have not been implemented. Cattle may be visible from the river throughout the year in upland areas. However, except for allotments without riparian oriented management, grazing in riparian areas would be limited, in most cases, to less than 60 days between November through May. Except for May there is little overlap in the times recreational use and grazing seasons overlap. The opportunity for boaters to see cattle and fresh cattle droppings in campsites and other riparian sites would occur primarily during the month of May. Some existing and proposed fences may be visible from the river and may contrast in line, form, and color from the natural landscape. Some fences between private land and public land would be visible where such fencing would have to go to or enter the river to discourage cattle from entering public lands.

Alternative B (Proposed Decision)

Alternative B would have the same effects on scenery as A except that almost all allotments that do not now have riparian oriented grazing management would have increased vegetation density and diversity as a result of a shift to spring grazing, a decrease in other grazing systems, and an increase in the amount of river bank miles from which grazing would be excluded compared to Alternative A. Where changes involve increased fence to implement riparian exclusion of cattle, fence design and materials would blend into the line, form, and color of the natural landscape. Some fences between private land and public land would be visible where such fencing would have to go to or enter the river to discourage cattle from entering public lands.

Alternative C

Preventing cattle from grazing in riparian areas would result in increasing riparian species diversity and density. This would result in vegetation and soils that would have more naturally appearing color, texture, and scenery as seen from the river and river campsites compared to areas with nonriparian oriented management. There would be no signs of live stock grazing on the river side of the fencing, but cattle may be visible on the adjacent uplands. As in Alternatives A and B, proposed fences and water developments visible from the river or river campsites would be screened from view. Some fences between private land and public land would be visible where such fencing would have to go to or enter the river to discourage cattle from entering public lands.

Alternative D

Exclusion of cattle from public lands within the corridor would have impacts similar to Alternative C except that no cattle (except for occasional trespass), fences, or water developments would be visible on public lands from the river. Some fences between private land and public land would be visible where such fencing would have to go to or enter the river to discourage cattle from entering public lands.

Agricultural Lands

Alternative A

There would be no overall effect on existing scenic quality if agricultural lands in Segments 1, 2 and 3 were managed by existing guidance. Wheel lines, pumps and fields would remain visible in the foreground, mid-ground and background as viewed from the river.

Alternative B

The creation of buffer strips along agricultural fields on public lands in Segments 1, 2 and 3 using cottonwoods or other native species would partially screen agricultural operations, resulting in a more naturally appearing foreground as viewed from the river.

Alternative C (Proposed Decision)

The creation of buffer strips using cottonwoods or other native species along agricultural fields on public lands and converting additional acreage to native vegetation would have the same effects as Alternative B, except that in the long term, those areas converted to native vegetation would have a more natural appearance in the fore, mid, and background as viewed from the river. Cultivated fields converted to native grasses would likely attract new camping and picnicking use.

Alternative D

The gradual restoration of all publicly owned lands in Segments 1, 2 and 3 to native vegetation and the removal of pumps and irrigation systems would result in the greatest enhancement of scenic quality, compared with all other alternatives for Agricultural Lands. In the long term, the vegetation in the fore, mid, and background would have a more natural appearance as viewed from the river and from some river campsites. As in Alternative C, new campsites would become available for use as native vegetation was restored.

Recreation

Common to All Alternatives

Implementing a Limits of Acceptable Change (LAC) planning and monitoring program to study the effects of recreation use on physical resources and social experience would influence future management decisions concerning visitor use rules, numbers and availability of campsites.

Boating Use Levels

The following analysis is based on the assumption that target use levels for each alternative would be attained using the voluntary measures described in Alternatives B, C, D, and E for Boating Use Levels. If, for any reason, target use levels are not attained or maintained, the effects for each alternative would be expected to be the same as in Alternative A, or an alternative with a target higher use level.

Alternative A

Continuing existing management of Boating Use Levels would likely result in increased boating use, primarily on weekends from Memorial Day through Fourth of July, in all segments where boating use occurs. In 1998, recorded weekend launches surpassed public land campsite capacity on one night by 4 groups in Segment 2, and on 4 nights by as many as 7 groups in Segment 3. Additional weekend launches would further increase competition for existing campsites, and when traditional sites became full, would force a growing number of groups to create "new" sites or use less desirable sites, including sites located on private lands. Occupancy of new sites would include increased foot traffic resulting in the creation of new access trails within camps and along the banks, thus an increase in denuded vegetation, bank erosion, soil loss, and the spread of noxious weeds. New sites would have increasing trash, human waste, campfire scars, and cut and limbed trees. Each year the number of campsites showing moderate to heavy evidence of human use would likely increase. River segments experiencing increased use would likely appear less natural, less primitive and more developed over time, due to an increase in the evidence of human use.

Alternative B

Setting interim daily launch targets at or below 1998 levels would have similar effects on scenery as Alternative A, except that the impacts would not exceed those resulting from 1998-99 use. Daily launch targets for overnight use would exceed 1998 available campsites by 4 sites in Segment 2, and 7 sites in Segment 3. However, by 2000, users would have created some new campsites to handle the overflow. New sites created in 1998-99 would continue to receive use and impacts to these sites may not be fully visible until the end of 1999, resulting in an initial increase in the number of sites showing moderate to heavy evidence of human use. Once sufficient new sites have been created by users to handle 1998 use levels, there would be less competition for campsites, fewer new campsites would be created, and a slower rate of impacts would be expected compared to Alternative A, since use levels would remain stable. Lands adjacent to the river in these segments would appear less natural, less primitive and more developed than in 1998, but after an initial increase in impacts, scenic quality would be expected to remain stable, rather than decreasing annually as in Alternative A.

Alternative C (Proposed Decision)

Setting interim daily launch targets corresponding to 70% of available campsites, would be expected to result in reduced boating use on weekends, with use spread more evenly throughout the week and the season. The effects on scenery would be the same as in Alternative A except that the use of "new" or less desirable campsites would likely decrease, allowing sites showing low evidence of previous use to begin to naturally revegetate. The number of campsites visible from the river would slightly decrease compared to Alternatives A and B, and the river corridor in these segments would appear slightly more natural, more primitive and less developed due to a slight decrease in the evidence of human use.

Alternative D

Setting daily launch targets at approximately 60% below 1998 levels, would be expected to have the same effects on scenery as in Alternative C, except that the occupancy rate of popular campsites would decrease slightly, and the use of "new" or little-used campsites, including campsites located on private lands, would likely decrease substantially. Sites showing low evidence of previous human use would likely naturally revegetate over time. The river corridor in these segments would appear more natural, more primitive and less developed than in the other alternatives, due to a decrease in the evidence of human use.

Alternative E

Same as Alternative C

Dispersed Recreation

Alternative A

Management of dispersed sites on a case-by-case basis to protect resources would continue existing scenic quality.

Common to All Action Alternatives

Encouraging dispersed use in areas that can best sustain impacts of camping according to the recommendations of a modified Limits of Acceptable Change (LAC) Study would be expected to enhance scenic quality as actions to rehabilitate damaged campsites would result in more naturally appearing soils and vegetation. Proposed projects would be designed to be consistent with BLM's Visual Resource Management policy and State Scenic Waterway standards (see Chapter 4). In Segments 2 and 3, a small brown sign measuring 3 inches wide by 18 inches tall would be used to identify each durable campsite referenced on a user map. In Segments 10 and 11, installing signs and parking barriers along the South Fork Road to protect riparian vegetation from vehicle trampling would be expected to enhance the color, texture, and naturalness of riparian vegetation in those areas closed to vehicles, however, the presence of signing may also detract from the natural appearance of the foreground as viewed from the road.

Developed Facilities

Alternative A (Proposed Decision for Segment 11)

Continuing existing management of developed facilities would maintain existing scenic quality.

Common to All Action Alternatives

Improving or upgrading existing facilities to protect resources would not be expected to affect scenic quality. All proposed projects would be designed to be consistent with BLM's Visual Resource Management policy and State Scenic Waterway standards.

Alternative B (Proposed Decision for Segment 1-3)

Developing new recreation sites to replace sites that are closed for resource protection could affect scenery. However, all proposed projects would be designed to be consistent with BLM's Visual Resource Management policy and State Scenic Waterway standards and in the case of new developments, would be subject to site specific analysis and public review. In Segment 3, closing the original Burnt Ranch site to vehicles and providing access to Lower Burnt Ranch dispersed use area would result in vegetation loss at the new site, but would enable the road into the original site to be re-vegetated. The proposed new site, located on flat terrain, would be less subject to erosion than the original site which has steep terrain and unstable soils. Developing a new public launch site at Twickenham to replace the existing private launch site would eliminate some vegetation at the new site, but allow vegetation on the private site to respond and grow after being closed to use by the landowner.

Alternative C (Proposed Decision for Segment 10)

Developing new facilities where needed to provide better resource protection would have the same effects on scenery as in Alternative B, except that additional improvements described for Clarno East and Lower Burnt Ranch (Segment 3), and developing a campground near Ellingson Mill (Segment 10), could also affect scenery. These proposed projects would be designed to be consistent with BLM's Visual Resource Management policy and State Scenic Waterway standards, and in the case of new developments, would be subject to site specific analysis and public review. If visual concerns could not be satisfactorily mitigated, the scope of these proposed improvements would be adjusted as necessary to comply with BLM and State rules for the protection of scenic quality.

Alternative D

Reducing facilities at selected sites, or closing selected sites, in an attempt to discourage use and protect resources, would be expected to enhance the scenic quality of these sites as vegetation would appear more natural once the impacts of vehicle and/or foot traffic were removed. However, the current users of sites identified for closure would likely use new undeveloped locations which may be less able to sustain the impacts of human use. New riparian areas would be trampled by foot and vehicle traffic reducing the naturalness of the scenery in these areas.

Public Access

Common to All Alternatives

Proposed projects are not expected to have an effect on scenery as each project would be designed to be consistent with BLM's Visual Resource Management policy and State Scenic Waterway standards.

Alternative A

Maintaining public access at existing levels would maintain existing scenic conditions.

Alternative B (Proposed Decision)

Improving existing access by upgrading current access routes across public land would be expected to have the same effect on scenery as in Alternative A, except that closing the exiting Burnt Ranch site to vehicle traffic and improving access for vehicles to Lower Burnt Ranch would have the same effects on scenery as described under Alternative B for Developed Facilities.

Alternative C

Proposed access to the river via Hay Creek in Segment 1, and Butte Creek and northeast of Clarno in Segment 2, would be via public easements over existing private roads, therefore these actions would not be expected to affect scenery. In Segment 1, public access to the vicinity of Tumwater Falls would comply with BLM and State rules designed to preserve scenic quality only if easements were able to be obtained over existing roads, and new construction were not necessary. Widening the South Fork Road where practicable may make portions of the road more visible from the river, reducing scenic quality by detracting from the natural form, line, color, and texture of the surrounding environment, and vegetative screening may be necessary to mitigate these effects.

Alternative D

Reducing public access to protect and enhance resources would be expected to result in enhanced scenic quality in Segment 2 past the Clarno Homestead as vegetation and soils would appear more natural once the existing road is rehabilitated.

Commercial Use

Alternative A

Issuing unlimited commercial permits would affect scenic quality by encouraging additional boating use which would increase campsite occupancy rates, resulting in the establishment of new campsites showing evidence of human use. Foot traffic in new sites would result in increases in trampled vegetation, bank erosion, and the spread of noxious weeds. Although all commercial permittees would be required to practice no-impact camping under all alternatives, increased permit numbers would decrease BLM's ability to monitor each permittee to assure compliance with permit stipulations. Commercial use would continue to increase until the most desirable dates are full.

Common to All Action Alternatives (Proposed Decision)

Issuing commercial permits according to the results of a needs assessment would not be expected to have an effect on scenic quality, as gradually adjusting permits to offer a wider range of opportunities to the public would not be expected to encourage an increase in commercial use over and above the annual 4% increase expected for recreation use as a whole.

Energy and Mineral Resources

Alternative A

Continuing existing management could result in a reduction of scenic quality. Leasable mineral entry would be subject to a no surface occupancy stipulation that would require that exploration and extraction take place from outside of the corridor. Locatable mineral claims would be subject to the screening requirements imposed by the State Scenic Waterway regulations. Salable minerals would continue to be taken from pits currently open to extraction.

Alternatives B and C (Proposed Decision)

Same as Alternative A, except that an additional stipulation requiring increased protection against the spread of noxious weeds and the limitations on salable mineral permits would place restrictions on new claims and permits. Because there are no claims or permits currently within the corridor, scenic quality would remain unchanged.

Alternative D

The corridor would be Withdrawn from mineral entry in designated Wild and Scenic River segments. This would eliminate the possibility of future mining activity from affecting scenic quality. There would be no changes in existing scenic quality.

Land Ownership, Classification and Use

Impacts will be discussed in future site specific proposals.

Vegetation

Alternatives for managing Fish, Wildlife, Native American Use, Paleontological Resources, and Cultural Resources would not impact vegetative resources.

The remaining alternatives do have potential impacts on vegetation as described below.

Riparian and Aquatic Habitat Restoration

Common to All Alternatives

The effects of producing and outplanting cottonwoods and other riparian tree or shrub species were covered in the Native Hardwood Supplementation Project Environmental Assessment (#OR-054-95-004). The activities are expected to increase the long-term sustainability of riparian species through the re-introduction of native genetic stock onto suitable habitats throughout the John Day River basin. This is expected to decrease the isolation of existing populations and increase the likelihood of successful sexual reproduction. Breadth, density and diversity of riparian plant communities is expected to increase. Changes resulting from the activities would include a long-term stabilization of river and stream banks due to increased root mass, an increase in the amount of shade, and an increase in the recruitment of large woody debris into the river and tributaries.

However outplantings are small in scope and extent and make up a very minor percentage of actual public riparian corridor miles. Measurable differences in riparian conditions would be limited to specific sites with the potential to support such vegetation.

The effects of construction and maintenance of minor structures for the protection, conservation, rehabilitation and enhancement of fish and wildlife habitat would be subject to site specific analysis. Generally, actions taken to stabilize river banks or to add aquatic structure to the river may result in short-term reductions in or disturbances to riparian or aquatic vegetation. Longer term, the activities would likely increase the available habitat for riparian and aquatic species.

Water Quality and Quantity

Existing Management plus Additional Actions

The effects of further coordination and cooperation with other federal, state, tribal, local organizations and private landowners are expected to include increased communication, development and adoption of appropriate best management practices for a wide variety of activities throughout the watershed. The implementation of management changes are likely to result in increased soil cover and desirable upland vegetation and a reduction in exotic, annual grasses and weeds throughout the basin. Aquatic and riparian species are expected to be specifically targeted for recruitment and maintenance. Short-term decreases in or disturbances of vegetation are expected through implementation of some upland or tributary water management projects. The long-term results of such actions would be an increase in desirable vegetation.

Information and Education

Existing management plus Additional Actions

Providing information regarding the importance of, and procedures, for controlling the spread of noxious weeds and for reducing the threat of human caused wildfire would reduce problems associated with weeds and fire. The spread of weeds attributable to public land users is expected to decrease, allowing maintenance or expansion of desirable vegetation. Reduction of fire frequency would maintain soil cover and the current trends of ecological change. In the long term, an absence of fire is associated with an increase in woody species, while the presence of fire is associated with an increase in herbaceous species. Wildfire suppression activities would decrease, decreasing the disturbance of soils and vegetation by bulldozers or hand tools, decreasing the opportunities for expansion of weeds. Opportunities for rehabilitation of burned areas through seeding would also decrease. Greater adherence to Leave No Trace ethics could reduce the amount of trees that are cut or limbed for fuel wood. Adherence to designated campsite guidelines would decrease trampling of vegetation by concentrating use and limiting the pioneering of new campsites.

Law Enforcement and Emergency Services

Existing Management plus Additional Actions

Fire closure regulations would be enforced, increasing compliance and decreasing the vegetation changes associated with human caused wildfire (see Information and Education). Instances of tree cutting would be investigated, regulations enforced and increased compliance would be expected.

Scenery

Alternative A

Existing management would not change existing vegetative condition.

Common to All Action Alternatives

Changing VRM classifications to provide a higher level of VRM protection on the North Fork and in all WSAs, and a lower level of protection at existing and future recreation sites, would require that projects and activities proposed for public lands in these locations be designed to meet the revised VRM standards for the project area. Proposed projects would also be designed to comply with State Scenic Waterway rules for scenery management, where applicable. Projects would be rated according to their short and long-term impacts on form, line, color and texture. Proposed activities which introduce short-term moderate or strong contrasts onto the landscape, such as prescribed fire, weed control, or juniper cutting, may be

allowed if the long-term changes lead the area towards a more natural appearance. Other proposed activities, such as road construction, fence and spring development, may be modified, mitigated or rejected in order to meet VRM standards.

Forest Management

Alternatives concerned with boating use levels and public access can affect forestland by increasing or decreasing opportunities for recreational users. As user numbers increase the potential for human caused wildfires increases.

Alternative A

Volumes harvested from these areas over the past 20 years has been less than 100 mbf. Future harvesting techniques and volume harvested would continue at present rates. The limited harvest would not impact overall forest conditions.

Common to All Action Alternatives

Volumes removed would continue but at a lower annual rate (possibly less than 20 mbf over the next 20 years) than under existing management. The limited harvest would not impact overall forest conditions.

Grazing Management and Riparian Resources

In a recent review of 1521 articles regarding riparian areas, Larsen *et al* (1998) noted that the literature contained "a great deal of personal opinion and commentary interspersed with little scientifically valid experimentation" and that "many of the opinion papers and nonexperimental reports were cited by others as science." Of the literature reviewed, 428 related to livestock impacts. Of those 428, 260 contained data, 168 were classified as commentary. Of the 260 containing data, only 89 were experimental, 76 were case histories, 66 were observations and 29 were posters or abstracts. Of the experimental publications, only 31 were grazing studies.

Much of the research which has been done on livestock-riparian area relationships has focused on documenting the damage that livestock grazing can do. To that end, some experiments examined the effects of grazing compared to no grazing, while not describing some fundamentals of livestock management, such as grazing intensity or season of use. While that research is valuable for establishing that grazing can have negative effects, it has limited applicability for establishing the consequences of one grazing strategy over another.

There may be differences between the responses of riparian areas to various riparian-oriented grazing strategies. However, as yet, the ability of scientific methods to detect those differences has been confounded by the complexity of the interactions between the watershed, the riparian soils and vegetation, the stream channel and the grazing animal. When differences are detected, the results are often contradicting. For example, Clary *et al* (1996) reported greater willow density from spring grazing over no grazing on a 'depleted' sagebrush steppe riparian system (Pole Creek, Oregon) while Clary (1999) reported greater willow cover from no grazing over spring grazing on a mountain meadow ecosystem (Stanley Creek, Idaho). Kauffman *et al* (1983a) found greater streambank erosion with late season grazing over no grazing and little over-winter erosion on Catherine Creek while Buckhouse *et al* (1981) found no differences between treatment (no grazing, deferred rotation, rest rotation and season long grazing) and large over-winter erosion on Meadow Creek. Many studies found there to be few if any differences between any treatments (Bryant and Skovlin, 1982; Buckhouse and Gifford, 1976; Green and Kauffman, 1995; Kauffman *et al*, 1983b; Kondolf, 1993; Sedgwick and Knopf, 1991; Siekert *et al*, 1985).

The conclusion that few differences exist in riparian area responses to various riparian-oriented grazing strategies (such as exclusion and spring grazing) is supported by the results of monitoring on the John Day River (see Appendix M). The nature of the response to no use (see for example, photos 1 through 6) is very similar to the response to riparian-oriented management (see photos 9 and 10, 15 through 22). Some areas do

not respond to changes in management. For example, photos 7 and 8 show a riparian area within an exclusion fence, built sometime in the 1950s, that still has sparse riparian vegetation. This is not the result of use by livestock but a reflection of the site potential (see discussion in Chapter 2, Vegetation, Condition and Trend). The paired inventories of willow communities in Segments 2 and 3 showed an increase from 0.0 miles to 15.56 miles of willow communities along the John Day River between 1981 and 1995 (USDI BLM, 1996a). This increase in vegetation is the result of cooperative efforts by private landowners, tribes, and local, state and federal government to restore riparian communities using a variety of livestock management and watershed improvement techniques. It should be noted, however, that much of the riverbank is not capable of supporting willow communities and management could never result in the successful introduction of willows.

Another conclusion consistent in the literature is that unmanaged hot season or season long grazing will either slow recovery of riparian areas over no grazing or contribute to degradation (Bohn and Buckhouse, 1985; Clary *et al*, 1996; Hubert *et al*, 1985; Knapp and Matthews, 1996; Myers and Swanson, 1995; Sarr *et al*, 1996).

The literature cited above and photo monitoring of sites along the John Day River indicate that restoration of desirable conditions along the John Day River can occur as fast and as completely with riparian-oriented grazing management as it would be with complete exclusion of livestock. This would be true for a river or stream system which is in balance with its sediment load. The John Day River is not in balance with its sediment load, the river has down cut, portions of the river have aggraded and are going through the process of re-establishing a floodplain (that is, in many areas it is laterally unstable). Future condition of the river will be driven more by natural geomorphological processes of moving and stabilizing the sediment load than by differences in grazing strategy.

In areas where nonriparian-oriented grazing strategies (such as season long grazing) are replaced by riparian-oriented grazing strategies (such as spring grazing), the riparian vegetation is likely to show an immediate response (as the vegetation is released from grazing pressure) and then slowly change, increasing in density, breadth and diversity (as successional and geomorphological processes proceed). At least part of the response and subsequent change will depend on variables beyond the control of the manager, such as the site type (for example, whether a given site is basalt cliff or alluvial fan), the vegetation on the site when the management change occurred, height of groundwater table, the subsequent climate and variations in river flows (Benda *et al*, 1999; Elmore and Kauffman, 1994; Platts, 1991). Large hydrological events, such as ice flows or floods, and prolonged drought influence the nature and direction of the response of vegetation to changes in grazing and, at times, actually reverses changes.

An important finding by many researchers is that there is a linkage between the vegetative community of a stream segment and associated upstream or upland areas, and that restoration efforts need to focus on a watershed perspective rather than a stream segment perspective (Duff, 1977; Hubert *et al*, 1985; Rinne, 1985; Kondolf, 1993). For example, there are approximately 1030 riverbank miles (or 515 river miles) on the John Day mainstem, North Fork, Middle Fork and South Fork. The public land portion is 341.9 riverbank miles, or 33%, 97.2 of which are managed by the Umatilla and Wallowa-Whitman National Forests (segment 8). Within the Wild and Scenic designated segments of the river (Segments 1, 2, 3, 8, 10 and 11), 197.8 public riverbank miles are managed by the BLM. Of the 687.7 private riverbank miles, approximately 429.8 (62%) are currently outside of BLM grazing allotments. Uses along these riverbanks are predominantly agricultural fields, pasture, transportation (roads) and recreation. Within the Wild and Scenic designated segments of the river, 162.2 private riverbank miles are managed concurrently with public lands.

Only in Segment 8, the segment managed by the Forest Service, is the position of public lands in the Wild and Scenic designated segments upstream from private lands. The BLM manages approximately 8 percent of the land in the John Day Basin. Approximately 56 percent of the lands managed by the BLM are located in the lower subbasin (below Kimberly). The amount and quality of water (such as temperature and sediment load), as well as the seed sources for riparian vegetation, have been influenced by land management practices largely beyond the jurisdiction of the BLM by the time the water reaches the segments of the river which include substantial proportions of public land.

Of the 197.8 public land river bank miles in the designated segments of the river, under Alternative A, 41.7 would be excluded from grazing, 24.7 would be in non-use, 121.2 would be in riparian oriented grazing management and 10.2 would be in non-riparian oriented grazing management. Under Alternative B, 71.6 public riverbank

miles would be excluded from grazing, 18.2 would be in non-use, 105.4 would be under riparian oriented management and 2.6 would be under non-riparian oriented management and awaiting land exchange opportunities for lands elsewhere in the Wild and Scenic River corridor. Under Alternative C, 193.8 public land river bank miles would be excluded and 4.0 would be in non-use. Under Alternative D, all but 1.0 public riverbank miles would be excluded or in non-use. The scattered tracts of public lands associated with the 3.2 miles of riverbank could await land exchange opportunities to eliminate the most troublesome fencing situations.

Consequences of specific strategies

Some general information is available regarding impacts of different grazing strategies on riparian areas. However, after investigating grazing management strategies and techniques practiced on healthy riparian streams in Montana, Ehrhart and Hansen (1997) found that operator involvement was the magic bullet. "We concluded ... that riparian grazing might be incorporated into each of the traditional grazing systems - except season-long - *as long as the condition of the riparian zone itself remains of primary concern* (emphasis original). Management, not the system, is the key."

In reviewing impacts of various grazing strategies it has been noted that the most important aspect of an strategy, operator involvement and commitment to riparian recovery, is likely to vary amongst operators. As a consequence the level of riparian recovery has varied. Duff's study (1977) supports this by noting that "Positive habitat response achieved from 4 years of rest had been negated by six weeks intense livestock grazing" after a riparian exclosure fence was cut. Implementation of an 'appropriate' strategy without constant attention is bound to fail, whether the strategy is exclusion, total rest, or maximized use.

General information is presented below explaining probable results of grazing strategies or techniques commonly used within the John Day Basin. The information presented below (except where otherwise noted) is paraphrased from several documents which summarize experiments, observations and opinions regarding grazing in riparian areas, including Ehrhart and Hansen (1997), Elmore and Kauffman (1994), and Platts (1991).

Season of Use. One of the first steps to developing a riparian-oriented grazing system is determination of appropriate grazing seasons. Primary considerations include livestock behavior, response of plant communities and the degree of soil moisture on the site. Seasons are defined by growth stages in the annual growth cycle of native bunchgrasses. Early season runs from the beginning of growth in the spring to flowering. This corresponds to the period of highest river flow levels (see photos 11-14 in Appendix M). Hot season runs from development of seeds to seed set and drying of vegetation. This corresponds to the period of quickly dropping river flow levels, during which the river ceases to act as an effective barrier to livestock movement. Late season runs from completion of annual life cycle, through the on set of fall rains, the development of next year's tillers and re-initiated photosynthesis. This corresponds with the lowest river flow levels and the gradual increase in flow associated with autumn. Dormant season runs from the drop in soil temperatures, which slows and eventually stops plant growth, to the increase in soil temperatures which allows plants to begin active growth. This corresponds to the period of rising river levels and ice flows.

Early Season (Spring) Use. Livestock are attracted to uplands by succulent upland vegetation while cool temperatures discourage cattle from loitering in the riparian zones. Much of the John Day River riparian zone is covered by water (see Appendix M, photos 11-14), so many of the riparian plants are ungrazed with early season use. Those plants that are available to livestock usually have sufficient soil moisture for regrowth following defoliation. Reduced grazing pressure on trees and shrubs is a typical result of early season use. Impacts on soil and banks depend on soil texture and soil moisture content. Much of the John Day River has riparian soils that are cobbly or sandy and are well drained. The opportunity for compaction and bank damage is limited on these soils.

Hot Season (Summer) Use. Livestock tend to remain in the riparian area due to high temperatures and low relative palatability of vegetation in the uplands. As waters recede, barriers to livestock movement (such as deep, flowing water, steep slopes or cliffs) can be circumvented, neutralizing the effect of pasture or allotment boundaries. Following defoliation there is less moisture available for regrowth and replenishment of carbohydrate reserves. Browse species (for example, willow and cottonwood) tend to become more preferred as herbaceous vegetation dries out or loses nutritional value. Hot season use, following the critical growing season of upland vegetation, may meet plant growth requirements if the intensity of management can be

increased, such as regular herding, short grazing periods, or close monitoring of utilization levels. Soils are typically more stable at this time of year, so compaction and trampling is less of a problem if long periods of use are avoided.

Late Season (Fall) Use. Due to the palatability differences between dried upland vegetation and riparian shrubs and forbs, cattle will not be attracted to uplands unless cooler weather is accompanied by precipitation which stimulates cool season grass growth. As long as palatable herbaceous forage and offstream water is available and cool air pockets discourage livestock from loitering in lowlands, willow use should remain low. In the absence of precipitation, the relatively high protein content of shrubs and trees makes them attractive to livestock. For this reason, regular late season use on the John Day should be accompanied with close surveillance. While, young willow are particularly vulnerable to damage during late season grazing, mature stands of willow should not be affected. Herbaceous vegetation have completed their growth cycles and grazing should not affect plant development. If heavily grazed, the silt trapping properties of vegetation may be compromised (though the importance of this is under dispute, see Skinner 1998). Soils are usually dry and the probability of compaction and bank trampling is low.

Dormant Season (Winter) Use. When bottoms are colder than surrounding uplands, especially where south facing slopes are present, winter grazing can be an effective way to limit the time spent by livestock in riparian zones. Supplemental feeding well away from streams and offstream water developments will increase the effectiveness of winter grazing. Harsh winter storms, however, could encourage livestock to seek cover in riparian zones, allowing for rubbing and trampling damage. Herbaceous vegetation have no exposed growing points, so defoliation does little or no damage. Plants that are used have the entire growing season to recuperate. Grazing when soils are frozen is an advantage on finely textured soils, however, in the John Day basin, few soils are finely textured and the majority of the winter is spent above the freezing level.

Season Long Use. Grazing throughout the growing season, livestock tend to congregate and loiter in riparian zones. Riparian zones provide convenient forage, water and cover for livestock. Overuse of riparian zones is possible even with low stocking rates. The availability of water allows for continuous regrowth throughout the grazing season and plants often are grazed numerous times in one year. If grazed heavily enough, carbohydrate reserves needed for dormant season respiration can become depleted and plants can lose vigor or die. Trampling damage, soil compaction and accelerated streambank erosion are likely.

Rotation Grazing. Rotation grazing systems were designed to meet the growth requirements of upland vegetation while allowing grazing to occur during periods when plants were sensitive to defoliation (Hormay, 1970). As long as the physiological needs of riparian species are known and taken into account, rotation grazing systems can be used to restore degraded riparian areas. Effects of grazing under a rotation system will mirror the effects described above for various seasons. The difference is that the effects will change from year to year depending on whether livestock are present in the spring, summer, fall or winter. Also, rotation systems often include periods of non-use for more than one calendar year. Rotation schedules vary in the number of pastures which are included in the rotation as well as the seasons which are included. Because of the variety of combinations available, effects on the riparian zone cannot be predicted without more information on the rotation system.

Livestock Distribution. Discouraging livestock from loitering in riparian zones is accomplished with a variety of techniques in addition to season of use. Offstream water has been shown to reduce the time cattle spend in riparian zones by as much as 90%. Other strategies include placing salt or mineral blocks over 1/4 mile from the target riparian zone; improving upland vegetation through proper management, burning or seeding; regular herding; selective culling of animals which linger in riparian zones; turning animals into a pasture at a gate far removed from the target riparian area; drift fences which prevent livestock from using the river as a travel corridor; and corridor fencing.

Livestock Exclusion. Livestock exclusion from a target riparian area can be achieved through construction of a fence which parallels the banks of the river, called a corridor. This strategy eliminates flexibility in the decision of whether to develop offstream water. With the riparian zone no longer accessible to livestock, alternative water sources must be developed. However, this strategy eliminates the impacts of livestock on soils and vegetation in and nearby the target riparian zone and allows the operator more flexibility when deciding how to graze the upland vegetation. With corridor fencing the uplands could, if grazed improperly, contribute to increased

overland flow resulting in sediment loading of the water and riparian zone. Livestock impacts could be further reduced by elimination of grazing from an entire watershed.

The effectiveness of corridor fences determines the degree to which livestock continue to affect riparian resources once the project is implemented. Fences must be constructed so damage by floods is minimized and so the general public doesn't neutralize the effort through cutting fences or leaving open gates. Coordination with other land owners is also essential in determining corridor fence effectiveness. At low water, a neighbor's livestock can cross the river and graze a riparian zone otherwise excluded. Even on the same side of the river, if one neighbor's riparian zone is fenced and the other is not, fences leading down into the water on the land ownership boundary must be put up and taken down with variations in river flow levels. Otherwise, fences will be washed out by high water and a hole will allow livestock to penetrate at low water. Constructing corridor fences over large sections of the river would require coordination among several land owners. Means for achieving cooperation could include interagency incentive programs and purchase of easements.

The following summarizes grazing impacts to riparian vegetation by alternative. Refer to Table 3-E and Appendix L to determine how each allotment varies by alternative.

Alternative A

Continuing existing grazing management on allotments would maintain existing trends in riparian production and density and diversity of riparian plants. As described above, where riparian-oriented strategies have not been implemented riparian areas would be less likely to increase in vegetation density and diversity over time. Riparian areas with riparian oriented strategies would either maintain existing condition or increase in vegetation density and diversity.

Alternative B (Proposed Decision)

Same as Alternative A, except that the additional 20.9 miles of riparian area (public and private) would have increased diversity and density in riparian vegetation where site conditions are suitable as a result of a change in grazing management to one that: utilizes high water or exclusion fences to prevent access of livestock to a large portions of riparian vegetation, limits duration and intensity of grazing to a level that allows plants that are grazed to complete their growth cycle, and permits grazing during a period in which upland vegetation is accessible and provides a more desirable forage source for livestock than riparian vegetation. Where existing management would be continued current trends in vegetative condition would also continue. See Table 3-E for disclosure of allotments with new grazing management.

Alternative C

Exclusion of grazing from riparian areas on public land within the corridor would have effects similar to those of Alternative B.

Alternative D

The effects of this alternative on riparian vegetation would be the same as Alternative C.

Grazing Consequences for Upland Vegetation

With grazing strategies which take advantage of the natural propensity of livestock to disperse throughout the uplands rather than to congregate in the riparian areas, there could be effects to the uplands which are not currently occurring. The scope of these effects, however, is mitigated by several factors.

First, the riparian areas are small fractions of the landscape, often less than 5 percent of the total area. The effects of displacing use of riparian areas to use of uplands would be not be measurable. Measurable effects may occur if the uneven distribution from the riparian area is simply displaced to another unique site which livestock prefer, but this is not expected. Special status plant species might be at greater risk with greater dispersal, but the populations of species which are sensitive to grazing (see discussion under Grazing Impacts

on Special Status Plants) have survived in areas which herbivores don't tend to visit. Populations of special status plants are monitored. If a population becomes endangered through grazing by livestock, mitigation measures would prevent further impacts.

Second, the carrying capacity of public lands was determined through range surveys conducted in the 1960s and 1970s. The range surveys measured upland forage production and did not estimate riparian forage production. These surveys enabled production estimates for proper use (leaving enough of the forage for soil cover and physiological needs of the plants), wildlife use, and livestock distribution factors to be corrected. The surveys prescribed allowable use levels, which are consistently below those prescribed by the National Resources Conservation Service for similar lands, below those used on nearby private lands, and in many cases are a fraction of the public land use levels prior to the surveys.

Third, upland grazing is timed to limit the amount of grazing which occurs during the upland plants' 'critical growing season'. Plants are more susceptible to defoliation at certain points of their annual growth cycle (Miller, Seufert and Haferkamp, 1994), the most susceptible season of which is called the 'critical growing season'. Measurable effects of grazing are less likely when the critical growing season is avoided, when grazing pressure is kept light or when 'critical growing season' grazing is followed in subsequent years by a grazing strategy that allows vegetation to fully recover.

Consequences of specific strategies

Control of animal numbers is considered by some (Heady and Child, 1994) to be most important aspect of proper grazing management. Once grazing pressure is brought to within reasonable levels, the timing of grazing is generally considered to be more important than percent utilization (Frost, Smith and Ogden, 1994; Miller, Seufert and Haferkamp, 1994). The following explains some of the impacts which can be expected at various seasons, the information is summarized from Miller, Seufert and Haferkamp, 1994 and BLM, 1998 except where otherwise noted.

Dormant season (winter). Upland herbaceous plants are mostly dormant during the winter season of use with the exception of some photosynthesis by new growth after fall and winter precipitation and during warming weather trends, primarily on south exposed slopes. Light (20 - 40%) to moderate (40 - 60%) use of the new growth usually is not detrimental to the health and vigor of plants as long as there is adequate soil moisture through the spring and summer for regrowth and completion of the annual life cycle. Defoliation of fall sprouting annual species, such as cheatgrass, may provide a competitive advantage for desirable perennial species. Browsing of palatable upland shrubs can become heavy during periods of snow accumulation.

Heavy (60- - 80%) or severe (80 - 100%) use of the range in the winter may reduce the amount of standing dead vegetation which forms the soil cover layer and eventually becomes integrated as organic matter into the upper layers of the soil. Loss of soil cover would result in the loss of protection of the soil surface from raindrop impact and wind erosion. With high soil moisture content, soils high in clay are susceptible to trampling and compaction. Soils high in coarser particles, like sands, are less susceptible to compaction. Soils crusts (microbiotic crusts such as lichen, fungi and moss) are fully hydrated during this period and can tolerate some disturbance (Harper and Marble, 1988). Areas of heavy use, however, are not likely to support soil crusts.

Early season (spring). Active growth of herbaceous species, particularly cool season species, occurs with rising soil temperatures. The active growing season is occasionally divided in two, based on when the growing points of palatable perennial species elongate to within the reach of the herbivore. Plants can generally tolerate defoliation prior to elongation of seed stalks. Enough soil moisture generally remains for regrowth, flowering and replenishment of nutrient reserves. Since annual species begin stem elongation earlier than perennial species, grazing during this time can give a competitive advantage to desirable species.

During seed stalk elongation and flowering (that is, the 'critical growing season') the plants are susceptible to moderate defoliation. Susceptibility increases with repeated defoliation of the same plant. Limited soil moisture is available for regrowth and flowering and defoliated plants could go into dormancy with reduced nutrient reserves. Following moderate 'critical growing season' defoliation, a plant can generally recover with one season of 'critical growing season' rest. However, several consecutive years of moderate 'critical growing season' defoliation could reduce the vigor of the plant to the point of die-off.

Impacts to soils are similar to those listed above for dormant season grazing. Hoof action on soil crusts will cause greater disturbance to the organisms as soils dry (Harper and Marble, 1988).

Hot season (summer). Soil moisture becomes very limiting to most native plant growth, most upland plants have completed their annual growth cycles, some hot season species (such as sand dropseed) may still be in seed production. The plants are generally in senescence and nutrient reserves are near their maximum levels. Defoliation during this stage generally does not affect the vigor of desirable plant species. Impacts to soils are similar to those listed above, except that little opportunity for compaction exists. Disturbance from hoof action to soil crusts is near their maximum.

Late season (fall). Herbaceous upland plants remain senescent with minimal new growth and some regrowth during warm conditions when soil moisture has been replenished by fall precipitation. Defoliation at this time generally does not impair the vigor of plants. Impacts to soils and crusts are similar to those listed for hot season.

Season long. Season long grazing generally begins during the active growing period and extends through the 'critical growing season' and hot season until fall. The effects of uneven livestock distribution are most noticeable with this type of grazing. Plants where livestock congregate are defoliated repeatedly throughout their life cycle. The vigor of palatable species can be greatly compromised at those locations. Areas inaccessible to livestock are lightly grazed or ungrazed. Impacts to soils and crusts are more severe than those listed for hot season grazing and can include damage to surface soil structure, an increase in bare soil, exposure to weed invasion or increase, and a reduction in infiltration rates.

Rotation. When management objectives allow the flexibility to graze in more than one season, use of a pasture may be varied such that it is grazed in a particular season on one year in three or four. The timing of grazing and subsequent rest may allow plants opportunity to make and store food (recover vigor), allow seeds to ripen, allow seedlings to become established or allow litter to accumulate. The amount of rest needed for these purposes depends on the plants involved, character of the range, and objectives of management, so it is determined for each range individually (Hormay, 1970). Generally, active growing season (particularly 'critical growing season') use is followed by a year or more of active growing season rest. Often, the following year is a deferred treatment, in which the pasture is grazed during the hot season or fall. Anticipated short-term impacts from annual use of a pasture for any one season are presented above. Long-term impacts are determined by the rotation schedule and the mix of resources within a pasture.

Exclusion (non-use). Defoliation is limited to that which occurs from insect, wild horse and native herbivore use. Except in cases of a concentration of herbivores, defoliation levels tend to be slight or none. Soil cover tends to reach a maximum and then fluctuate with differences in rainfall, season, and fire frequency.

The following summarizes grazing impacts to upland vegetation by alternative. Refer to Table 3-E and Appendix L to determine how each allotment varies by alternative.

Alternatives A and B (Alternative B is the Proposed Decision)

The grazing prescriptions applied on lands adjacent to the riparian enclosure would meet the Standards for Rangeland Health and Guidelines for Livestock Grazing Management. (See Appendix J) Compliance with Standard 1, Watershed function--uplands, would provide sufficient groundcover to intercept and dissipate overland flow and increase water infiltration into soils. As a result there would be a reduced potential for runoff to create erosional channels capable of damaging downslope riparian areas. Localized trampling or trailing by livestock along riparian fence lines or congregation within specific areas would compact soils, decrease water infiltration, and increase overland flow and erosion. These localized impacts would vary by allotment. Allotments with upslope water developments would help to move cattle use away from riparian fence lines whereas allotments without such developments would have more livestock use along riparian fences.

Alternative C

Exclusion from riparian areas would have same impacts on Upland vegetation as described for Alternatives A and B. With the increase in riparian fence lines there is a possibility that trailing along these fence lines would be greater than under any of the other alternatives.

Alternative D

Excluding grazing from designated Wild and Scenic River segments and from within 1/4 mile of the river in the undesignated segments would create vegetative conditions similar to those that would be found on public lands under Alternatives A, B, and C. Conditions on public lands outside the Wild and Scenic River Boundary or outside of 1/4 mile of the river would be subject to the same impacts as described for Alternatives A and B outside of riparian exclusions. In addition there is a possibility that current permittees with lands adjacent to the Wild and Scenic River Boundary or outside the quarter mile buffer may increase grazing on private lands to make up for AUMs lost under this Alternative. When this occurs upland vegetation may become less dense and less diverse with a subsequent loss in ability to function as described under Alternatives A and B.

Special Status Plants

Management of grazing, recreation, and mining are actions considered in this EIS that have the potential to impact special Status plants.

Effects of Grazing

Alternative A

The rarity aspect of special status plants can arise through a variety of different means. For example, the plants may have always been rare (for example, they may require very specialized conditions), they may have only recently evolved from a closely related species, or they may have been common once and are becoming rare due to environmental changes (such as climate change, introduction of a superior competitor, or human perturbation).

Of the seven species of special status plants known or suspected to occur within the basin, some occupy habitats which are unlikely to attract livestock (*Astragalus diaphanus* var *dinurus*, *Mimulus jungermannioides*), others are tolerant of livestock disturbance (*Juncus torreyi*, *Rorippa columbiae*) and some are both palatable to livestock and intolerant of disturbance during part of their lifecycle (*Thelypodium eucosmum*, *Carex hystericina*, and *Astragalus collinus* var. *laurentii*).

Of those species which are intolerant to grazing during certain seasons, the legacy of uncontrolled livestock use in the John Day basin removed those plant populations which grew in areas that livestock favored. The loss of those populations occurred well before the adoption of grazing use levels or season of use restrictions. Those populations were replaced by other plant populations. Of those species which are intolerant to grazing during certain seasons, populations located in areas that are not preferred by livestock are likely to continue to be unaffected by livestock unless some management action makes the area more favorable to livestock (such as a new fence or water trough). All such potential management actions are subject to review and clearance according to procedures outlined in Chapter 3, Existing Guidance section of this document.

Thelypodium eucosmum is susceptible to grazing during the latter part of flowering and to trampling. The species prefers steep, rocky hillslopes derived from volcanic ash and grows near water, though it is not considered a riparian species. Flowering occurs during May through August during its second year. As long as water is available, a reproducing plant will resprout and complete reproduction when grazed. Livestock related activities (such as fencing or water troughs) which do not encourage livestock to venture into new areas would not adversely affect existing populations. The limiting factors in expansion of the species within the Wild and Scenic River boundaries is most likely the availability of a seed source and suitable habitat.

Carex hystericina occupies very wet, boggy or marsh areas. Available habitat on the John Day River is limited, but could become more common with restoration of riparian areas and uplands. The limiting factor in expansion of the species within the Wild and Scenic River boundaries is availability of a seed source.

Astragalus collinus var. *laurentii* occupies dry slopes in sandy or rocky substrates. It would be susceptible to grazing during April to July in normal years. Populations have not been found within the John Day basin. The limiting factor in expansion of the species within the Wild and Scenic River boundaries is availability of a seed source. Any changes in grazing management which would favor other native species would be favorable to the habitat for this species.

Alternative B (Proposed Decision)

Same as Alternative A.

Alternative C

Same as Alternative A except that with the restriction of livestock access to riparian areas, livestock would be forced to spend more time in the uplands. Generally, a more even distribution of pressure is expected and overgrazing would not be a common problem (see general overview of grazing consequences to upland vegetation). In the event that alternative water sources had to be built to accommodate grazing, however, livestock may be encouraged to venture where they previously were not inclined to go. The special status plant populations which are palatable and accessible to livestock may be jeopardized by new springs or fences which encourage use of previously unused areas. Clearance procedures outlined in Chapter 3, Existing Guidance, would help to mitigate any such impacts for populations located on public lands. Populations located on private lands would not be protected by such clearances.

Alternative D

Same as Alternative A except with the restriction of livestock access from all public lands and some private lands within the WSR boundaries, the distribution of grazing pressure would be shifted. Of those species which are intolerant to grazing during certain season, populations lying within the boundaries would experience similar grazing pressure to what currently exists. Populations lying outside the boundaries would be more likely to receive greater grazing pressure. Clearance procedures outlined in Chapter 3, Existing Guidance, would help to mitigate any such impacts for populations located on public land, populations located on private lands would not be protected by such clearances.

Opportunities for expansion of existing or recruitment of new populations would be limited in *Carex hystericina* and *Astragalus collinus* var. *laurentii* by available seed source and habitat. Opportunities for expansion or recruitment of *Thelypodium eucosmum* populations may be greater within the Wild and Scenic River boundaries, however, this could potentially be offset by a loss of some populations outside the boundaries.

Agricultural Lands

Impacts on vegetation by the different alternatives are directly related to how many acres are in the different uses.

Alternative A

This alternative would maintain existing vegetative conditions by continuing the present uses on 384.2 acres of agricultural land with attached water rights. Twenty-eight percent are in non-use, 17 percent are in either wildlife food and cover crops or in a native hardwood supplementation program and 55 percent are in commodity production. All of the acreage in non-use is being treated for weeds which routinely invade a field following abandonment. Wildlife food and cover crops primarily consist of sunflower, milo, wheat, millet and Sudan grass, although other species may be added or substituted depending on the wildlife species using the forage.

Common to All Action Alternatives

Seven percent of the agricultural land is scheduled to be exchanged for other lands in the Wild and Scenic River corridor. The fields exchanged would likely remain in commodity production. The consequences would be fully analyzed in the planning document prepared for the exchange.

Alternative B

Of the 358.6 irrigated acres which would remain in public ownership, 54 percent would remain in commodity production. These lands would support buffer strips of non crop vegetation adjacent to the active flood plain. Any portion of lands in commodity production may be converted to wildlife food and cover crops or native perennial vegetation in the event that the lease was no longer pursued by private entities. Approximately 46 percent of the remaining irrigated fields would be converted to wildlife food and cover crops or used for the production of native hardwoods.

Alternative C (Proposed Decision)

Of the 358.6 irrigated acres which would remain in public ownership, 100 percent would be converted to wildlife food and cover crops, native perennial vegetation or put into native hardwood propagation. There would be a 10 year phase-in period.

Alternative D

Of the 358.6 irrigated acres that would remain in public ownership, none would be available for wildlife food and cover crops or native hardwood propagation efforts (see Riparian and Aquatic Habitat Restoration). All irrigated acres would be seeded to native vegetation consisting primarily of the dominate grass species in the particular ecoregion an irrigated field is located. The exact species seeded would vary depending on soils and adjacent native vegetation; however, the more common grasses, forbs and shrubs are bluebunch wheatgrass, sand dropseed, basin wildrye, white yarrow, sulfur flower, blue flax, sagebrush and bitterbrush.

The effects of eliminating the native hardwood propagation efforts would be either to cease outplanting or to rely upon other sources for dormant stalks. Other producers of dormant stalks for outplanting are unlikely to have a high availability of John Day basin genetic stock. A more detailed analysis of these options are presented in the Native Hardwood Supplementation Project Environmental Assessment (#OR-054-95-004).

Boating Use Levels

Boating use can contribute to weed dispersal, the pioneering of new campsites, and riparian area disruption.

Alternative A

Under this alternative, there would be little control of effects of visitation on vegetation. Increased use would force campers to pioneer new sites when existing sites are occupied. Increased disturbance can be expected to occur from activities such as launching and docking a boat, tying a boat to a suitable shrub for anchorage, setting up tents, fire rings, gathering fire wood, cutting vegetation, and seed dispersal of both desirable and undesirable plant species. Possible changes in soils and vegetation would be similar in type to effects of livestock grazing (such as, soil compaction, loss of vegetation, reduction in organic matter). The greatest changes would occur immediately after an area is first used, after which the soils and vegetation condition would tend to stabilize (Clark and Gibbons, 1991). The effects would be greatest prior to the completion of the LAC study and subsequent implementation of use limits.

Alternative B

No additional decrease in riparian vegetation within established campsites would be expected since use levels similar to 1998 would be expected. This is due to the fact that most sites to be used under this alternative have already been impacted and riparian vegetation removed as a result of previous use. The tendency to pioneer new sites would be reduced because peak use levels would be the same as 1998 and sufficient site numbers have been established.

Alternative C (Proposed Decision)

Since use would be more evenly distributed over the days of the week and the season rather than concentrated in a few peak weekends, total disturbance would remain about the same as at present at the most popular campsites. This would maintain at existing levels the frequency nearby vegetation would be trampled. Localized soil compaction and erosion would occur at about the same rate. Reducing use during peak use periods would virtually eliminate the need to create new camp sites as competition for sites would be reduced. Some less desirable sites would fall into disuse and would eventually revegetate. This would reduce the expansion of disturbances and decrease opportunities for seed dispersal on new locations.

Alternative D

The rate of increase of use would slow and the use would be more evenly spread throughout the boating season. The effects would be similar to those presented in Alternative C. Popular camp sites would continue to be used at nearly the same rate while use in other sites would decrease even more than under Alternative C. Revegetation would occur at more sites than under any other alternative.

Alternative E

Same as Alternative C

Motorized Boating

Alternative A (Proposed Decision for Segment 1)

Physical forces associated with motorized boating includes wash, turbulence and propeller action. The direct effects of each force have been difficult to quantify because they interact and are confounded by variables such as size of boat and engine, shape of hull, size and current of water, and the time of year. Potential effects are bank erosion, washing out of roots, and turbulence which disturbs streambed sediments. Disturbance can facilitate the distribution of seeds or plant fragments of both desirable and undesirable species (Liddle and Scorgie, 1980). Direct contact with banks and vegetation and the effects of increasing visitation would have effects similar to those described under boating use levels. Because of the limited number of boats with motors on the John Day River pollution associated with outboard motors would not be great enough to affect soils or vegetation.

Alternative B

Closure of Segment 3 during April to October would reduce the effects of wash, turbulence, and propeller action during the active growing season and the lowest river flows. Extending the closure in Segments 1 and 2 would reduce effects of motorized boating during seasons when physiological activity of riparian vegetation is generally low.

Alternative C

Effects would be similar to those stated above except that closure of a portion of Segment 2 would eliminate the effects of motorized boating on that portion of the river.

Alternative D (Proposed Decision for Segment 2)

Eliminating motorized boating would eliminate bank erosion, washing out of roots, and disturbance of streambed sediments associated with motorized boating.

Alternative E (Proposed Decision for Segment 3)

Same as for Alternative B, except that allowing limited motorized use in Segments 1 and 2 during March and April would allow the effects of wash, turbulence, and propeller action during the active growing season to continue on a limited basis.

Dispersed Recreation

Impacts of Dispersed Recreation are included in discussions of Boating Use Levels and Access.

Developed Facilities

Alternative A (Proposed Decision for Segment 11)

Continuing existing maintenance schedules on developed recreation sites would not change riparian vegetation in these areas and consequently would not change cover conditions or water quality.

Alternative B (Proposed Decision for Segment 1-3)

Improvements to existing sites and development of new sites at Twickenham and Burnt Ranch would encourage more use with an expected loss of some riparian and upland vegetation near the river. However, loss of vegetation at the new sites would be offset by revegetation of tow sites that are permanently closed.

Alternative C (Proposed Decision for Segment 10)

Impacts would be the same as in Alternative B plus the impacts associated with the development of a site at Ellingson Mill in Segment 10. Because this site is already a heavily used dispersed site trampling of riparian vegetation and compaction of soils has already occurred. By controlling travel routes and campsite location, and preventing vehicle access, riparian vegetation would increase in density compared to all other alternatives B.

Alternative D

Where sites are closed there would be reduced trampling of vegetation and soil compaction than when sites are open to use. As a result vegetation would increase in vigor and density compared to the existing condition in these sites. Given the small area affected the magnitude of the change would be small. Recreationists displaced by campsite closures would increase use of other sites which are likely to be subject to trampling, soil compaction and vegetation loss.

Public Access

Roads used for public access have the following impacts: 1) they reduce infiltration rates, 2) increase surface runoff at the expense of groundwater flow, 3) increase erosion, 4) compact soils, and 5) have the greatest impact on soil mass movement (Brooks et al. 1991).

Common to All Alternatives

Improved access to Priest Hole and relocation of Public Access at Twickenham would cause a slight decrease in riparian vegetation (approximately 70 feet) at the new site, but would focus use away from adjacent riparian areas and therefore increase riparian vegetation outside the 70 foot stream frontage.

Alternative A

Continuing existing management of access would maintain existing vegetation condition.

Alternative B (Proposed Decision)

Effects of road management are the same as in Alternative A with the additional effect of increased disturbance in some areas. Small amounts of vegetation may be lost in the course of improving existing access routes.

Alternative C

Additional road construction and/or maintenance to provide access would increase the amount of vegetation loss compared to Alternatives A and B.

Alternative D

Closure of access points would decrease use in those areas and reduce trampling of riparian vegetation. Some increase in vegetation density may occur if closed roads become revegetated.

Energy and Minerals Resources

Alternative A

The low occurrence of mineral activity within the corridor currently results in only a small amount of disturbance. The most common activity is the mining of rock and gravel which sometimes results in disturbance and the removal of vegetation over a few acres. Disturbance during the prospecting for locatable minerals is usually minimal and confined to areas of much less than an acre. In the event of a strike, development of several to many acres may be required. Strict State Scenic Waterway and Federal 43 CFR 3809 regulations combined with the low potential for the occurrence of locatable minerals within the corridor however, make the development of mining claims unlikely. If claims were to be established, undesirable annual species would usually dominate reclaimed sites in the short term. Use of noxious weed control techniques would limit spread of undesirable species in the long term. Disturbances resulting from leasable mineral exploration are usually short lived with site reclamation restoring vegetation within a few years. The No Surface Occupancy (NSO) stipulations for the lower John Day up to Kimberly and the State Scenic Waterway Screening regulations, combined with a low to moderate potential of occurrence of leasable minerals make the development of leasable resources unlikely.

Alternatives B and C (Proposed Decision)

Same as A except that the NSO stipulation would be extended to the upper John Day River by an amendment to John Day RMP and proposed State Scenic Waterway rules (CH4) would be adopted as a permanent management policy for BLM, regardless of any future changes to the State Scenic Waterway rules. Stipulations in this plan for added protections of vegetation including the closing of the corridor to salable mineral entry would also be in place. The combined effect would be to make the development of mineral resources even less likely than for the present situation.

Alternative D

Withdrawing lands within the WSR boundary location under the Mining Law of 1872 would eliminate the possibility of future mining activity affecting vegetation while permitting recreational gold panning.

Recreation Opportunities

Boating Use Levels

Alternatives for managing Fish, Wildlife, Native American Uses, Water Quality and Quantity, Scenery Management, Private Land Use, Grazing, Boating Use, Allocation, and Energy and Mineral Resources would not be expected to have an effect on boating use levels.

The Alternatives described below are expected to have impacts on boating use levels.

Riparian and Aquatic Habitat Restoration

Continuing existing Riparian and Aquatic Habitat Restoration management may involve temporary or permanent use restrictions at dispersed campsites where necessary to restore riparian and aquatic habitat. Campsites in need of restoration would be identified through an LAC inventory of campsite conditions. Temporary or permanent campsite closures would affect the number of campsites available for use and may be taken into consideration when determining appropriate boating use levels under Alternative C.

Paleontological Resources

Under any alternative boating use levels may have to be adjusted if the closure of an area reduces available campsites or if degradation of the paleontological resource occurs.

Cultural Resources

Under any alternative boating use levels may have to be adjusted if the closure of an area reduces available campsites or if degradation of the cultural resource occurs.

Public Information and Education

Existing Management

Continuing existing management would not be expected to have an effect on boating use levels.

Additional Actions

During the three year period before appropriate use levels are determined, letters and media press releases would be necessary to encourage boaters to launch during off peak times to maintain use levels or interim daily targets.

Law Enforcement and Emergency Services

Existing Management

Continuing existing management would not be expected to have an effect on boating use levels.

Additional Actions

Increased law enforcement presence would encourage boaters to comply with non-permit measures or a permit system to maintain desired use levels.

Agricultural Lands

Alternative A

Continuing existing management would not affect boating use levels.

Common to All Action Alternatives

More campsites would become available through the conversion of agricultural lands to native vegetation under Alternatives B, C, or D contingent upon the control of weeds. Alternative B would probably provide the fewest new campsites and Alternative D the most. New campsites would be possible in Segments 1, 2, and 3 however Segment 2 would have the most potential. An increase in available campsites could lead to an increase in the number of daily launches allowed in a segment under Alternative C for Boating Use Levels.

Recreation

Common to All Alternatives (Proposed Decision)

If recreation use is found to be above acceptable limits after implementing an LAC study, mandatory limits on boat launching in Segments 1-3 may be imposed. This would require boaters to participate in a limited entry permitting process as described under Allocation. The long-term effects of mandatory launch limits on boating use levels would be similar to the effects expected during the interim period in which boaters would be asked to voluntarily meet one of the use level targets described below. Launch targets proposed for the interim management period refer to launches for overnight trips. The LAC process will study the impacts of day use, and if necessary day use launches may be limited in the future.

Boating Use Levels

The following analysis is based on the assumption that target use levels under each alternative would be met during the interim management period using the voluntary measures described for Alternatives B, C, D, and E. If, for any reason, target use levels are not attained or maintained, the effects for each alternative would be expected to be the same as in Alternative A, or an alternative with a target higher use level. The following analysis also assumes that launches of motorized boats include a single boat. Launches of non-motorized boats, rafts, canoes, an kayaks, etc. average between 2 and 3 vessels per launch.

Alternative A

Not limiting Boating Use Levels would result in increases in boating use in all segments where boating use occurs, subject to variations in water flow, weather, fishing, and economic conditions. From Service Creek to Tumwater Falls boating use would be expected to increase by approximately 4% per year above the 18,300 boater use days estimated for 1998. This would amount to an increase of approximately 135 additional launches at an average length of 3.3 days per launch, accounting for 2,282 additional use days in 2001, assuming water and weather conditions similar to those in 1998. On weekends from Memorial Day through Fourth of July, the number of boating parties within these river segments would be expected to exceed the number of available river campsites in most cases. The consequences of this situation are described under impacts of Alternative A on Dispersed Recreation. (Note: Four percent annual growth projection is based on a combination of observed increases in private and commercial boating use and on 1987 OPRD estimates for Central Oregon of a 4.2% annual increase in freshwater boat fishing and a 1.6% annual increase in river non-motor boating through the year 2000. (OPRD, 1991.)

Alternative B

Targeting daily launches for overnight trips at or below the maximum recorded in 1998, (19 within Segment 3 and 16 within Segment 2) during the interim management period, would reduce the amount of use on weekends compared to Alternative A. During the 1998 season, daily launches were at Alternative B targets on one day each in Segments 2 and 3. As in Alternative A, total boating use would be expected to increase approximately 4% in Segments 1-3 over 1998 levels, except that the 135 additional launches in 2001 would occur on weekdays, when current launches are well below target levels.

Alternative C (Proposed Decision)

Targeting daily launches for overnight trips to correspond with 70% of available campsites, or 10 launches within Segment 3 and 8 launches within Segment 2, during the interim management period, would reduce daily launches to less than in Alternatives A and B. During the 1998 season, daily launches were at or above Alternative C targets on 10 days within Segment 3, and on 5 days within Segment 2. Annual boating use would be expected to increase in Segments 1-3 at the same rate as in Alternatives A and B. To meet Alternative C targets, 49 launches that occurred on weekends in 1998, and all new launches (an estimated 135 by 2001), would need to occur on weekdays, a period when launches are currently below target levels.

Alternative D

Targeting daily launches at a 10-year historical average of daily peak period launches for overnight trips, or 8 launches within Segment 3, and 6 launches within Segment 2, during the interim management period, would reduce daily launch levels to less than all other alternatives. Many boaters would move launch dates away from peak use days, spreading use more evenly throughout the season. Some past users would likely discontinue boating the John Day due to frustration with non-permit measures, resulting in a slight decrease in repeat use. Total boating use would be expected to increase at 2% annually, a slower rate of increase than expected in all other alternatives. At this rate 68 additional launches and 1,120 additional boating use days would be expected by 2001. During the 1998 season, daily launches were above Alternative D targets on 11 days within Segment 3, and on 7 days within Segment 2. To achieve Alternative D targets during the interim management period, it is estimated that 68 new launches and 79 of the launches that occurred on weekends in 1998, would need to occur on weekdays or "shoulder" seasons, a period when current launches are primarily below target levels.

Alternative E

Same as C, except that targeting daily launches for motorized use in Segments 1 and 2 during March and April would require communication between the BLM and motorized users to assure that no more than one or two motorized launches occurred on the same day. Non-permit measures designed to redistribute boating use to non-peak days would not be effective in managing daily motorized launches because these measures are designed to encourage entire groups of users to change their use patterns, rather than asking each individual to do something different from another individual. Achieving target levels for motorized use would not be possible without the use of a reservation or advance permit system. In Segment 2, motorized launch targets for March and April would comprise a portion of the target launch levels described for general boating use in Alternatives B, C, and D.

To accurately monitor compliance with the motorized use targets, motorized river patrols would be necessary during March and April, increasing the number of motorized administrative launches, and requiring additional funding to maintain motorized watercraft, and employ river staff during an otherwise low use period.

During any month in which motorized boating is allowed, motorized boating use is expected to rise at approximately 4% annually (as is boating use in general). Although this alternative would allow motorized use in March and April to increase above current levels (one to two launches per month), capping motorized use in Segments 1 and 2 at 30 motorized launches per segment in March and 60 motorized launches per segment in April, would eliminate further increases in motorized use once the cap was reached.

Motorized Boating

Alternative A (Proposed Decision for Segment 1)

Continuing existing management of Motorized Boating by allowing motorized boating use to fluctuate within existing restrictions would be expected to result in an estimated 4% annual increase in motorized boating use in all segments where flows are sufficient for navigation.

Common to All Action Alternatives (Proposed Decision)

Closing Segments 10 and 11 to motorized boating would not be expected to have an effect on motorized boating since flows in these segments are rarely high enough to accommodate the use of motorized boats.

Alternative B

Adjusting areas and seasons of use to protect wildlife would result in a slight decrease in motorized boating use. The 57 motorized use days estimated for 1998 would be foregone as a result of this alternative, decreasing the total boating use days by .4 %.

Alternative C

Adjusting areas and seasons of use to protect wildlife and provide for use consistent with WSA status would have the same effects on boating use levels as in Alternative B, except that the 43 motorized use days estimated for 1998 would be foregone as a result of this alternative, decreasing the total boating use days by .3 %.

Alternative D (Proposed Decision for Segment 2)

Prohibiting motorized boating to eliminate the potential for conflict with other resources or uses would be expected to have the same effects on boating use levels as in Alternative B, except that the 57 motorized use days estimated for 1998 would be foregone as a result of this alternative, decreasing the total boating use days by .4%.

Alternative E (Proposed Decision for Segment 3)

Adjusting areas and seasons of current restrictions to protect anadromous fish, promote consistency with future wilderness designations, and limit potential user conflicts would be expected to have the same effects on boating use levels as Alternative B, except that 32 motorized use days estimated for 1998 would be foregone as a result of this alternative, decreasing the total boating use days by 0.2%.

Proposed Decision

Adjusting areas and seasons of current restrictions to provide an opportunity for a variety of on-river recreation experiences within the John Day River system, including motorized and non-motorized boating in specific segments, would be expected to have the same effects on boating use levels overall as Alternative B. The 1998 recorded motorized use days forgone in all segments as a result of the proposed decision would be a maximum of 57, decreasing the total boating use days by 0.4 %. (1998 data does not indicate the direction of motorized travel, therefore any motorized launch with the potential of being affected by the proposed decision was included.)

Dispersed Recreation

Alternative A

Management of dispersed sites on a case-by-case basis to protect resources may involve temporary or permanent use restrictions at dispersed campsites where necessary to restore resource conditions. Temporary or permanent campsite closures would affect the number of campsites available for use.

Common to All Action Alternatives

Encouraging dispersed use in areas that can best sustain impacts of camping according to the recommendations of a modified Limits of Acceptable Change (LAC) Study would have the same effects as Alternative A, except that campsites in need of restoration would be identified through an LAC inventory of campsite conditions.

Developed Facilities

Alternative A (Proposed Decision for Segment 11)

Continuing existing management of developed facilities would not be expected to affect boating use levels, and would be expected to result in a continuation of the launch point conditions described in Chapter 2.

Common to All Action Alternatives (Proposed Decision)

Improving or upgrading existing facilities where needed to protect resources would be expected to have the same effect on boating use levels as in Alternative A.

Alternative B (Proposed Decision for Segment 1-3)

Developing a primitive boat ramp at the existing Rock Creek site may slightly increase boating use of Segment 1, as it would provide clearly marked, legal public boat access in an area where landowners have discouraged use in the past. In Segment 2, adding additional launch lanes at Clarno would not be expected to have an effect on boating use levels, since historical use of this site appears to be unrelated to the level of site development. In Segment 3, developing lower Burnt Ranch with a primitive boat ramp, to replace the existing Burnt Ranch site, would be expected to slightly decrease boating use between Priest Hole and Burnt Ranch, and slightly increase boating use in Segment 3 below Burnt Ranch. Developing a new public boat launch at Twickenham to replace the existing private launch, would not be expected to affect boating use levels in Segment 3 as unrestricted boat launching is currently allowed at the private site.

Alternative C (Proposed Decision for Segment 11)

Developing new facilities where needed to meet the needs of the recreational user and provide better resource protection would have the same effect on boating use levels as Alternative B, except that grading the primitive launch at Clarno East in Segment 3 would likely encourage short 3.5 mile fishing trips between Clarno East and Clarno Recreation Site.

Alternative D

Closing the primitive BLM launch ramp at Butte Creek would not likely affect boating use levels as boaters would simply launch on adjacent private land. Closing the existing Burnt Ranch site to vehicle access without providing another takeout at Lower Burnt Ranch would decrease boating use between Priest Hole and Burnt Ranch because putting in and taking out in this area would be foregone.

Public Access

Common to All Alternatives

Acquiring public boat access at Twickenham would not change use levels because access is currently available on private land. Improving the condition of the road to Priest Hole may slightly increase use of this site by boaters, primarily day users traveling from Twickenham to Priest Hole or from Priest Hole to Burnt Ranch.

Alternative A

Maintaining public access at existing levels would not be expected to affect boating use levels.

Alternative B (Proposed Decision)

In Segment 3, improving access to lower Burnt Ranch, to replace access to the existing Burnt Ranch site, would decrease upstream use and increase down stream use, as described in Alternative B for Developed Facilities.

Alternative C

In Segment 1, acquiring a public access easement to Tumwater Falls and the confluence of Hay Creek and the John Day River would provide additional take-out points in a Segment where lack of road access to the river is limiting boating opportunities. A public take-out point near Tumwater Falls would open 10 miles of river to boaters that is currently available only to private landowners or motorized boaters, and would likely result in a increase in boating use in Segment 1. In Segment 2, acquiring a public access easement to the river via Butte Creek Road, would provide free access to the BLM launch site, would be expected to result in only a slight increase in boat launching at this site because the time required to reach the site and the roughness of the road is unacceptable to many users.

Alternative D

In Segment 3, closing the existing Burnt Ranch site to vehicle access without providing access to Lower Burnt Ranch would be expected to decrease boating use between Priest Hole and Burnt Ranch because a takeout in the Burnt Ranch area would be forgone.

Commercial Use

Alternative A

Not limiting commercial permits would contribute to an increase in boating use levels in all segments where boating occurs over and above the 4% annual increase expected in recreation use in general, as described under Alternative A for Commercial Use.

Common to All Action Alternatives

Issuing commercial permits according to the results of a needs assessment would not alter the projected 4% increase in boating use levels as described under Alternative C for boating use levels.

Land Ownership, Classification, and Use Authorizations

Impacts will be discussed in future site specific proposals.

Boating Use Allocation

No alternatives concerned with resources or resource values would have an impact on the selection and implementation of an Allocation System. In addition, Motorized Boating, Dispersed Recreation, Developed Facilities, Public Access, Commercial Use, Energy and Mineral Resources, and Land Ownership, Classification, and Use Authorizations alternatives would have no impact on Boating Allocation Alternatives.

Potential impacts on Boating Allocations are described below.

Boating Use Levels

Alternative A

If boating use levels remain unrestricted, an allocation system would not be developed. If the LAC study indicates launch limits would be needed to protect resources or visitor experience, an allocation system should be selected.

Common to All Action Alternatives (Proposed Decision)

If Limits of Acceptable Change (LAC) planning and monitoring data indicates recreation use is above acceptable levels, mandatory limits on boat launching in Segments 1-3 may be imposed. This would affect boaters by requiring participation in a permitting process as described under Allocation below.

Alternatives B, C and D (Alternative C is Proposed Decision)

Using voluntary non-permit measures during the interim management period to adjust use levels during peak use periods would not require an allocation system.

Alternative E

By limiting the number of launches of motorized boats this alternative would require, after adoption of the plan, immediate implementation of an allocation system during a low use period due to the low daily limit for motorized boats.

Allocation

Alternative A

Not selecting an Allocation system would have no effect on existing conditions. In the long term, the lack of an allocation method could result in a delay in the implementation of a limited-entry permit system, once such a system has been determined necessary.

Alternative B

Allocating use between guided and non-guided users based on historical proportions (approximately 80% private use and 20% commercial use) would maintain current proportions of private and commercial use but would not accommodate future changes in public demand by specific user groups.

Alternative C

Allocating use through an annual common pool lottery system would allow equal access from guided and non-guided users to available launches. Available use would be allocated to applicants via a random selection process. The annual proportion of non-commercial and commercial users would not be predetermined, but would annually adjust to changes in public demand by specific user groups. Permits would be awarded non-commercial and commercial users at approximately the same proportion as the applicant pool. Requiring boaters to request a launch permit approximately 3 to 5 months in advance of their trip would make it difficult for users to initiate trips on peak use days on short notice.

Alternative D (Proposed Decision)

Allocating use through a common pool, first-come, first-served reservation system would allow equal access from non-commercial and commercial users to available launches as in Alternative C. Making blocks of permits available on more than one pre-set date would allow parties with both long-term and short-term planning timelines to have access to permits. The annual proportion of non-commercial and commercial users would not be predetermined, but would vary based on the order in which permit requests were received during reservation periods.

Motorized Boating

No actions concerning any resources or resource values would have an impact on the selection and implementation of alternatives for managing motorized boating.

Potential impacts on Motorized Boating are described below.

Boating Use Levels

Management decisions related to Boating Use Levels would limit motorized boating in the same manner as all boaters except that under Alternative E specific launch targets of one launch of motorized boat in per day in March and two launches of motorized boats per day in April in Segments 1 and 2 would limit opportunities for motorized boating compared to existing management.

Under Alternative E limiting motorized launches in Segments 1 and 2 to one launch per day per segment during March, and two launches per day per segment during April would allow an increase from the current 5 motorized launches recorded for the two segments combined during these months in 1998, to 30 launches per segment during March and 60 launches per segment during April. Limiting launches through a first-come-first-serve registration system at the launch points would be impractical due to the small number of allowable launches per day, and the opportunities for launching from multiple private land locations. Implementation of this alternative would require a reservation or advance permit system to ensure that the actual number of daily launches did not exceed the proposed limits.

In Segments 1 and 2, general boating use during March and April is currently below daily target levels proposed by any alternative, and a system to reduce general launches during these months is not anticipated for at least 10 years, therefore limiting daily motorized launches would require development of a reservation system specifically to regulate motorized use. Recovering the administrative costs of managing and enforcing a reservation system specific to a small group of users would likely raise permit application fees to levels above what the user could support.

Allocation

Management decisions related to Allocation would affect motorized boaters in the same manner as all other users.

Motorized Boating

Alternative A (Proposed Decision for Segment 1)

Continuing existing management of Motorized Boating would allow motorized boating levels to fluctuate according to public demand in all segments of the river, within existing restrictions, and within the alternative selected for Boating Use Levels. If boating use levels remain unrestricted, the use of motorized boats would likely increase by an estimated 4% per year. This increase in motorized use would likely include jet boats, gasoline and electric outboard motors, and would take place in the same river segments and seasons in which motorized boating currently occurs.

Common to All Action Alternatives

Closing Segments 10 and 11 (South Fork John Day) to motorized boating would preclude the possibility of future motorized use of these segments. Closing these segments to motorized boating would not be expected to affect current users because low water flows, a rocky streambed, and pasture cross fences make motorized boating impractical. However, increased water flow, advances in technology, and changes in fence locations could present new boating opportunities that would be precluded as a result of this alternative.

Alternative B

Extending the seasonal closure in Segments 1 and 2 to include the months of March, April, October and November would reduce motorized boating opportunities in these segments. Current opportunity to use motorized boats during these months would be foregone. In 1998, 6 launches of motorized boats were recorded within these segments during the months of March, April and October combined, including a total of 25 people accounting for 37 use days. No trips were recorded during November. Boater registration data is unavailable for launches occurring at the McDonald Ferry/Rock Creek access point. The BLM has learned that an increasing number of people use motorized boats to access the river below this point during fall months, and acknowledges that the number of motorized use days foregone in Segment 1 as a result of this alternative is unknown.

In Segment 3, adopting a seasonal closure from April 1 to October 1, except for downstream use of small electric motors (40 lbs. thrust or less) would likely displace current and future users during the months of April through July, when motorized use currently occurs. In 1998, boaters registered 10 motorized trips originating at Clarno, with 8 of the trips occurring from April through July. The travel direction of these trips is unknown, therefore it is uncertain whether these boaters traveled into Segment 2 or 3 or both. Based on the assumption that all of the trips traveled into Segment 3, 8 trips represent a possible 35 motorized use days registered in Segment 3 during April through July 1998. As a result of this action, the opportunity to use jet boats and gasoline-powered motors during April through September would be foregone, including a possible 24 motorized use days recorded in Segment 3 during 1998. Users of small electric motors (40 lbs. thrust or less) would not be affected by this action. Note: The direction of travel of motorized launches is unknown, therefore launches occurring at Clarno, with potential travel in Segments 2 and 3, are included in the data for both segments, resulting in a duplication of data when considered by segment. When considered as a whole, the 1998 recorded motorized use days forgone in all segments as a result of Alternative B would be 57.

Boaters affected by additional seasonal and segment closures would be expected to either boat outside their preferred season (during the unrestricted months), boat an unrestricted segment such as Segments 4, 6, or 7, boat other rivers which allow motors during the John Day restricted season (such as the Deschutes River), switch to non-motorized watercraft, or discontinue boating altogether. As a result of additional restrictions, motorized user days would be expected to increase slightly in Segments 4, 6, and 7 during the months of April through July. The expected increase in motorized boating on other area rivers would be negligible.

Alternative C

In Segment 1 and in the portion of Segment 2 from Clarno Rapid to Clarno Bridge, seasonal restrictions would be similar to those proposed in Alternative B and would have the same effects except: Allowing motorized use during the month of March would increase the time period in which motors could be used by one month. Allowing the use of small electric motors (40 lbs. thrust or less) year-round in Segment 2 from Clarno Rapid to Clarno Bridge would increase opportunities for localized boating in this area, especially for fishing access.

In the portion of Segment 2 from Cottonwood Bridge (RM 40) to Clarno Rapids (RM 104.5), extending the existing motorized boat closure to year-round would reduce opportunities for motorized boating in this segment compared to Alternatives A and B. A year-round closure would have the greatest effect on boaters during the months of April and October. No motorized trips were recorded during the months of January, February, November or December of 1998. During 1998, an above average year for water flows, registration data indicates that 6 motorized trips launched at either Cottonwood or Clarno during the unrestricted season (January through April and October through December). Three trips occurred during April and one during October. Each boating party traveled within Segments 1-3. If it is assumed that all 4 boating parties traveled within Segment 2, 23 motorized use days would be forgone as a result of this action, as would the opportunity to use all types of motorized boats from January through April, and October through December within this segment. Note: The direction of travel of motorized launches is unknown, therefore launches occurring at Clarno, with potential travel in Segments 2 and 3, are included in the data for both segments, resulting in a duplication of data when considered by segment. When considered as a whole the 1998 recorded motorized use days forgone in all segments as a result of Alternative C would be 43.

In Segment 2, extending the motorized restriction from 5 to 12 months, downstream from Clarno Rapids, would eliminate the opportunity for motorized boaters to experience 46 miles of Wild and Scenic River.

Seasonal restrictions proposed for Segment 3 would be the same as those proposed in Alternative B. Therefore, the expected effects of this action in Segment 3 would be the same as in Alternative B.

Motorized boaters would respond to these additional seasonal and segment closures as described in Alternative B.

Alternative D (Proposed Decision for Segment 2)

Prohibiting the use of motorized boats in Segments 1, 2, and 3 would eliminate the opportunity to use motorized boats of any type in these segments. The 57 motorized use days, including jet boat and gasoline-powered outboard motors, that occurred in these segments in 1998 would be foregone, and users would either move to other rivers or utilize non-motorized watercraft. As in Alternative C, the effects of this alternative would provide more opportunity to experience solitude and primitive recreation within WSAs than Alternative B and C.

Alternative E (Proposed Decision for Segment 3)

Closing Segments 1 and 2 to motorized use from May 1 to December 1 would have the same effects on motorized use as described for Alternative B, except that rather than a March and April closure on motorized use, limited motorized launches would be allowed during this period. (See Alternative E for Boating Use Levels). The 4 motorized launches recorded in Segments 1 and 2 during March and April of 1998 would be allowed to continue. Two launches, accounting for 12 use days, that were recorded in October 1998 would be forgone. Note: The direction of travel of motorized launches is unknown, therefore launches occurring at Clarno, with potential travel in Segments 2 and 3, are included in the data for both segments, resulting in a duplication of data when considered by segment. When considered as a whole the 1998 recorded motorized use days forgone in all segments as a result of Alternative D would be 32.

In Segment 3, the opportunity to use all types of motorized boats from May 1 to October 1 would be foregone, including a possible 20 motorized use days recorded in this segment during these months in 1998 (see Table 2-BB).

Proposed Decision

The impacts of the proposed decision for Segment 1 are described in Alternative A, for Segment 2 in Alternative D, for Segment 3 in Alternative E, and for Segments 10 and 11 in Common to All Action Alternatives. When viewed as a whole, the proposed decision meets the Desired Future Condition for the recreation Opportunity ORV by providing an opportunity for a variety of on-river recreation experiences within the John day River system, including motorized and non-motorized boating on specific segments. The opportunity for a motorized recreation experience would be available seasonally in Segments 1 and 3, and year-round in segment 4. The opportunity for a non-motorized experience would be available seasonally in segments 1 and 3, and year-round in segment 2. The 1998 recorded motorized use days forgone in all segments would be a maximum of 57. (1998 data does not indicate the direction of motorized travel, therefore any motorized launch with the potential of being affected by the proposed decision was included.)

Dispersed Recreation

Alternatives for Dispersed Recreation would have the same effects on motorized boating as for all types of boating use. See discussion of impacts of Dispersed Recreation on Boating Use Level.

Developed Facilities

Alternative A (Proposed Decision for Segment 11)

Continuing existing management of developed facilities would not be expected affect motorized boating.

Common to All Action Alternatives (Proposed Decision)

Improving or upgrading existing facilities to protect resources would not be expected to affect motorized boating.

Alternative B (Proposed Decision for Segment 1-3)

Improving or upgrading existing facilities where needed to better meet the needs of the recreation user, and developing new recreation sites to replace sites that are closed for resource protection would increase launch access for motorized boats at Rock Creek, Clarno, and Lower Burnt Ranch, if such use were permitted under the selected alternative for motorized boating.

Alternative C (Proposed Decision for Segment 10)

Developing new facilities where needed to provide better resource protection would have the same effects on motorized boating as in Alternative B.

Alternative D

Reducing facilities at selected sites, or closing selected sites, in an attempt to discourage use and protect resources, would not affect motorized boating because none of the are used for this purpose.

Public Access

Common to All Alternatives

Acquiring public river access at Twickenham to replace the current private access would provide a public access point for motorized boats if allowed under the alternative selected for motorized boating.

Alternative A

Maintaining public access at existing levels would maintain existing opportunities for motorized boating.

Alternative B (Proposed Decision)

Access changes proposed under this alternative would have no effect on motorized boating.

Alternative C

Same effects as Alternative B, except that new access in Segments 1 and 2 could provide additional public access to the river at Tumwater Falls, Hay Creek, Butte Creek and below Clarno Rapid. Additional access points would increase launch options, allowing boaters to more easily avoid rapids, thus increasing opportunities to navigate the river at lower water levels than at present.

Alternative D

Reductions in public access to protect and enhance resources would not reduce motorized boating opportunities because access routes that would be closed are long, rough, and difficult to negotiate when pulling a trailer.

Commercial Use

Alternative A

With no cap on commercial permits the number of commercial permits administered by the BLM would be expected to increase. A portion of the new permittees would likely use motorized boats, where permitted, as a part of their business. This would result in an increase in the number of motorized boating use days.

Common to All Action Alternatives

Issuing commercial permits according to the results of a needs assessment could result in an increase in permittees using motorized boats, where permitted, as a part of their business if a needs assessment indicated a growing public need for this type of service.

Land Ownership, Classification, and Use Authorizations

Impacts will be discussed in future site specific proposals.

Dispersed Recreation

Alternatives concerned with Fish, Wildlife, Native American Uses, and Water Quantity and Quality, Allocation System, and Energy Mineral Resources would not be likely to have any impacts on Dispersed Recreation.

The following discloses potential impacts of the remaining alternatives on Dispersed Recreation.

Riparian and Aquatic Habitat Restoration

Continuing existing Riparian and Aquatic Habitat Restoration management may result in temporary or permanent use restrictions at dispersed campsites where necessary to restore riparian and aquatic habitat. Temporary or permanent campsite closures could affect the number of available campsites which could trigger adjustments in boating use levels. As a result of restoration efforts, enhanced riparian conditions at some dispersed campsites would be expected.

Paleontological Resources

Common to All Alternatives

Some campsites may be closed to protect paleontological resources.

Cultural Resources

Common to All Alternatives

Some campsites may be closed to protect cultural resources.

Information and Education

Existing Management

Continuing existing management of Public Information and Education would be expected to result in a more informed public who, by practicing no-impact camping, would help to slow or reduce the rate of resource damage at dispersed campsites, which may reduce the need for temporary or permanent campsite closures. Informed users would be expected to help slow the spread of noxious weeds.

Common to All Action Alternatives

Sharing information and education messages with more users, in additional formats (brochures, maps and interpretive signs), would be expected to increase the effects of Existing Management, and would help direct users to the dispersed sites that can best handle human use.

Law Enforcement and Emergency Services

Existing Management

Continuing existing management of Law Enforcement and Emergency Services would not change impacts on Dispersed Recreation.

Common to All Action Alternatives

Improving interagency coordination of law enforcement and emergency services efforts, including increased river patrols by law enforcement personnel, would be expected to improve visitor compliance with use regulations. This would result in reduced litter, less campsite degradation due to vandalism and misuse, and fewer camper caused fires.

Private Land Use

Some campsites could become available on private land with the consent of the land owner. See Land Ownership Classifications and Use Authorizations.

Scenery

Alternative A

Continuing existing management of Scenery would not be expected to have an effect on Dispersed Recreation.

Common to All Action Alternatives

Changing VRM classifications would not affect Dispersed Recreation opportunities.

Grazing

Alternative A

The presence of cows would impact campsites by removal of vegetation. If campsites were recently grazed, sites may have fresh cow dung which would be an obstacle for walking and create an unpleasant odor. This would primarily be an early season impact because most cows would be off public lands adjacent to the river by about May 1.

Alternative B (Proposed Decision)

Fencing of 9 campsites would prevent the impacts described for Alternative A from occurring in these sites.

Alternatives C and D

Not allowing grazing in the riparian zone or campsites would eliminate the potential for impacts described in Alternative A.

Agricultural Lands

New camping opportunities would become available when agricultural lands are converted to native vegetation.

Alternative A

No changes in camping opportunities are likely.

Alternative B

Availability of new campsites is unlikely.

Alternatives C and D (Alternative C is Proposed Decision)

New opportunities for Dispersed Recreation would be available on lands converted to natural vegetation.

Boating Use Levels

Alternative A

Continuing existing management as described in Alternative A for Boating Use Levels would be expected to result in the same effects on Dispersed Recreation as described for scenery.

Alternative B

Setting daily launch levels at or below 1998 levels, would result in the same effects on Dispersed Recreation as described for scenery.

Alternative C (Proposed Decision)

Setting interim daily launch targets corresponding to 70% of available campsites, would result in the same effects on Dispersed Recreation as described for scenery.

Alternative D

Setting daily launch targets at approximately 60% below 1998 levels, would be result in the same effects on Dispersed Recreation as described for scenery.

Alternative E

Same as Alternative C

Motorized Boating

Decisions related to restrictions on Motorized Boating would not be expected to have an effect on Dispersed Recreation because the number of motorized use days is very low (57 use days or .4% of overall use in 1998) compared to overall use, and motorized boat users have the same effects on campsites as boaters in general.

Dispersed Recreation

Alternative A

Management of dispersed sites on a case-by-case basis to protect resources may involve temporary or permanent use restrictions at dispersed campsites where necessary to restore resource conditions. Temporary or permanent campsite closures would affect the number of campsites available for use which would affect camping opportunities.

Common to All Action Alternatives

Encouraging dispersed use in areas that can best sustain impacts of camping would reduce vegetation loss in some campsites.

Developed Facilities

Alternative A (Proposed Decision for Segment 11)

Continuing existing management of developed facilities would not affect dispersed sites.

Alternative B (Proposed Decision for Segment 1-3)

Same as A, although some users accessing dispersed sites by vehicle may switch to improved developed sites.

Alternative C (Proposed Decision for Segment 10)

Same as B, except developing a new campground at Ellingson Mill on the South Fork of the John Day river would attract some users away from dispersed sites.

Alternative D

Closing Burnt Ranch without replacing it would displace current users to dispersed sites.

Public Access

Alternative A

Continuing existing management would not be expected to have an effect on Dispersed Recreation.

Alternative B (Proposed Decision)

Improving the South Fork John Day Road in Segments 10 and 11 would make public access to dispersed campsites along this road easier.

Alternative C

The same as Alternative B except the South Fork John Day road would be widened and would provide more convenient access to dispersed sites along the river easier to access than in Alternative B.

Alternative D

Closing roads in segments 2 and 3 would eliminate motor vehicle access to some dispersed campsites.

Commercial Use

Alternative A

Issuing unlimited commercial permits would be expected to increase the number of commercial permits administered by the BLM, resulting in an expected increase in commercial use days, and boating use levels in all segments where boating occurs, over and above the 4% annual increase expected in recreation use in general. The effects of increased boating use levels on Dispersed Recreation are the same as those described for scenery. In some cases, increased occupancy of campsites may lead to deterioration of resource conditions, increasing the number of campsites that may need to be temporarily or permanently closed for restoration purposes.

Common to All Action Alternatives

Issuing commercial permits according to the results of a needs assessment would not be expected to affect Dispersed Recreation because increases in boating use would not be expected as a result of this action.

Land Ownership, Classification, and Use Authorizations

Impacts will be discussed in future site specific proposals. Acquisitions have the potential to provide more dispersed campsites on public land.

Developed Recreation

Alternatives that focus on Fish, Wildlife, Native American Uses, Water Quantity and Quality, Paleontological Resources, Cultural Resources, Private Land Use, Information and Education Law Enforcement and Emergency Services, and Energy and Mineral Resources would not be expected to affect developed facilities.

The following discloses potential impacts of the remaining alternatives on Developed Recreation.

Riparian and Aquatic Habitat Restoration

Continuing existing Riparian and Aquatic Habitat Restoration management may involve temporary or permanent use restrictions at developed campsites to restore riparian and aquatic habitat.

Scenery

Alternative A

Continuing management of Scenery would not be expected to have an effect on developed facilities.

Common to all Action Alternatives

Changing VRM classifications to provide a higher level of VRM protection on the North Fork and in all WSAs, and a lower level of protection at existing and future recreation sites, would require that projects and activities proposed for public lands in these locations be designed to meet the revised VRM standards for the project area. Proposed projects would also be designed to comply with State Scenic Waterway rules for scenery management, where applicable.

Grazing

Alternatives A and B (Alternative B is Proposed Decision)

Where grazing is permitted within developed facilities, the presence of fresh cow dung would be an obstacle for walking and create an odor. This would occur primarily from late fall through early spring. Most cows would be off public land by about May 1st.

Alternatives C and D

Cows would not have an effect on campsite condition because they would not have access to developed facilities.

Agricultural Lands

A number of sites suitable for development could become available through the conversion of agricultural lands to native vegetation under alternatives B, C, or D.

Alternative A

New sites suitable for development would not likely become available.

Alternative B

Fewer opportunities for new facilities because less agricultural land would be converted to native vegetation than Alternatives C and D.

Alternatives C and D (Alternative C is Proposed Decision)

Several opportunities for development of facilities because of the amount of land to be converted to non-irrigated use.

Boating Use Levels

Alternative A

Continuing existing management of Boating Use Levels would allow increased boating use between Memorial Day and the Fourth of July, in all segments where boating use occurs, and as a result, increased waiting times and competition for parking spaces, launch lanes, and take-out sites would be expected. At Clarno Recreation Site, where site capacity is already exceeded on peak-use days, the waiting time for boat launching would increase, and an increased number of users would be forced to park along the highway due to a shortage of parking space. At Cottonwood, the proposed public launch site at Twickenham, and at Service Creek, boaters may have to wait for use of a boat ramp to launch or take out boats. On weekdays, boating use at these locations would be expected to increase, but would not exceed capacity in the short term. Other sites would not likely see substantial increases in boating related use. An increase in maintenance costs would be expected at all sites associated with boating, as use increased.

Alternative B

Setting daily launch targets at or below 1998 levels, would likely result in a continuation of existing conditions on weekends at parking areas, launch lanes, and take-out sites associated with boating, as described in Chapter 2. On weekdays, boating use at these locations would be expected to increase, but would not exceed capacity.

Alternative C (Proposed Decision)

Setting daily launch targets corresponding with 70% of available campsites, would result in decreased boating use on weekends, and increased boating use on weekdays and "shoulder" seasons. Use at parking areas, launch lanes, and take-out sites would become more balanced throughout the week, and boating use would not be expected to exceed site capacity.

Alternative D

Setting daily launch targets to approximately 60% below 1998 levels, would be expected to have the same effects on developed facilities as in Alternative C.

Alternative E

Same as Alternative C.

Allocation

Decisions related to Allocation would not be expected to have an effect on developed facilities because these decisions would not affect overall use levels, but merely the ratio of guided to non-guided users.

Motorized Boating

Decisions related to Motorized Boating would not be expected to have an effect on developed facilities because facilities related to boating use are used by all boaters, regardless of type of watercraft. Therefore, the need for proposed facilities would remain regardless of the alternative selected for motorized boating.

Dispersed Recreation

Alternative A

Continuing existing management of Dispersed Recreation would not affect developed facilities.

Common to All Action Alternatives

Same as Alternative A, except that in Segments 10 and 11, closing riparian areas to Dispersed Recreation would likely encourage the use of any existing or future developed campgrounds in the surrounding area.

Developed Facilities

Common to All Alternatives (Proposed Decision)

Continuing to improve or upgrade existing facilities when needed to protect resources by installing signing, and parking barriers at sites where visitation is high, would help to prevent trampling of vegetation by vehicles. The installation of vault toilets would help to prevent unsanitary conditions.

Alternative A (Proposed Decision for Segment 11)

Continuing existing management of Developed Facilities would have no effect on use levels at most sites because most recreation sites are strategically located, well established sites, and would continue to receive use even if no improvements are made. Use of developed facilities along the John Day River is generally expected to increase at approximately 4% per year.

The degree of development at a site, such as signing, vehicle barriers, and toilet facilities, is expected to have a direct effect on the ability of resource conditions in and around a site to withstand the pressures of increased use. Additional use would not be expected to affect resource conditions at recreation sites which have been “hardened” or prepared to accommodate use while protecting resources. Some sites which have not been “hardened” would be expected to incur soil compaction, loss of native vegetation, and increased weed infestation as a result of increased use.

Segment 1 Continuing the practice of no scheduled maintenance of the Oregon Trail Interpretive Site would be expected to result in a degradation of existing facilities as well as contribute to continued low visitation, due in part to a lack of directional signing. Maintaining Rock Creek Recreation Site at existing levels would be expected to have little effect on resource conditions, as low visitation of this site is expected to continue due to limited parking facilities and a lack of launch facilities. Maintaining Cottonwood Recreation Site at existing levels would be expected to have little effect on resource conditions, despite expected annual increases in use, as signs, vehicle barriers, a large parking area, and toilets have already been installed at his site to protect resources.

Segment 2 Maintaining Clarno Recreation Site at existing levels, assuming annual increases in use, would not change existing resource conditions, because signs, vehicle barriers, and toilets have already been installed at his site to protect resources. During boating season, waiting times for use of the limited launch facilities at Clarno would be expected to increase each year, and existing parking facilities would continue to be inadequate to accommodate use on Spring and Summer weekends, resulting in an increasing number of boater vehicles parked on the highway outside the recreation site.

Segment 3 Maintaining Priest Hole Recreation Site at present level of development, assuming continued annual increases in use, would likely result in increases in sanitation problems, due to a lack of toilet facilities at this location. Maintaining Service Creek Recreation Site at existing levels, assuming continued annual increases in use, would likely result in very little effect on existing resource conditions, as signs, vehicle barriers, and toilets have already been installed at this site to protect resources.

In Segments 10 and 11, no developed sites currently exist.

Alternative B (Proposed Decision for Segments 1-3)

Segment 1 The effects of Alternative B would be the same as for Alternative A except that implementing regularly scheduled maintenance of the Oregon Trail Interpretive Site, improved directional signing for vehicle and foot access, would be expected to result in improved conditions of existing site facilities and increased visitation. Additional signing would make it easier to access the interpretive site by road from Wasco or Grass Valley, and a designated boat parking area would enable boaters to walk to the site by walking a short distance along a marked easement. In the short-term, the slight increase in visitation expected from this action would be expected to have little effect on resource conditions. In the long-term, increased use could potentially result in more trash, increased trespass, and a need for toilet facilities. The initial cost of implementing this action is estimated at \$1,000, with annual maintenance and monitoring costs of approximately \$1,000.

Improving Rock Creek Recreation Site with additional parking facilities, a primitive boat ramp, vehicle barriers, and a boater registration and information station would provide a user-friendly take-out point for boaters launching from Cottonwood, provide information on use of the river by downstream users, and would be expected to reduce potential trespass and conflicts between landowners and recreationists over access to parking and launch points. As a result of this action, use of this site and boating use of Segment 1 would be expected to increase slightly as upstream and downstream users learned of this access point. In the long-term, increased use could potentially result in more trash, increased trespass, and a need for toilet facilities. Additional monitoring would be required, which may lead to additional BLM actions to protect resources as necessary. The initial cost of implementing this action is estimated at \$1,500, with annual maintenance costs of approximately \$1,000.

The installation of picnic tables and planting shade trees at Cottonwood Recreation Site would better meet the needs of current and future users by providing picnic facilities and shade. The initial cost of implementing this action is estimated at \$1,000, with annual maintenance costs of approximately \$150.

Segment 2 The effects of Alternative B would be expected to be the same as for Alternative A. Constructing an additional primitive launch lane at Clarno would be expected to reduce launch waiting times on busy weekends by 50%, thus reducing congestion at the launch site. An additional launch lane would not be expected to accelerate use of the site beyond the 4% annual increase expected for recreation sites in general, as users don't base their decision to boat Segment 2 on the condition of launch facilities at Clarno. Installation of a pay phone at Clarno would provide a needed service to boaters, and would reduce disturbances to the adjacent landowner which occur when boaters request to use the private telephone. The initial cost of implementing this action is estimated at \$1,500, with annual maintenance costs of approximately \$500.

Segment 3 The effects of Alternative B would be expected to be the same as for Alternative A, except that providing access to Lower Burnt Ranch dispersed area to replace the existing Burnt Ranch Site would be expected to shift vehicle and boat access to the new site. Construction of a primitive launch and a boater registration station at Lower Burnt Ranch would provide new river access for fishing, boating, Dispersed Recreation, picnicking and related recreational activities. A primitive launch ramp at Lower Burnt Ranch would provide boater access below Burnt Ranch Rapids, allowing boaters to avoid navigating the rapid by launching just downstream. The initial cost of this action is estimated at \$1,500, with annual maintenance costs of approximately \$200.

Installation of a vault toilet at Priest Hole Recreation Site, would reduce the amount of human waste and toilet paper left by users. This action may slightly accelerate the increase in vehicle camping already expected to occur at recreation sites in general, as the site may attract additional users who prefer to camp where toilet facilities are available. Increased use could potentially result in increased trash and vandalism. The initial cost of implementing this action is estimated at \$7,000, with annual maintenance and monitoring costs of approximately \$500.

Segments 10 and 11 No developed sites exist.

Alternative C (Proposed Decision for Segment 10)

Segment 1 The effects of Alternative C would be the same as for Alternative B.

Segment 2 The effects of Alternative C would be the same as for Alternative B

Segment 3 The effects of Alternative C would be the same as for Alternative B, except that grading the primitive Clarno East take-out point would make it easier for boaters to put in and take out boats at this site. As a result, use of this site as a take-out point would increase. In time, the current congestion which occurs on busy weekends at Clarno Recreation Site would be reduced, by offering an alternative take-out point 3.5 miles upstream of the current facility. Some boaters may also use the site as a launch point for a short fishing trip on Segment 3, or to launch a Segment 2 trip, as a way to avoid congestion at Clarno. The potential use of Clarno East would be expected to result in the need for an additional boater registration and information station, and additional staff to check-in boaters, monitor use, and maintain the site.

Developing Lower Burnt Ranch as a primitive camping area with signs, maps, vehicle barriers, and a vault toilet would be expected have the same effects as for Alternative B, except that the site would be expected to attract campers in addition to boaters and anglers. This action may slightly accelerate the increase in use already expected to occur at recreation sites in general, as the site may attract additional campers who prefer to camp where toilet facilities are available. Increased use could potentially result in increased trash and vandalism. The initial cost of developing the camping area is estimated at \$8,500 with annual maintenance and monitoring costs of approximately \$500.

Segment 10 Creating a new campground (with a vault toilet, tables, information board, sign and vehicle barriers) at Ellingson Mill approximately 10 years after the initial implementation of this plan, would concentrate campers in an area that had been "hardened" to accommodate visitor use while protecting resources. Some of the camping use currently occurring in sensitive riparian areas would be shifted to the hardened site. Developed facilities would be available to visitors to the South Fork John Day River Backcountry Byway. The creation of this campground may slightly accelerate the increase in use already expected to occur at recreation sites in general, as the campground may attract additional campers who prefer sites with developed facilities. Increased use could potentially result in increased trash and vandalism. The initial cost of developing the campground is estimated at \$10,000 with annual maintenance costs of approximately \$500.

Segment 11 The effects of Alternative C would be the same as for Alternative A.

Alternative D

Segment 1 The effects of Alternative D would be the same as for Alternative A.

Segment 2 The effects of Alternative D would be the same as for Alternative A.

Segment 3 Closing the existing Burnt Ranch Site to vehicle access would be expected to protect resources, control erosion, and reduce the need for vehicle assistance, while allowing users to access the site by foot or horse. The initial cost of implementing this action is estimated at \$1,000, with annual enforcement costs at \$1,000.

Segment 10 and 11 Not developing recreation sites would be the same effects as Alternative A.

Public Access

Common to All Alternatives

Improved signing of public access routes to the Oregon Trail Interpretive site at McDonald's Crossing would make it easier for the public to find the site thus increasing access to a developed facility.

Alternative A

Continuing existing management would not be expected to have an effect on developed facilities.

Alternative B (Proposed Decision)

Closing the existing Burnt Ranch Site to vehicles and providing access to the Lower Burnt Ranch site would be expected to increase use at the new site and may increase use of the original site by walk-in visitors. Increased use may result in the need for toilet facilities, vehicle barriers, and other improvements to protect resources.

Alternative C

Same as Alternative B.

Alternative D

Reducing access in segments 2 and 3 would not be expected to result in the closure of developed sites.

Commercial Use

Alternative A

The effects of increased commercial boating use on developed facilities would accelerate the changes described for general boating use in Alternative A of Boating Use Levels.

Common to All Action Alternatives

Issuing commercial permits according to the results of a needs assessment would not be expected to affect developed facilities since increases in boating use would not be expected as a result of this action.

Land Ownership, Classification, and Use Authorizations

Some acquisitions could provide the opportunity to develop additional facilities. Future development would require site specific analysis.

Public Access

Alternatives that focus on Fish, Wildlife, Native American Uses, Water Quantity and Quality, Grazing, Law Enforcement, and Emergency Services Allocation would not affect public access.

The following discloses potential impacts of the remaining alternatives on Public Access.

Riparian and Aquatic Habitat Restoration

Continuing existing riparian and aquatic habitat restoration management may involve temporary or permanent use restrictions at public access points where necessary to restore riparian and aquatic habitat.

Paleontological Resources

Access for hiking, camping, fossil collecting, OHV use, and hunting may be limited, because important paleontological resource sites may be closed under either of the alternatives. This impact would be most pronounced in the upper end of Segment 2.

Cultural Resources

Access for hiking, camping, OHV use, and hunting may be limited, because important cultural resource sites areas may be closed under any of the alternatives.

Information and Education

Existing Management

Continuing existing management of Information and Education is not expected to have an effect on public access.

Additional Actions

Increasing public information and education efforts would include maps providing the location of access points available for public use.

Private Land Use

Management of private lands would not likely have any effect on public access, except that permission to use private roads may be revoked, by the private landowner, at any time.

Scenery

Alternative A

Continuing existing management of Scenery would not be expected to have an effect on public access.

Common to all Action Alternatives

Changing VRM classifications to provide a higher level of VRM protection on the North Fork and in all WSAs, and a lower level of protection at existing and future recreation sites, would require that projects and activities proposed for public lands in these locations be designed to meet the revised VRM standards for the project area. Proposed projects would also be designed to comply with State Scenic Waterway rules for scenery management, where applicable. New public access proposed under Alternative C for Hay Creek and Tumwater Falls in Segment 1 may need to be screened by vegetation or topography if road construction were visible from the river, depending on the visual standards that apply to that specific location. Road improvements proposed under Alternative C for the South Fork Road in Segments 10 and 11 may require vegetative screening to mitigate effects to visual quality.

Agricultural Lands

Alternative A

Continuing existing management of Agricultural Lands would not change existing access.

Alternatives B, C, and D (Alternative C is Proposed Decision)

These alternatives convert more agricultural land to native vegetation. These lands are generally accessible by road across public land and by the river. Some of these lands could be used for new campsites, creating new recreation access points.

Boating Use Levels

Alternative A

Increased use would likely result in increased demand for additional public access routes to the river. It would also likely increase the potential for private land trespass and for conflicts between recreationists and landowners.

Alternatives B, C, D, and E (Alternative C is Proposed Decision)

Maintaining daily launch levels at or below the 1998 levels would maintain the need for public access at existing levels.

Motorized Boating

Alternative A (Proposed Decision for Segment 1)

Continuing existing restrictions on motorized boating would not affect public access.

Alternatives B, C, and E (Alternative E is Proposed Decision for Segment 3)

Additional restrictions on when and where motorized boats can be used would reduce existing public access enjoyed by motorized boaters, requiring them to adjust either the season, location, or type of watercraft used to continue accessing the river.

Alternative D (Proposed Decision for Segment 2)

Prohibiting the use of motorized boats in a given segment would require recreationists to access that segment of the river by float boat, vehicle, foot or horse. In Segment 1, motorized boating is currently the primary means of public access to the river between McDonald Crossing and Tumwater Falls (11 miles), as no public take-out exists below McDonald Crossing (RM 21), and no public roads or trails access the river downstream of this point. Prohibiting motorized boating in Segment 1 would virtually eliminate public access below McDonald Crossing, except in cases where permission to cross private land was obtained from the landowner.

Proposed Decision

Continuing existing restrictions on motorized boating in Segment 1 would allow existing access to continue between McDonald Crossing and Tumwater Falls (11 miles) where motorized boating is currently the primary means of public access to the river. Closing Segment 2 to motorized boating year-round would require recreationists to access this segment of the river by float boat, vehicle, foot or horse. Closing Segment 3 to motorized boating from May 1 to October 1 would reduce existing public access enjoyed by motorized boaters, requiring them to adjust either the season, location, or type of watercraft used in order to continue accessing the river.

Dispersed Recreation

Alternative A

Continuing existing management of Dispersed Recreation would not be expected to have an effect on public access.

Common to All Action Alternatives

Encouraging dispersed use in areas that can best sustain the impacts of camping would have the same effects on public access as in Alternative A, except that installing signs and parking barriers to protect riparian vegetation along the South Fork in Segments 10 and 11, would result in a loss of vehicle access to the river bank in some places.

Developed Facilities

Actions proposed under Developed Facilities would not be expected to have an effect on public access, except at Twickenham, Burnt Ranch, and Ellingson Mill as described under Public Access, below.

Public Access

Common to All Alternatives

Segment 1 Coordinating with local county governments to sign public access routes and parking areas associated with McDonald Crossing and the Oregon Trail Interpretive Site would shift current use to areas with legal public access, reducing trespass potential, and landowner/ recreationist conflicts. Signing public access routes and parking areas associated with the interpretive site would encourage increased visitation.

Segment 3 Improving the road to Priest Hole Recreation Site would be expected to reduce travel problems during wet conditions, resulting in reliable access to the site.

Providing new public river access on 14 acres of private land on the North side of the river 2 miles downstream from the Twickenham Bridge would replace the existing private access point, which is scheduled to be closed to the public by the landowner on January 1, 2000. A reduction in conflicts between landowners and recreationists would be expected, as existing recreational use would be moved away from residential areas.

Segments 10 and 11 Improving the South Fork Road with ditches and culverts would result in fewer washouts along the road, with fewer traffic delays for residents and visitors to the South Fork Backcountry Byway.

Alternative A

Maintaining access at existing levels would not change existing access to public lands.

Common to All Action Alternatives

Segment 3 Closing the existing Burnt Ranch Recreation Site to motor vehicle access would increase the effort required to access this site but would reduce the frequency of the need for motorist assists.

The loss of this site as a launch point would affect boaters with four wheel drive vehicles who use this site as a take-out for a one-day float from Twickenham, or as a take-out at low water flows to avoid Burnt Ranch Rapid (just downstream of the site). The initial cost of implementing this action is estimated at \$1,000, with annual enforcement costs of approximately \$1,000.

Alternative B (Proposed Decision)

Segment 1 No actions are proposed, access would remain the same as under existing management.

Segment 2 The effects of Alternative B would be expected to be the same as for Alternative A, except that maintaining the road on the West bank from Clarno to Clarno Homestead would ensure a continuation of existing access for recreationists, school groups, landowners, and lessees, but would not be expected to accelerate increases in use as no new areas would be accessible, and access would continue to be available for all types of vehicles.

Segment 3 The effects of Alternative B would be expected to be the same as for Alternative A, except that developing new vehicle access to Lower Burnt Ranch would shift current vehicle use from the original Burnt Ranch site to an area where resources are better suited to handle recreational use. By shifting use to the new site, resources would be protected without a net loss of recreational opportunities. Two-wheel drive vehicles could access the new site, resulting in easier access for vehicle camping and boat launching, and reducing the need to rescue stranded vehicles. Use of the site for boat launching would enable users to launch just below Burnt Ranch Rapids and create an opportunity for one or two day floats to Clarno during low-water periods. However the opportunity to take out just above the rapids would be lost. As a result low-water or one-day floats originating at Twickenham, would not be as convenient for users.

Segments 10 and 11 The effects of Alternative B are expected to be the same as for Alternative A, except that placing gravel on the surface of the South Fork Road would be expected to improve travel conditions. Installing signs and vehicle barriers to keep vehicles off of sensitive riparian areas would limit vehicle access for camping, fishing, and sightseeing to suitable sites. The ability to have uncontrolled vehicle access to all areas between the road and the river would be lost. This action would not be expected to affect use levels. The initial cost of implementing this action is estimated at \$500,000 with annual maintenance costs of approximately \$10,000.

Alternative C

Segment 1 The effects of Alternative C would be expected to be the same as for Alternative B, except that acquiring public access to Tumwater Falls and the confluence of Hay Creek and the John Day River would provide two more important public access points.

Public road access to the vicinity of Tumwater Falls would provide new opportunities for fishing, boating access, sightseeing and related recreational activities. New public road access in this area would provide an alternative to the current access, which is limited to those who own or operate a motor boat.

Public road access down Hay Creek to its confluence with the John Day River and downstream 1/4 mile to public land would provide opportunities for fishing, hunting, boating access, and related recreational activities. Public road access to recreational opportunities in this area would provide an alternative to boat-in access, which limits use of the area to those who own or operate a boat.

Segment 2 The effects of Alternative C would be expected to be the same as for Alternative B, except that seeking public road access to the river via Butte Creek Road would be expected to result in increased use of the Butte Creek launch point and Juniper Island Recreation Site (See Effects on Boating Use Levels and Dispersed Recreation). Recreationists would no longer pay an access fee for the use of the private road which accesses these BLM recreation sites. Free access through private lands to public lands in this area would be expected to result in increased use of this area by steelhead and small mouth bass anglers. Future access to these sites would be guaranteed for the life of the easement.

Public road access to this area would increase the potential for trespass and recreationist/landowner conflicts due to the intermingling of public and private lands in this area.

Segment 3 Actions proposed would be limited to those described under Common to All Alternatives and Common to All Action Alternatives and would have the same impacts on access.

Segments 10 and 11 The effects of Alternative C would be the same as described for Alternative B, except that widening the South Fork Road where practicable would increase the safety and convenience of the road. However, widening the road may encourage increased driving speeds and more use, which could result in a safety hazard for drivers, pedestrians, recreationists and livestock on and adjacent to the road, in spite of the improved road conditions. The initial cost of implementation is estimated at \$1,000,000 with annual maintenance costs of approximately \$10,000.

Alternative D

Segment 1 No actions are proposed beyond those described in Common to All Alternatives.

Segment 2 The effects of Alternative D would be expected to be the same as for Alternative C, except that closing the BLM road on the West bank at the Clarno Homestead would convert 1.5 miles of vehicle access to non-motorized access. Loss of 1.5 miles of motorized access would result in changes to the type of use currently occurring north or downstream of the homestead. Campers, pheasant hunters, commercial boaters and educational tour groups would need to either adjust their area of use to south of the motorized closure, or access the area by foot or horse. This action would likely displace some current users, while others, especially the pheasant hunters, may prefer a non-motorized experience.

Segment 3 The effects of Alternative D would be expected to be the same as for Alternative B, except that not improving Lower Burnt Ranch would result in a change in the type of use currently occurring at the existing Burnt Ranch Site. Lower Burnt Ranch, in its current undeveloped state, would continue to be available to anglers, picnickers, rafters *et al* who could walk the short 75 feet to the river bank. The lack of a primitive launch ramp at the new site would displace boaters who currently use the existing Burnt Ranch site to launch and take-out drift boats.

Segment 10 and 11 No action is proposed in Alternative D. Impacts would be the same as for Common to All Alternatives.

Proposed Decision

Continuing existing restrictions on motorized boating in Segment 1 would allow existing access to continue between McDonald Crossing and Tumwater Falls (11 miles) where motorized boating is currently the primary means of public access to the river. Closing Segment 2 to motorized boating year-round would require recreationists to access this segment of the river by float boat, vehicle, foot or horse. Closing Segment 3 to motorized boating from May 1 to October 1 would reduce existing public access enjoyed by motorized boaters, requiring them to adjust either the season, location, or type of watercraft used to continue accessing the river.

Commercial Use

Alternatives A and B (Alternative B is Proposed Decision)

Issuing unlimited commercial permits would be expected to increase the number of commercial permits administered by the BLM, resulting in an increase in commercial use days, thus an increase in boating use levels and an increased need for public river access points.

The extent of the effects described above would be slightly less for Alternative B, since permit numbers would be slightly less.

Alternatives C and D

Issuing commercial permits according to the results of a needs assessment would not be expected to affect the need for public river access since increases in boating use would not be expected as a result of this action.

Land Ownership, Classification, and Use Authorizations

Many of the potential acquisitions would provide additional public access to the river.

Commercial Use

Actions concerning resources or resources values would be expected to have the same effect on Commercial Use as they have on recreation use as described for boating use levels and recreation opportunities.

The following discloses potential impacts of the remaining alternatives on Commercial use.

Law Enforcement and Emergency Services

Existing Management

Continuing existing management of Law Enforcement and Emergency Services is not expected to have an effect on commercial use.

Additional Actions

Improving coordination of law enforcement and emergency services may result in a decrease in the incidence of non-permitted guiding and an increase in permittee compliance with BLM and State Marine Board requirements.

Boating Use Levels

Future boating use limits could affect the ability of all boaters, including commercial permittees to obtain launch permits for controlled use dates.

Allocation

Common to All Alternatives

Decisions related to selecting an Allocation method would have no effect on commercial use in the short term. Boating use is not currently limited, therefore there is no immediate need to allocate use.

Alternative A

Continuing existing management by not selecting an allocation method would delay future implementation of a limited-entry permit system, if and when such a system is determined necessary. Such a delay would affect all boaters in the same manner, regardless of whether they be guided or non-guided.

Alternative B

Allocating use between guided and non-guided users based on Historical Proportions would result in a continuation of past and current use patterns of approximately 80% private use and 20% commercial use. Future increases or decreases in total available use would be shared by each user group proportionally. Freezing the ratio of commercial use at current levels would severely limit the economic growth potential for commercial guiding on the John Day River as a whole. Additional launches would possibly become available to an individual permittee if unused guided launches were re-distributed, or launches for all users were increased, but guided launches would remain at approximately 20% of total controlled launches. There would be very little opportunity to expand the number of guided trips to meet potential demands for these services in the future. The average party size of commercial trips would likely increase in order to accommodate additional customers within a limited number of launches.

Alternative C

Allocating use through an annual common pool lottery system would allow equal access from guided and non-guided users to available launches. The proportion of commercial users obtaining requested launch dates would be approximately equal to the proportion in the applicant pool over the long term. Requiring permittees to apply for desired launch dates in February would create a situation in which a permittee would be unable to schedule trips until after the lottery each year (about March 1). Customers wishing to take a commercial trip on a particular date would have to hire a commercial company based on the available launch dates the permittee held, rather than on quality of service or other considerations. This system could provide the opportunity for additional commercial launches and economic growth in commercial guiding. However, since a permittee's launch dates would not be set in advance, a permittee's inability to offer trips on specific dates would likely complicate scheduling for permittee and customer to the point where some businesses would be unable to schedule sufficient trips to remain economically viable.

Alternative D (Proposed Decision)

As in Alternative C, allocating use through a common pool, first-come, first-served system would allow equal access from guided and non-guided users to available launches. Also as in C, the annual proportion of non-commercial and commercial users would not be predetermined, but would be approximately equal to the proportion of the applicant pool. Making blocks of permits available at several intervals would make scheduling difficult for permittees as in C, but staggered application opportunities, would increase flexibility for permittees and their customers. Rather than a random selection process as in C, a user's success at obtaining a launch permit would be determined by their ability to contact the BLM during the reservation period, before available permits for a given date became exhausted. The ability to make a second attempt to obtain a specific launch date, and the ability to request an alternate date if the original date were unavailable, make this reservation system more compatible with commercial booking needs than the lottery system described in Alternative C. This allocation method could potentially provide the opportunity for additional commercial launches and the economic growth in commercial guiding. Since this system would not set a permittee's launch dates in advance, a permittee's inability to offer trips on known dates would complicate scheduling for permittee and customer alike. But, unlike Alternative C, it is likely that most permittees could, with effort, make the reservation system work.

Motorized Boating

Alternative A

Continuing existing management of Motorized Boating would not change the conditions in which commercial use providers would operate.

Common to All Action Alternatives

Adjusting current motorized boating restrictions would have a slight effect on commercial use. In 1998 one commercial motorized trip was reported. The trip took place in Segment 3 in June and resulted in 2 user days. Under all action Alternatives this trip would not have been authorized.

Dispersed Recreation

Management decisions related to Dispersed Recreation would affect commercial use in the same manner as boaters as a whole. Please see the impacts on boating use levels and impacts on recreation opportunities for a discussion of these effects.

Developed Facilities

Management decisions related to Developed Facilities would be expected to affect commercial use in the same manner as they affect boaters. Please see impacts on boating use levels, and impacts on recreation opportunities for a discussion of these effects.

Public Access

Management decisions related to Public Access would affect commercial use in the same manner as they affect all boaters. These effects are discussed under impacts on public access.

Commercial Use

Alternative A

Permit Requirements: Continuing the existing permit application requirements and minimum use requirements would be expected to continue to allow some individuals to maintain permits who rarely conduct commercial trips, but hold permits for speculative reasons or to benefit from legitimate tax deductions. To meet BLM's objectives for commercial permitting, a permittee must offer a service to the public. Continuing existing application and use requirements allow permits to be held that do not meet the intent of this objective.

Permit Transfers: Not restricting transfers of permits would not lead to more transfers because new permits would be available to any qualified applicant.

Permit Numbers and Expected Use Trends: Offering unlimited permits with few application requirements could result in an initial increase in permits held for speculative reasons, as some individuals speculate that permits may be limited in the future. Continuing existing management of Commercial Use, by issuing permits to those applicants meeting existing application requirements would allow an unlimited number of applicants to provide commercial use. In the short term, the number of commercial permits administered by the BLM would likely increase from the current number of 34. The extent of the increase is uncertain. The most certain indicator of an increase in permits is the existing waiting list of 34 individuals who have asked to apply for a permit since the moratorium on new permits was put in place in 1996. Incorporating the individuals on the waiting list, the number of permits could rise to 68 as soon as the moratorium is lifted. In addition there are an estimated 15 organized groups currently using the John Day for "commercial" operations without a permit that would be permitted. It is also likely that the announcement to lift the moratorium would spur additional individuals to apply for permits.

The predicted short-term increase in the number of commercial permits would likely result in an increase in commercial use days. New businesses would compete with existing permit holders for clientele, and permit holders would likely increase marketing efforts in an attempt to generate new clients. An artificial demand could be generated through intense advertising. An increase in the number of commercial permits would likely result in an increase in commercial use of the river over and above the estimated 4% annual increase expected to take place for recreation use in general.

In the long term, the factors influencing whether permit numbers will continue to increase, level off or decline are more uncertain. The most influential factor is the level of client demand that will support the businesses and allow them to meet the minimum use requirements. Some permit holders would not generate enough business to meet minimum use requirements and their permits would be canceled by the BLM.

Permit Administration: Issuing additional permits would increase administration costs to the BLM. Shifting available funds to cover increased permit administration costs would reduce funds available for other recreation projects. The increased number of permits issued in the short term would further impact the BLM's ability to monitor the permit holder's performance. An increase in the number of permits

canceled for failure to meet minimum use requirements would create an additional workload in processing the violation, probation, and cancellation paperwork and the accompanying appeal process that can occur.

Common to All Action Alternatives (Proposed Decision)

Increasing the minimum use requirements from 10 paying client user days for every two years to at least 20 paying client user days for every two years could affect the number of permit holders able to meet this requirement in order to maintain a permit. Issuing Special Use Permits for shuttle services would comply with BLM policies that require such operations be administered under permit, would insure that shuttle operations are covered by liability insurance to protect the vehicle owner, the shuttle driver and the U.S. Government. Permit proposals for new uses or events, including concession permits, would be subject to the appropriate level of NEPA analysis. Delaying consideration of new permits until after 3 years of LAC study and the subsequent determination of whether or not boating use limits should be implemented and if so at what level, would provide a prospective applicant with information necessary to evaluate the probable success of a business venture.

Alternative B (Proposed Decision)

Permit Requirements: Charging new permit applicants an application fee, expanding application requirements, and increasing minimum use requirements would prevent some new applicants from seeking permits solely or primarily for speculative reasons. As in Alternative A, permittees that failed to meet minimum use requirements would have their permits canceled by the BLM. Conducting an independent audit of permit and business records on all existing permits within three years, and within three years of issuing new permits, would be expected to result in a decrease in the number of permittees holding a permit for speculative purposes. Requiring permittees and their guides to be trained in river rescue, Leave No Trace outdoor ethics, and interpretive techniques would be expected to result in a pool of outfitters who would collectively be better qualified to meet the objectives of the BLM's commercial permit program. Training in river rescue would be expected to result in permittees and employees who were better trained to handle river emergencies. An increased understanding of Leave No Trace principles would be expected to result in greater protection of resources. Training in sharing interpretive information about the values of the river ecosystem would be expected to result in a more meaningful experience for the commercial customer.

Permit Transfers: Approving transfers, according to BLM's transfer policy, to individuals meeting all permit and transfer requirements would be expected to result in approval of some, but not all, transfer requests.

Permit Numbers and Expected Use Trends: Same as Alternative C.

Permit Administration: Same as Alternative C except the time and expense of conducting random audits of permits records would increase.

Alternative C

Permit Requirements: Requiring permit applicants to compete with other applicants and be rated on their ability to meet or exceed specific selection criteria would allow the BLM to select the best qualified applicant to offer services to the public, which would be expected to result in a higher quality of service to the public.

Permit Transfers: Approving transfers only to applicants meeting the same criteria identified in the needs assessment may make it difficult for a permittee to locate an individual who was both interested in purchasing their business and equipment, and was able to meet the identified criteria.

Permit Numbers and Expected Use Trends: Utilizing a needs assessment to identify public needs and the capability of available resources to support those needs, when coupled with the use of a competitive prospectus as the instrument for issuing new permits would have several consequences: Permit numbers would reflect the public's need for different types of commercial services. Permit numbers and types would be consistent with management goals and objectives, Permittees would have the opportunity to make a

business profit. The number of permits and type of services would match the BLM's administrative and monitoring capabilities. The flexibility to make changes in permit type and number would make it possible to maintain a balance in services that reflects changes in the public's needs, and the needs of the resources. Existing permits would be "grandfathered", however, if the assessment showed that the mix of services provided by existing permittees comprises an oversupply of a certain type of service or contributes to declining resources, existing permits for that service, vacated by attrition, would not be filled. Issuing new permits to fill identified needs, and reducing the number of oversupplied services through attrition, would be expected to result in a more diverse range of services offered to the public.

The number of commercial permits administered by the BLM would be projected to increase as additional public needs were identified and filled. Anticipated failure to meet minimum use requirements, would result in the cancellation of an some permits, and permit numbers would be expected to level off in the long term at an estimated 25 to 35 permits.

By issuing fewer commercial permits than in Alternative A, competition for clients would be less, resulting in a reduced need to advertise to attract new clients, and a much slower rate of increase in commercial use days. A slower rate of increase in commercial use days would better support BLM's management goals to protect and enhance ORVs and to maintain the existing character of the river. This action would not be expected to increase overall recreational use of the river over and above the estimated 4% annual increase expected to take place for recreation use in general. Issuing permits based on an identified need, and thus a presumed demand for a specific service, would enable an outfitter to secure a client base adequate to maintain a profitable business, without resorting to intense marketing efforts.

Permit Administration: Conducting an initial needs assessment and competitive prospectus process to fill identified permit needs would increase administrative costs compared to Alternative A, however, administering fewer permits and processing fewer applications would reduce permit administration costs in the long term. The increased requirements combined with the needs assessment and competitive prospective process would be expected to reduce incidents of violations, probation, and cancellations paperwork and appeals compared to Alternative A. This would decrease the workload for processing violations.

Alternative D

Permit Requirements: The effects of the actions proposed in Alternative D would have the same effects on permit requirements as for Alternative C.

Permit Transfers: Not allowing transfer of permits would reduce the ability of permit holders to build up equity in their businesses.

Permit Numbers and Expected Use Trends: Same as C except that limiting permits to 34 and allowing grandfathering of existing permits would make adapting to changes in public needs a slower process. This alternative is likely to result in the lowest number of commercial use permits due to the cap on number of permits.

Permits would be expected to become available at an average rate of one permit per year, resulting primarily from permits canceled by the BLM for failure to meet minimum use requirements, or by attrition. Issuing new permits by competitive prospectus would be expected to provide a fair and equitable process to issue permits for those services identified in a needs assessment competed in advance by the BLM.

Limiting commercial permits to 34 would result in a slower rate of increase in commercial use days compared to Alternative C.

Permit Administration: There will be increased cost to BLM of conducting an initial needs assessment and competitive prospectus process to fill identified permit needs. Because of the cap on number of permits this alternative would be likely to have the lowest cost of administration compared to the other alternatives.

Land Ownership, Classification, And Use Authorizations

Alternative A

Existing management would maintain existing conditions for commercial use.

Alternatives B, C, and D

Future acquisitions could provide new opportunities for future commercial use. Specific impacts would be disclosed as part of the analysis of site specific proposals.

Impacts on Other Recreational Opportunities and Recreational Experience

The following alternative actions may have impacts on recreation opportunities not disclosed above.

Riparian and Aquatic Habitat Restoration

Continuing existing management by planting native cottonwood trees at selected sites would improve wildlife habitat, as described under Wildlife, providing more opportunities for wildlife photography, bird watching and other wildlife observation activities.

Water Quantity And Quality

Continuing existing management could lead to improved fish habitat, resulting in increased fishing opportunities. Increased water quantity (through meeting DIACK flows) could extend the boating season by increasing flows by 10 to 20 cfs. during August and September when average daily flows currently range between 100 and 400 cfs. During these very low water periods, even a slight increase in flows would make it possible to negotiate some river sections more easily, lengthening the navigable season by a few days.

Private Land Use

State Scenic Waterway regulations may limit future recreation development on private land within the scenic corridor, resulting in the need for additional recreation sites on public land to meet potential growth in recreation demands. Under all alternatives there is a potential for developing commercial activities, such as camping and boat or raft rentals that could contribute to increases in use and competition for available launches and campsites, as well as the number of people encountered on the river.

Scenery

Alternative A

Continuing existing management of Scenery would not be expected to have an effect on recreation opportunities.

Common to All Action Alternatives

Changing VRM Classifications and applying Oregon State Scenic Waterways classifications to river segments would not be expected to have a direct effect on recreation opportunities, however, this action would provide increased long-term protection of the river's scenic qualities, an important value to visitors of the John Day River.

Vegetation-Grazing

Alternative A

Continuing to allow some cattle grazing within the river corridor would maintain the existing cattle trails that hikers and hunters prefer to follow, rather than walking through dense vegetation. At the same time users could encounter cattle, cow dung and fences.

Alternative B (Proposed Decision)

Same as A except that fences constructed to exclude cattle from 9 dispersed sites would eliminate vegetation removal and trampling of vegetation by cattle within these sites.

Alternatives C and D

Encounters with cattle and signs of cattle in riparian areas would not occur because cattle would be excluded. In addition, under alternative D, there would be no cattle, cow dung, or their trails in the uplands within the corridor. Under Alternative C and D, fences no longer needed in the riparian zone would be removed, and in Alternative D fences no longer needed within the Wild and Scenic River corridor would be removed, resulting in fewer fences for hikers and hunters to negotiate.

Vegetation-Agricultural Lands

Alternative A

Existing recreational opportunities would be decreased if a portion of the 164 acres currently not in commodity production was leased for commodity production. This would decrease the potential acres that could be planted to wildlife food and cover crops for upland game bird hunting and wildlife observation.

Alternative B

The opportunity to plant wildlife food and cover crops would be maintained. This would maintain the existing opportunities for wildlife observation and hunting.

Alternative C (Proposed Decision)

All of the agricultural lands would go to wildlife enhancement projects such as food and cover plots or the restoration of native wildlife habitat by planting perennial vegetation and hardwood outplanting projects. Keeping 60 of these acres in wildlife food and cover plots would continue to allow for recreation opportunities such as upland game bird hunting and wildlife observation.

Alternative D

Irrigation would no longer be used on the agricultural lands. This would remove wheel lines and pumps from the corridor increasing the naturalness of recreation opportunities. However this alternative would also reduce the opportunities to hunt upland game birds since food and cover plots would be eliminated.

Boating Use Levels

Alternative A

Not limiting Boating Use Levels would allow increases in boating use in all segments where boating use occurs. Boaters would be forced to compete for traditional campsites, create new campsites, use less desirable sites, or camp on private lands. Increased waiting times and competition for available space would occur at parking areas, launch lanes and take-out sites. Encounters with other boating parties

would likely increase, with several parties being visible from a given point on the river, and with less space and screening between campsites than at the present. The result would be a reduction in both the opportunity for a semi-primitive recreation experience and the opportunity for solitude in Wilderness Study Areas.

Alternative B

Setting daily launch targets at or below the maximum daily launches recorded in 1998, would be expected to result in a continuation of existing recreation opportunities. At parking areas, launch lanes, take-out sites, and on the river itself the level of competition for campsites would continue on weekends as described in Chapter 2. However the recreational experience would change on weekdays because encounters with other boating parties and competition for campsites would be expected to increase. The existing opportunity for a semi-primitive recreation experience and the opportunity for solitude in Wilderness Study Areas would be maintained on weekends and reduced on weekdays and during “shoulder” seasons as additional use is directed towards non-peak use periods.

Alternative C (Proposed Decision)

Setting daily launch targets corresponding to 70% of available campsites, would be expected to spread use more evenly throughout the week and the season. At parking areas, launch lanes, take-out sites, and on the river itself, the existing level of congestion, encounters with other users, and competition for campsites would decrease on weekends. The effects of spreading use to weekdays would be the same as in Alternative B. Opportunities for solitude in WSAs would be the same as in Alternative B.

Alternative D

Setting daily launch targets corresponding to a historical average of daily peak period launches, would have the same effects on recreation opportunities as Alternative C, except congestion would not likely be an issue at parking areas, launch lanes, take-out sites, or on the river itself. Competition for campsites would be rare. The opportunity for a semi-primitive recreation experience and the opportunity for solitude in Wilderness Study Areas would be available throughout the week, and the season.

Alternative E

Same as C.

Allocation

Alternative A

Expected increases in boating use level is likely to create the need for a limited-entry permit system at some time in the future. A method of allocating use would then be necessary. Determining an allocation method at a later date would delay implementation of a permit system on-line if it is determined to be necessary compared to selecting any of the allocation systems (B, C, D) as part of this river plan. During this delay, boating use would likely continue to rise, as would the effects on resource and social conditions, such as increases in competition for and creation of new campsites, congestion at launch and take-out points, and daily encounters with other parties.

Common to All Action Alternatives

Any allocation system would require most users to apply or reserve a space in advance, making it more difficult to base river trips on a last minute determination of water, weather, and fishing conditions. At the same time the allocation system would serve as a means of limiting changes in conditions of river resources by being part of the system for limiting recreational use and the timing of use on the river.

Motorized Boating

Alternative A (Proposed Decision for Segment 1)

Continuing existing management of Motorized Boating would maintain existing recreation opportunities. Users of non-motorized watercraft who prefer to avoid the sounds of motors would continue to encounter the sights and sounds of motorized use.

Alternatives B

The use of motorized boats for hunting and fishing would be forgone during the seasons and in river segments where restrictions were extended. The opportunity for rafters, kayakers, canoeists, and other non-motorized users to experience the river without hearing the sounds of motorboats would be extended by 4 months.

These closures would reduce the potential for noise disturbance created by motorized boats and encounters between boating parties that occur with upriver or multidirectional travel would be reduced. These reductions would be consistent with Wilderness values by increasing a sense of solitude and primitive recreation for users who visit the WSAs during this time period. As in the remainder of Segments 1 and 2, non-motorized season of use would be extended in the WSAs from 5 to 9 months. Closing Segment 3 to motorized boating use (except small electric motors) from April 1 to October 1 would have same impacts as Segment 1 and 2 closures except for a shorter duration.

Alternative C

Closing Segment 1 to motorized travel between April 1 and December 1 and closing of Segment 2 to motorized travel between April 1 and October 1 would have same impacts as describe for Alternative B except for a shorter duration. Closing 46 miles of Wild and Scenic River to motorized river travel within the North Pole Ridge, Thirty Mile, and Lower John Day Wilderness Study Areas would reduce the potential for noise disturbance created by motorized boats and encounters between boating parties that occur with upriver or multidirectional travel would be reduced. These reductions would be consistent with Wilderness values by increasing a sense of solitude and primitive recreation for users who visit the WSAs during this time period.

Alternative D (Proposed Decision for Segment 2)

Closing all three segments to motorized use year-round would extend the effects described above to year-round.

Alternative E (Proposed Decision for Segment 3)

Same as Alternative B except that anglers would have the opportunity to use motorized Boats in March and April in all segments and in October and November in Segment 3, resulting in a less primitive experience for float boaters during these months. In Segment 2, the opportunity for a semi-primitive recreation experience and the opportunity for solitude in WSAs would be expected to decrease compared to Alternative B, as motorized boating would be allowed during March and April and would contribute to increased use. Closing Segment 3 to all motorized boating use from May 1 to October 1 would eliminate the convenience of small electric motors attached to drift boats or rafts and which allow headway against up canyon winds during low flows.

Proposed Decision

Continuing existing management of Motorized Boating in Segment 1 would maintain existing recreation opportunities. The option to use motorized boats from October to May for access to BLM lands downstream of Rock Creek would allow current fishing and hunting opportunities to continue. The few floatboaters and bank anglers who use this segment would continue to encounter the sights and sounds of motorized use.

Closing Segment 2 to motorized boating use year-round would provide the opportunity for a year-round non-motorized recreation experience in the most primitive segment within the John Day River system. The potential for noise disturbance created by motorized boats and encounters between boating parties that occur with upriver or multidirectional travel would be reduced within the North Pole Ridge, Thirty Mile, and Lower John Day Wilderness Study Areas (occasional administrative use may be necessary). These reductions would be consistent with Wilderness values by increasing a sense of solitude and primitive recreation for users who visit the WSAs. The use of motorized boats for hunting and fishing would be forgone within this river segment.

Closing Segment 3 to motorized boating from May 1 to October 1 would reduce the potential for conflicts and safety concerns between motorized and non-motorized users during peak use periods.

Closing Segment 3 to all motorized boating use from May 1 to October 1 would eliminate the convenience of small electric motors attached to drift boats or rafts and which allow headway against up canyon winds during low flows.

Developed Facilities

Alternative A (Proposed Decision for Segment 11)

Continuing existing management of developed facilities would not change existing recreation opportunities, except that developing a new recreation site at Twickenham would provide new opportunities for day use activities such as fishing and picnicking, which are not currently permitted at the private Twickenham site.

Alternative B (Proposed Decision for Segment 1-3)

Making improvements to some existing facilities in Segments 1, 2, and 3 would provide more convenient facilities for day-use activities such as picnicking, hiking and fishing.

Alternative C (Proposed Decision for Segment 11)

The same as for Alternative B, except that new sites would be developed in Segments 2, 3, and 10. This would further increase recreation opportunities and provide new areas that would be more convenient to some people.

Alternative D

Closing some existing facilities in Segments 1, 2, and 3 would reduce the number of people that could experience Developed Facilities, and likely result in increased use at remaining facilities, creating more congested conditions. The action could encourage some people to create new dispersed campsites.

Public Access

Alternative A

Continuing existing management would maintain existing recreational opportunities.

Common to Action Alternatives (Proposed Decision)

Improved signing for public access routes to the Oregon Trail Interpretive site at McDonald Crossing would encourage more visitation and provide more opportunities for historical study and education. Providing new public access at Twickenham, contingent on a proposed land exchange, would provide new opportunities for day use activities such as fishing and picnicking, which are not currently permitted at the private Twickenham site.

Alternative B (Proposed Decision)

Improved access for vehicles at Clarno in Segment 2 would provide more convenient access for hunters and hikers. Access changes at Burnt Ranch would eliminate the car camping opportunity at the end of the access road, but would open the area for use by several walk-in groups at a time, who could spread their use over several sites suitable for camping.

Alternative C

The same as Alternative B and, in addition, new access points in Segments 1 and 2 would also provide new recreation opportunities for people interested in drive-in river access for picnicking, hiking, fishing, and hunting.

Alternative D

Reducing access in Segment 2, beyond the Clarno homestead, would reduce opportunities for drive-in pheasant hunting, camping, and fishing, while increasing opportunities for those who prefer a non-motorized experience.

Commercial Use

Alternative A

Not limiting the number of commercial permits would increase the number of commercial permits administered by the BLM, resulting in a greater number of businesses offering guided recreation opportunities to the public, and increasing the variety of opportunities available. This would greatly increase the number of permittees the public could select from when seeking to hire a guide or outfitter.

Common to All Action Alternatives

Issuing commercial permits according to the results of a needs assessment would result in new commercial permits being issued in response to public needs. As in Alternative A permits for new or unrepresented uses would likely be issued, increasing the variety of commercial recreation opportunities available to the public.

Energy and Mineral Resources

Alternatives A-D

No change in recreational opportunities

Land Ownership, Classifications, and Use Authorizations

Except for agricultural land management and lands needed for acquisition to implement Alternative D for grazing, Land Ownership, Classifications and Use Authorizations are largely independent of other actions.

Caves

One cave has been listed as significant within the John Day Planning Area. This small cave is located within a cliff overlooking the South Fork and receives limited use by the western big-eared bat. No alternative would affect this cave by increasing nearby use or access. No other caves are documented within the planning boundary.

Impacts on Human Uses and Values

Impacts of Vegetation Management

Forest Management

Alternative A

The historically irregular opportunities for companies located within and outside the planning area to harvest timber in the John Day Basin would continue as outlined in the John Day and Two Rivers Resource Management Plans. The State Scenic Waterway designation would limit harvest activities within the corridor to those that “enhance the scenic view within a reasonable time.” Generally only forest health treatments could occur within the corridor. The counties currently receive 5 percent of the revenue generated by public domain timber sales. This revenue would be lost, however, without timber revenues the counties would likely qualify for slightly higher Payments in Lieu of Tax resulting in no net effect on county revenues.

Common to All Action Alternatives

Same as Alternative A, except that BLM’s VRM designations may also limit the scope of timber harvest and management activities within the corridor to protect scenic quality.

Grazing Management

Assumptions

Fence construction costs vary according to length of fence to be constructed as well as the roughness and remoteness of the fence site. Total costs of surveys, clearances, project design and layout, project administration (contracting), fencing materials, construction and inspection average between \$9000 and \$11,000 per mile. One person can maintain about 50 miles of fence during the year (ODFW, personal communication).

The cost associated with water developments range from \$2,000 to \$3,500 per development, depending on location and the concentration of the water source. Pipeline construction costs are approximately \$1 per foot. Pumping costs depend on the available power sources, amount of water to be transported and the height to which the water would be raised. It is estimated that one person can maintain about 50 spring box/trough combinations during a year. Water developments are needed at a ratio of about 1 per mile of fence constructed.

Alternative A:

Alternative A results in no change from the current situation. The majority of public land bank miles (188 out of 198) within designated Wild and Scenic Rivers have been managed with grazing systems to maintain or enhance riparian vegetation. The BLM began revising allotment management systems in 1986. At that time only an estimated 15 public land river bank miles were excluded from grazing or subject to riparian-oriented grazing systems. Since that time an additional 35 publicly owned riverbank miles have been closed to grazing and an additional 146 miles of publicly owned have been subject to riparian-oriented

grazing practices. Most changes in grazing management have involved adjusting season of use in pastures adjoining the John Day River. Many were adjusted from late spring and summer to winter and/or spring. These adjustments were made under the existing John Day and Two Rivers Resource Management Plan. Animal Unit Months (AUMs) authorized have not been changed as a result of these season of use changes.

The role of public lands grazing in the economics of the basin is complex because it often fills a niche in a livestock operation for which a substitute would be difficult to find or expensive to implement. Public land grazing leases within the John Day River Basin provide a limited proportion of the forage consumed by livestock in the eight county region. Forage requirements totaled an estimated 2.84 million AUMs or equivalents. BLM authorizes 23,089 AUMs within the basin, between 0.81% to 4.88% of the forage requirements. The remaining forage is derived from Forest Service lands, Tribal lands, private lands, and public lands located in the eight-county region but outside the basin. Hay and other forage, grown locally or imported from outside the region, also contributes to forage requirements of livestock. The 23,089 AUMs of forage on public land managed by the BLM within the basin supports an estimated \$498,500 to \$2.99 million of the approximately \$61.25 million of livestock sales in the eight-county region.

Approximately 3.5 miles of fence and 4 water developments are awaiting construction within the corridor, with an estimated cost of \$39,500 to \$52,500. Fences and water developments on public lands are now maintained by the lessees under cooperative agreements as a condition of their grazing lease. Inventories of the existing fences and water developments within the corridor are not complete, so it is impossible to accurately estimate the annual maintenance costs. The additional fence and water developments would have little impact on the maintenance workload.

Grazing fee collections would be unchanged, assuming the 1998 fee of \$1.35 continues into the future. Large increases in beef prices or congressional action could increase the fee, however, \$1.35 is the legislatively established minimum. An estimated \$41,982.30 would be collected from lessees operating within the John Day River Basin.

Alternative B (Proposed Decision)

This alternative would continue existing management to protect and enhance Outstandingly Remarkable Values on 188 public bank miles, would impose four different types of standards for grazing within Wild and Scenic segments and would implement riparian oriented grazing systems where none are currently practiced on an additional 7.6 public bank miles in the Wild and Scenic designated segments. Thirty-nine livestock operations (most of which lie within the Wild and Scenic River segments) would be affected by implementation of new grazing systems. The new systems would involve winter and/or early spring grazing systems. No changes to AUM numbers are anticipated as a result of these season of use changes. Implementation of the standards for grazing within Wild and Scenic River segments has the potential to affect all grazing operations within those segments, bringing impacts closer to those described in Alternative D.

Changing season of use may impact livestock operators even if total forage offered annually by the BLM is unchanged. This is because changing season of use may make excess forage available in some months that cannot be harvested and utilized in future months when forage is in short supply. Typically herd size is constrained by forage availability in months when forage is in short supply. Operators typically provide year-round forage by growing or buying hay for months of low forage availability.

The ability of individual operators to adjust his or her forage supply when public land grazing season is changed is unknown. Some operators may be able to maintain or even expand herd sizes, while others may be required to reduce herd sizes because of a lack of forage during certain seasons. Private business decisions will determine the final outcomes of changes in BLM season of use within the John Day River corridor.

Within the corridor an additional 23.3 miles of additional fences and 24 new water developments would be required to implement this alternative, with an estimated cost of \$257,700 - \$340,300. Maintenance would be accomplished by lessees under a cooperative agreement as a condition of their grazing lease. The maintenance of these additional fences and water developments would require the available time of one worker.

Grazing fee collections would be the same as Alternative A.

Alternative C

While there would be approximately 992 more public land acres closed to grazing under this alternative than under the existing situation few changes in AUMs would occur as a result of implementing a riparian exclusion. This largely because estimates of available forage, and subsequent assignment of AUMs, were based only on upland resources and riparian resources were not part of the calculation. Also, the addition of management effort into a ranching operation typically improves the efficiency with which the forage resource is harvested. By fencing livestock away from an area in which they spend an inordinate amount of time under certain conditions, the livestock tend to distribute themselves more evenly across the landscape to which they continue to have access. While counter-intuitive, eliminating acreage from a pasture does not necessarily mean that a reduction in the allowable AUMs and a reduction in harvest level would be required. In some cases, when a riparian corridor fence is constructed, a decrease may be required in the authorized AUMs for a pasture. In many cases, the authorized use levels could be safely increased. Given the above analysis, it is not likely that the AUMs within the river corridor would change enough to have an economic impact on the area.

This alternative adopts a riparian corridor fencing strategy for designated and non-designated river segments. As a result of intermingled land ownership, both public and private lands are included in many allotments. Riparian corridor fences would be designed to cross public and private lands.

Within the designated segments approximately 112.7 miles of fence would be built on public lands and 96.5 miles of fence would be built on private lands. An estimated 209 new water developments would be required because cattle would be cut off from the river, the primary source of water. Estimated cost for implementing riparian corridor fencing in designated segments would be between \$1.9 and \$2.3 million. Estimated cost for implementing water developments in designated segments would be between \$418,000 and \$731,500. The maintenance of these additional fences and water developments would require the available time of nine workers. A total of 1,688 acres, including 881 public and 807 private, would be excluded from livestock use.

Within the non-designated segments approximately 33 miles of fence would be built on public lands and 65.4 miles of fence would be built on private lands. An estimated 98 water developments would be required. Estimated cost for implementing riparian corridor fencing in the non-designated segments would be between \$885,600 and \$1.08 million. Estimated cost for implementing water developments in the non-designated segments would be between \$196,000 and \$343,000. The maintenance of these additional fences and water developments would require the available time of four workers. A total of 1,834 acres, including 569 public and 1,265 private, would be excluded from livestock use.

Effective implementation of this alternative requires cooperation from planning partners and private land owners. The decision to cancel grazing preference on public lands may affect interspersed private grazing lands. Private land owners could pursue exchange, sale, or easement arrangements with the federal government. They could choose not to graze livestock. If private landowners choose to continue grazing interspersed private lands, they would be responsible for keeping their livestock off public lands. The BLM would monitor the closed public lands for livestock trespass and other violations. Appropriate follow-up actions would be taken. Where appropriate, the BLM allows transport of livestock through public lands to reach private lands.

While an estimated 29 AUMs would be canceled under this alternative, operators could adjust their operations with no impacts to herd size or production costs.

Grazing fee collections would be reduced by less than \$40 under this alternative.

Alternative D

Eliminating livestock grazing from public lands within the Wild and Scenic River boundaries and within a 1/4 mile corridor on non-designated segments would be accomplished through a combination of existing pasture fences, new fences between public land and private property, new fences crossing public land, and topographic barriers.

Within the designated segments, approximately 99 miles of fence would be built on public lands and, 52.3 miles of fence would be built on private lands. An estimated 151 new water developments would be required, because cattle would be cut off from the river, the primary source of water. Estimated cost for implementing fencing in designated segments would be between \$1.36 and \$1.66 million. Estimated cost for implementing water developments in designated segments would be between \$302,000 and \$528,500. The maintenance of these additional fences and water developments would require the available time of 6 workers. A total of 80,963 acres, 65,845 public and 15,118 private, would be excluded from livestock use.

Within the non-designated segments, approximately 52.2 miles of fence would be built on public lands, and 74.3 miles of fence would be built on private lands. An estimated 126 water developments would be required. Estimated costs for implementing corridor fencing in the non-designated segments would be between \$1.14 and \$1.39 million. Estimated costs for implementing water developments in the non-designated segments would be between \$252,000 and \$441,000. The maintenance of these additional fences and water developments would require the available time of five workers. A total of 12,388 acres, including 4,732 public and 7656 private, would be excluded from livestock use.

Approximately 3,139 AUMs would be canceled on public lands. Of these, 2,725 would be in the designated segments. Assuming that livestock operations reduce herds accordingly, this would represent a decrease in livestock sales of \$68,000 to \$407,000 within the eight-county region. Operators whose BLM permits were severely reduced or canceled would restructure operations by utilizing remaining available public lands outside the corridor, increasing use on private lands, relying on purchased hays and other forage, or reducing the number of cattle in their operation. Restructuring of this kind favors large diversified agricultural operations with significant capital reserves. Smaller, less diversified operations, and operations with relatively small privately owned land bases, would be at risk of foreclosure or bankruptcy. A foreseeable outcome of this alternative may be an increase in private land within the basin area that is owned by banks, insurance companies, and other businesses located outside the planning area. This could have far-reaching social and political effects in an area where self-sufficiency and family-owned businesses are highly valued.

Effective implementation of this alternative requires cooperation from planning partners and private land owners. The decision to cancel grazing preference on public lands may affect interspersed private grazing lands. Private land owners could pursue exchange, sale, or easement arrangements with the federal government. They could choose not to graze livestock. If private landowners choose to continue grazing interspersed private lands, they would be responsible for keeping their livestock off public lands. The BLM would monitor the closed public lands for livestock trespass and other violations. Appropriate follow-up actions would be taken. Where appropriate, the BLM allows transport of livestock through public lands to reach private lands.

Eliminating grazing from BLM-managed land in the river corridor would also eliminate all grazing fee collections. Assuming the grazing fee of \$1.35 is continued into the future, \$4,205.25 would be forgone annually.

Monitoring Costs

The types of monitoring required to implement each alternative would vary. For example, under Alternatives A and B, the majority of monitoring efforts would be focused on ecological and watershed conditions. Under alternatives C and D, the emphasis of the monitoring program would shift to fence condition and surveillance of areas which are excluded from livestock grazing. There is no information available indicating that the costs of the different monitoring programs would be significantly different.

Irrigated Agricultural Lands

Common to All Alternatives

Each alternative could involve converting from existing uses to other uses. Costs associated with conversion of agriculture lands currently used for commodity production were estimated based on the need to set these lands up on an irrigation system to control the expansion of noxious weeds and the aid in the establishment of non-commodity uses.

Costs to convert an agriculture field currently in commodity production to native vegetation or to wildlife food and cover would include the following estimates:

- 1) Burning; \$5-10 per acre (could be a multiple year treatment)
- 2) Herbicide; \$35 per acre (could be a multiple year treatment)
- 3) Herbicide Application; \$20 per acre (could be a multiple year treatment)
- 4) Wildlife Food and Cover Mix; \$30 per acre
- 5) Native Seed; \$80 per acre on those agriculture lands reclaimed to native vegetation
- 6) Native Seed Planting; \$5 per acre
- 7) Initial Irrigation System Set Up; \$500 per acre for wheel line and pump purchase
- 8) Cultivation for seedbed preparation; \$40 per acre

The total cost to convert an agriculture field currently in commodity production to native vegetation would be approximately \$690 per acre. For example the cost to convert a 70 acre field would be \$48,300. This would be an initial investment as irrigation equipment could be used on other agriculture fields if they were converted to native vegetation in phases. The cost to convert an agriculture field to native vegetation once initial investment of irrigation equipment was made would be approximately \$190 per acre. This figure does not include the time, money, and labor investment to move the irrigation system to other fields.

The total cost to convert an agriculture field currently in commodity production to a wildlife food and cover plot would be approximately \$640 per acre. For example the cost to convert a 70 acre field would be \$44,800. After the initial investment, the cost to maintain food and cover plots would go down substantially. The cost of herbicide and herbicide application would decrease as weed problems are controlled. Some time, money, and manpower investment would be made yearly to maintain a field in a wildlife food and cover plot.

The total cost to convert a large field currently in commodity production to any other vegetation is significantly higher than those fields that are currently in non-commodity production mainly due to size. A field that is currently in commodity production would have to be completely converted the first year after production is ceased to avoid significant weed problems. Fields currently in non-commodity production can be partially treated on a year by year basis.

Alternative A

Under this alternative the BLM would continue lease 210 acres of agricultural/cultivated land that would be used to grow crops such as grains, hay, alfalfa, dry beans, dry onions, and specialty crops. Specialty crops include mint, onion seed, carrot seed, and coriander. The estimated (1998 figures) acres of commodity production by county are: Wheeler, 89 acres alfalfa/grass hay and 23.4 acres grain/hay; Wasco County, 70 acres "specialty" crop (carrot seed, coriander, bean) and 3.4 alfalfa/grass hay; Sherman County, 8.7 acres alfalfa/grass hay. Estimated value of crops grown on these lands would continue to be between \$99,000 and \$332,000 annually (based on 1997 values).

The BLM would continue to collect approximately \$6,500 per year from agricultural leases.

Common to All Action Alternatives

Elimination of irrigation of commercial crops after August 15 would restrict the type crops that could be successfully cultivated by leasees.

Alternative B

As many as 164 acres would be removed from commodity lease opportunities and dedicated for wildlife food and cover enhancement, establishment of perennial vegetation, and/or production of woody riparian vegetation for restoration. This is the amount of public land not now utilized for commodity production but which could be in the future.

Subjecting public land irrigation activity to review and shutdown after August 15 could reduce the productivity of certain crops. This would revoke the flow stipulations that apply to the agricultural fields at RM 136 and RM 137.

Existing levels of commodity production on leased public land would continue at historic levels. Estimated value of crops grown on leased public land would be between \$87,000 and \$293,000 annually. It is assumed that production valued at \$12,000 to \$39,000 on those lands would continue on about 25 acres transferred (through sale or trade) to private ownership.

The BLM would collect approximately \$5,762 annually from agricultural leases. Revenue generated by leased lands identified for exchange would be lost at the time of exchange.

Alternative C (Proposed Decision)

Leased commodity production would be eliminated from all public irrigated lands (384.2 acres) along the John Day River. The estimated (1998 figures) acres of commodity production that would be eliminated by county are: Wheeler, 89 acres alfalfa/grass hay and 23.4 acres grain/hay; Wasco County, 70 acres "specialty" crop (carrot seed, coriander, bean) and 3.4 alfalfa/grass hay; Sherman County, 8.7 acres alfalfa/grass hay. The 3.4 and 8.7 acres of alfalfa/grass hay are incorporated as part of larger private land agricultural fields thus facilitating a change in operation such as irrigation layout. Estimated value of crop production lost on public lands would be between \$87,000 and \$293,000 annually. Between \$12,000 to \$39,000 of production would occur on lands transferred to private ownership. Leasing of BLM lands and associated water rights for commodity production would be phased out over an estimated 15 year period. Instead these land would be managed for wildlife habitat. Twenty-five acres of public agricultural lands associated to private lands at RM 112 and RM 119 would be removed from public ownership.

No revenue would be collected by BLM from agricultural leasing after full implementation of this alternative. Existing revenue (approximately \$6,500) would be foregone.

Alternative D

Leased commodity production would be eliminated all public irrigated lands (384.2 acres) along the John Day River. The estimated (1998 figures) acres of commodity production that would be eliminated by county are: Wheeler, 89 acres alfalfa/grass hay and 23.4 acres grain/hay; Wasco County, 70 acres "specialty" crop (carrot seed, coriander, bean) and 3.4 alfalfa/grass hay; Sherman County, 8.7 acres alfalfa/grass hay. The 3.4 and 8.7 acres of alfalfa/grass hay are incorporated as part of larger private land agricultural fields thus facilitating a change in operation such as irrigation layout. Estimated value of crop production lost on public lands would be between \$81,000 and \$200,000 annually with \$12,000 to \$39,000 of production transferred to private ownership. Leasing of BLM lands and associated water rights for commodity production would be phased out over an estimated 20 year period. Instead these land would be managed for native perennial vegetation. Twenty-five acres of public agricultural lands associated to private lands at RM 112 and RM 119 would be removed from public ownership.

Existing revenue (approximately \$6,500) would be foregone.

Recreation Use

Boating Use Levels

Alternative A

Current visitation of 100,000 annually would continue to increase at approximately 4.0 percent annually. Current boating use levels, 18,300 visitor days in 1998, generated an estimated \$463,000 in local visitor spending. At the end of the interim period, an estimated 20,582 visitor days would generate an estimated \$520,700 in local visitor spending.

Alternative B

Growth in recreation use would continue at rates similar to Alternative A. Targeting daily launches at 1998 levels would constrain use growth during peak periods. However, off peak times currently have available capacity to accommodate growth in recreation use during the interim period. Economic impacts are expected to be the same as Alternative A.

Alternative C (Proposed Decision)

Growth in recreation use would continue at rates similar to Alternative A. Targeting daily launches to correspond with 70% of available campsites in Segments 2 and 3 would reduce use levels during peak periods. However, off peak times currently have available capacity to accommodate displaced users and growth during the interim period. Economic impacts are expected to be the same as Alternatives A and B.

Alternative D

Targeting daily launches to equal the historical average of peak period use in Segments 2 and 3 would reduce use levels during peak periods. Off peak times currently have available capacity to accommodate displaced users. Because of the smaller targets some users would decide to use the river during seasons when weather and water conditions are often less than optimal. Growth in boating demand could not be accommodated under this alternative. At the end of the interim period, an estimated 19,420 visitor days, would generate an estimated \$491,300 in local visitor spending.

Alternative E

Same as Alternative C, except establishing limits on motorized launches in Segments 1 and 2 would limit use on some peak use days but would allow current levels of motorized use to continue.

Allocation System

See discussion of impacts of Allocation System on Other Recreational Opportunities and Recreational Experience.

Alternative A

No allocation system would result in increased commercial and non-commercial use in response to public demand, including demand generated by advertising. If launches are limited in the future to any of the interim levels targeted by Alternatives B, C, D, and E guided use could expand only by taking available launches from non-commercial users or offering services at off peak times.

Alternative B

An allocation system based on the historic use ratio of 80% unguided and 20% commercial would not accommodate changes in public demand for guided versus non guided access over time. If launches are limited in the future to any of the interim levels targeted by Alternatives B, C, D, and E existing and new

permittee would compete among themselves for a limited number of peak and non-peak launches. Businesses offering guided use could expand only by taking available launches from other commercial users or offering services during off peak times.

Alternative C

A common pool lottery system would accommodate changes in public demand for guided versus non-guided access. Non-guided users wanting launch permits would apply during the February application window. Guided users would rely on guides to obtain permits. Guides may apply for launches without confirmed clients and then advertise for the dates assigned to them. This speculative application by guides may result in more guided use being assigned than actually demanded. If launches are limited in the future, speculative application by guide services could displace non-commercial users. Businesses offering guided use could also expand by obtaining available launches from other commercial users or offering services during off peak time.

Alternative D (Proposed Decision)

A common pool, first come, first serve, with staggered permit availability system would accommodate changes in public demand for guided versus non-guided access over time. People wanting launch permits would contact BLM to receive a launch permit. Guided users would rely on guides to obtain permits. Blocks of permits would be made available on certain dates, reducing the need for long-term planning to meet the February application window. Speculative application by guides may be reduced below levels in Alternative C. If launches are limited in the future, speculative application by guide services could displace non-commercial users. Businesses offering guided use could also expand by offering services during off peak time.

Motorized Boating

Alternative A (Proposed Decision for Segment 1)

Existing motorized boating would continue without change.

Alternative B

Local expenditures associated with existing motorized boating would be displaced under Alternatives B. Given an assumed average daily expenditure of \$25.30 total expenditures forgone by this alternative would be \$1,442 (57 days). These changes would be marginal within the overall economy.

Alternative C

Local expenditures associated with existing motorized boating would be displaced under Alternatives B. Given an assumed average daily expenditure of \$25.30 total expenditures forgone by this alternative would be \$1,088 (43 days). These changes would be marginal within the overall economy.

Alternative D (Proposed Decision for Segment 2)

Local expenditures associated with existing motorized boating would be displaced under Alternative D. Given an assumed average daily expenditure of \$25.30 total expenditures forgone by this alternative would be \$1,442 (57 days) . This change would be marginal within the overall economy.

Alternative E (Proposed Decision for Segment 3)

Local expenditures associated with existing motorized boating would be displaced under Alternative E. Given an assumed average daily expenditure of \$25.30 total expenditures forgone by this alternative would be \$810 (32 days) . This change would be marginal within the overall economy. In addition, limits on motorize launches in March and April could result in motorized boaters competing with other motorized boaters for the limited number of available daily launches.

Proposed Decision

Local expenditures associated with existing motorized boating would be displaced by segment closures and changes in seasonal restrictions. Given an assumed average daily expenditure of \$25.30 total expenditures forgone by this alternative would be \$1,442 (57 days) . This change would be marginal within the overall economy.

Developed Facilities

Alternative A (Proposed Decision for Segment 11)

Underlying growth in recreation user days would continue. Existing sites are currently at capacity during peak use periods. No capacity improvements would be made, resulting in user developed sites in unsuitable settings that could cause resource damage and conflict between user groups. Opportunities exist for the private sector to develop facilities (access, campgrounds, boat launches, etc) on private lands to meet increasing user demands.

Alternative B (Proposed Decision for Segment 1-3)

Underlying growth in recreation user days would continue. Maintenance and improvement of existing sites would be made to improve visitor services and reduce resource damage. Capacity improvement would be minimal and could result in user developed sites in unsuitable settings similar to Alternative A. Opportunities exist for the private sector to develop facilities (access, campgrounds, boat launches, etc) on private lands to meet increasing user demands.

Alternative C (Proposed Decision for Segment 10)

Underlying growth in recreation user days would continue. Maintenance and improvement of existing sites would be made to improve visitor services and reduce resource damage. Development of new sites would increase capacity, especially for non-boating recreation such as drive-in camping, day use, and swimming. Opportunities would continue to exist for the private sector to develop facilities (access, campgrounds, boat launches, etc) on private lands to meet increasing user demands, but to a lesser degree than in Alternatives A and B. Creation of a campground at Ellingson Mill is likely to bring new and different types of users to the South Fork area. This would compete with any current or future private camping facilities in the area.

Alternative D

Underlying growth in recreation user days would continue. Removal of selected facilities and selected sites closure of sites would discourage use by users seeking developed site experiences. Capacity would be reduced. User developed sites in unsuitable settings could result in resource damage and conflict between user groups. Opportunities for primitive and dispersed recreation would remain. Opportunities for the private sector to develop facilities (access, campgrounds, boat launches, etc) on private lands to meet increasing user demands would be increased. Limitations on launches would require private sector developments be targeted at non-boating types of recreation.

Non-boating Uses

Under all alternatives noncommercial, non-boating activities such as photography, driving for pleasure, car camping, hunting and horseback riding would not be limited and would continue to increase annually, providing opportunities for local businesses to capture their spending by offering retail goods and services.

Commercial Use

Alternative A

Under this alternative permits would be issued to all eligible applicants. Because permits would not be scarce they would have no transfer value when an existing operator sold his or her business.

More permittees would result in more competition for existing permittees in the future. A situation could develop in the future where more services are available than the public demands. Successful permittees would need strong advertising to attract customers and offer quality service to gain repeat business and word-of-mouth referrals.

Common to All Action Alternatives

Regulating shuttle services through a special use permit system would increase in administrative activity for BLM and create additional paperwork and record keeping for operators.

Issuing concession service permits based on a needs assessment would may allow a small number of new permits that promote BLM management objectives for the river, such as the sale of maps, firepans, or portable toilets

Alternatives B and C (Alternative B is Proposed Decision)

Under this alternative new permits would be issued by competitive prospectus for new types of services or services in short supply. Increased requirements for permit application and in Alternative C for transfer would increase the cost to permittees of getting into the commercial outfitter/guide business. Existing permittees would be sheltered from competition from new permittees.

Permits for certain types of uses could be in demand. A permittee who wishes to sell his or her business would have a greater number of potential buyers than under Alternative A because the number of permits available is limited. Permits have no cash value and cannot be assigned a monetary value in a business transaction. Permits are transferred to business buyers at the discretion of the BLM. Existing permittees who hold permits primarily for speculative reasons would be able to realize the greatest value under this alternative—either by selling their business or increasing trips.

Increased permit application and transfer requirements would increase the costs to individuals and businesses of getting into the commercial outfitter/guide business on the John Day River.

Alternative D

This alternative freezes outfitter and guide permit numbers at the existing 34. Permits could be in demand and develop significant transfer value. The value of the permit would be internalized within the business and considered when the business was sold. New types of services could not be permitted except when an existing permit is vacated by attrition. The result could be that certain types of services sought by visitors would not be available.

If launches are limited in the future, existing permittees could increase party size to meet increases in demand. This would have a greater impact on fishing guides, who typically take 2-3 customers in a single boat, than rafting guides who typically launch several rafts with 4-8 customers each.

Permits for certain types of uses could be in demand. A permittee who wishes to sell his or her business would have a greater number of potential buyers than under Alternative A because the number of permits available is limited. Permits have no cash value and cannot be assigned a monetary value in a business transaction. Permits are transferred to business buyers at the discretion of the BLM. Existing permittees who hold permits primarily for speculative reasons would be able to realize the greatest value under this alternative—either by selling their business or increasing trips.

Existing permittees would continue to compete among themselves—but no new outfitter/guides would be permitted on the John Day.

Impacts of Mining and Minerals

Alternative A

No additional constraints would be added to specifically restrict or limit the opportunity for mineral exploration or development within the corridor.

Alternatives B and C (Proposed Decision)

Alternatives B and C further limit or restrict the opportunity for mineral exploration and development within the corridor by extending the No Surface Occupancy stipulations for leasable minerals to the entire corridor and withdrawing existing recreation sites from locatable mineral activities. These additional stipulations and restrictions on locatable and leasable mineral resources limits the opportunity for mineral exploration and development within the corridor. However, because the existing interest and future potential for mineral resources is low, the economic impact is negligible.

Closure of the corridor to future establishment of salable mineral material sites is expected to have a negligible economic impact because of the availability of these resources on private lands and on public lands outside the corridor.

Alternative D

Alternative D forecloses opportunities for leasable and locatable mineral exploration and development on all public lands within the corridor. Because the existing interest and future potential for mineral resources is low, the economic impact is negligible.

Impacts to salable mineral is the same as Alternatives B and C.

Land Ownership, Classifications, and Use Authorizations

Alternative A

The John Day and Two Rivers Resource Management Plans identify lands suitable for retention disposal, and acquisition. Future land exchanges, acquisitions, and sales, would occur on a willing buyer, willing seller basis and are presumed to be advantageous to both parties. These action have the potential to change the acres of BLM-managed land in each county. Each acre of net increase or decrease would slightly alter the entitlement acres, and thus PILT payments in each county. These changes are expected to be very small given the large acreages currently managed by Federal agencies. Site specific environmental analysis (NEPA) is required prior to any federal land action.

Alternatives B and C (Proposed Decision)

Same as A, except specific parcels are identified for acquisitions.

Alternative D

Same as B and C, except exchanges to mitigate private land impacts of corridor fencing would be pursued. The level of activity, and economic outcomes cannot be projected. This would be analyzed in future exchange specific NEPA analysis.

Cumulative Impacts

Each action alternative and possible combination of action alternatives would protect and enhance outstandingly remarkable and significant values associated with the segments of the John Day River that have been designated Wild and Scenic River. The analysis does note however that management of BLM lands adjacent to the River will have a limited impact on instream conditions. It is anticipated that beneficial changes instream conditions and associated changes in fish habitat would be most likely to occur if management on BLM lands were accompanied with similar changes on the private lands that constitute over 60% of the John Day Basin. Given the continuation of active participation of Watershed Councils and the participation of the Oregon Department of Agriculture in the supervision of the development of Ranch Management Plans for private lands adjacent to streams on the 303(d) list it is expected that the positive water quality trends documented by ODEQ would continue with the implementation of any combination of the action alternatives described in this document given favorable climatic conditions. It is clear that over the short term natural events will have a greater impact on instream conditions than any human actions.

CEQ. Required Disclosure of Impacts

Air Quality

The use of prescribed fire is part of actions common to all alternatives. Smoke from prescribed fire will have an unavoidable impact on air quality. These impacts would be short term and be mitigated by project design, prescription and timing. These impacts are described in detail in the following documents: ICBEMP, p.2:29-31, Wildland and Prescribed Fire Management Policy: Implementation Procedures Reference Guide (1998), Two Rivers RMP/EIS, 1986 and John Day RMP/EIS, 1985.

No adverse environmental effects on air quality are anticipated with the implementation of any alternative.

Areas of Critical Environmental Concern

There are no ACECs within the plan area.

Cultural Resources

Impacts to cultural resources have been described earlier in this chapter. By implementing existing and proposed regulations and guidelines there would be no adverse impacts as a result of any of the alternatives of this plan. The proposed decision may increase the knowledge base concerning cultural resources. Some inadvertent or deliberate destruction of cultural sites may occur by visitors under each alternative.

Farm Lands (prime or unique)

Under all alternatives some publicly owned farmland may be affected in the long term by the discontinuation of irrigation. The additional water provided by irrigation is an essential criterion that makes these farmlands meet the requirements to be considered as prime or unique. Plant communities would change from crops requiring supplemental water to native vegetation or crops that do not require supplemental water. Impacts to vegetation and habitats associated with the farmlands have been described earlier in this chapter. These impacts would not be irretrievable or irreversible resource commitments. No adverse effects on Prime or Unique Farmlands are anticipated with the implementation of any alternative.

Floodplain and Wetlands/Riparian Zones

Impacts of the alternatives to riparian vegetation, fish and water are described earlier in this chapter and in Chapter 3. Impacts from vegetation management actions in all alternatives allow for proper watershed functions to occur that would benefit floodplain and wetland/riparian zones. Some recreation facilities may impact floodplain on a localized scale and these impacts would be reduced by mitigation.

No adverse environmental effects on floodplain and wetland/riparian zones are anticipated with the implementation of any alternative.

Native American Religious Concerns

Actions of all alternatives would enhance resource conditions that contribute to Native American concerns. No adverse impacts to Native American Religious Concerns are anticipated.

Threatened or Endangered Species

There would be no adverse impacts to any Federally listed Threatened or Endangered Species or critical habitat as a result of this plan. The discussion of the effects of the alternatives on threatened, endangered or sensitive species is presented in the fish, wildlife and vegetation sections of this chapter.

Wastes, Hazardous or Solid

There are no known hazardous or solid wastes that will be generated or affected by any of the alternatives of this plan.

Water Quality (both surface water and ground water)

No adverse impacts to water quality are anticipated from any of the alternatives. Impacts to water quality are addressed earlier in this chapter.

Wild and Scenic Rivers

All action alternatives would protect and enhance river values associated the John Day Wild and Scenic River.

Wilderness

Actions related to grazing management or recreation in some alternatives (such as construction of fences or water developments, or rehabilitation of dispersed campsites) may occur within Wilderness Study Areas (WSAs). These actions would only be implemented if site specific analysis determines that they do not impair wilderness values or preclude WSAs or portions of WSAs from Wilderness designation as directed in Interim Management Policy for Lands Under Wilderness Review (IMP), H-8550-1, 7/5/95, BLM.

Grazing

Alternatives A and B include 2 fence projects that total 0.4 miles that have been previously analyzed in Environmental Assessments #OR054-95-008 and #OR054-97-038.

Alternative B also proposes to construct 4.6 miles of fence within WSAs. Most of this fencing would be used to exclude 4-5 dispersed camp sites from livestock in order to reduce conflicts between recreationists and livestock. These fence projects would further protect and enhance river values of recreation opportunity and at the same

time protect wilderness values. Constructing fences and water developments or changing season of use within WSAs would require site specific analysis to ensure that the proposed projects meet IMP criteria of nonimpairment, that they are substantially unnoticeable, and minimize surface disturbance.

Alternative C proposes to construct approximately 12 fence projects totaling approximately 50 miles and 50 water developments within WSAs. These projects would require further analysis to determine if they are consistent with the interim management policy and if they could be implemented.

Alternative D does not propose any located within WSAs.

Recreation

Alternative B for Dispersed Recreation proposes to identify river campsites where resources are in need of rehabilitation or protection, including sites within WSAs. Rehabilitation of WSA sites would be designed to protect and enhance wilderness values, and would be accomplished using methods and equipment that have the least impact on WSA values.

The effects of motorized boating and boating use levels on wilderness values of semi-primitive recreation experience and solitude are discussed earlier in this chapter.

Environmental Justice

Research conducted in response to Executive Order 12898 on Environmental Justice identified no low-income groups with unique cultural, social, or economic practices that would be impacted by Alternatives A, B, C, D, or E. Native Americans were the only minority group of concern identified under the guidelines of the Executive Order. Impacts to Native Americans are discussed elsewhere in the document.

Incomplete or Unavailable Information

As described above the most important determinant of instream conditions is the management of private lands. Detailed information concerning conditions on private lands is unavailable.

Glossary

Access - A passage allowing recreationists to reach the areas in which they wish to recreate.

Access Easement - A legal right to cross private land granted to the public by a landowner.

Area of Critical Environmental Concern (ACEC) - Type of special land use designation specified within the Federal Land Policy and Management Act (FLPMA).

Active Floodplain - The low-lying land surface adjacent to a stream and formed under the present flow regime. The active floodplain is inundated at least once or twice (on average) every three years.

Administrative Rules - Regulations established by State agency boards and commissions in accordance with Oregon Revised Statutes.

Allocation - The process of apportioning a supply of opportunities to various sectors of demand, such as to the non-outfitted public and the public seeking outfitted services.

Allotment - An area of land where one or more livestock operators graze their livestock.

Allotment Classification - One of three categories (I, M, and C) assigned to grazing allotments, based on their range condition, resource use conflicts, economic opportunity, and management status. I (Improve) - Range condition unsatisfactory, high potential, producing at low to moderate level; resource-use conflicts present; positive economic opportunity; management unsatisfactory. M (Maintain) - Range condition satisfactory, moderate to high potential, producing near potential or upward trend; no serious resource-use conflicts; possible economic opportunity; management satisfactory. C (Custodial) - Range condition not a factor, low potential, producing near potential; limited resource-use conflicts; no economic opportunity; management satisfactory or no options.

Allotment Management Plan - A plan for managing livestock grazing on specified public land.

All-Terrain Vehicle (ATV) - Small 3-wheel and 4-wheel recreational vehicles capable of operating in rugged terrain.

Anadromous fish - Fish that hatch in freshwater, migrate to the ocean to mature, and return to freshwater to reproduce. Salmon and steelhead are examples.

Angler Use Day - One person fishing the river for any portion of one day.

Animal Unit - One cow, one cow/calf pair, one horse, or five sheep.

Animal Unit Month (AUM) - A standard measurement of the amount of forage necessary to sustain a cow and calf for one month.

Aquatic - Living or growing in or on the water.

Archaeological Site - Geographic locale containing structures, artifacts, material remains and /or the other evidence of past human activity.

Authorized Officer - Any employee of the Bureau of Land Management to whom authority has been delegated to perform specific duties.

Basin - In general, the area of land that drains water, sediment, and dissolved materials to a common point along a stream channel.

Beneficial Use - The reasonably efficient use of water without waste for a purpose, consistent with the laws, rules, and the best interests of the people of the state (Oregon Administrative Rules, Water Resources Department, Division 300, 690-300-010 [5]).

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 evaluation and represent the most effective and practical means to achieve management goals for a given site.

BLM Assessment Species - Plant and animal species on List 3 and 4 of the Oregon Natural Heritage Data Base, or those species on the Oregon List of Sensitive Wildlife Species (OAR 635-100-040) that are identified in BLM Instruction Memorandum OR-91-57 and are not included as Federal candidate, State listed, or BLM sensitive species.

BLM lands (BLM-administered/managed lands) - Any land and interest in land managed by the United States Government and administered by the Secretary of the Interior through the Bureau of Land Management. (Also, public lands.)

BLM Sensitive Species - Plant or animal species eligible for Federal listed, Federal candidate, State listed, or State candidate (plant) status; or on List 1 in the Oregon Natural Heritage Data Base, or approved for this category by the BLM State Director.

BLM Tracking Species - Plant and animal species on List 3 and 4 of the Oregon Natural Heritage Data Base, or those species on the Oregon List of Sensitive Wildlife Species (OAR 635-100-040) that are identified in BLM Instruction Memorandum OR-91-57 and are not included as Federal candidate, State listed, BLM sensitive, or BLM assessment species.

Boat - Water craft used, or capable of being used, as a means of transportation on the water, but does not include aircraft equipped to land on water, boathouses, floating homes, air mattresses, beach and water toys, or single inner tubes.

Boater - Any person who utilizes a floating craft or device for transportation on the surface of the river.

Boating Use Day - One person boating the river for any portion of one day.

Buffer Strip - A protective area adjacent to an area of concern requiring special attention or protection. In contrast to riparian zones, which are ecological units, buffer strips can be designed to meet varying management concerns.

Campground - One or more developed campsites in a specific area.

Camping - Outdoor living for recreation.

Campsite - Individual unit for camping; usually undeveloped.

Campsite Rehabilitation - Measures taken to restore damaged campsites and to prevent further damage to natural resources. Example: planting grass and shrubs.

Casual Use - Mining activities that ordinarily result in only negligible disturbance of Federal lands and resources. These activities do not involve use of mechanical earth-moving equipment, motorized vehicles, other power equipment, or explosives.

Channeled - Refers to a drainage area in which natural meandering or repeated branching and convergence of a streambed have created deeply incised cuts, either active or abandoned, in alluvial material.

Client - A paying member of a guided or outfitted group.

Climax Vegetation - The stabilized plant community on a particular site. The plant cover reproduces itself and does not change as long as the environment remains the same.

Commercial Forestland - Forestland that can produce 20 cubic feet of timber per acre, per year, and that is not withdrawn from timber production.

Commercial Use - Recreational use of the public lands or related waters for business or financial gain.

Commercial Use Day - One permittee, guide, or client participating in a commercial use activity for any portion of one day.

Commercial Use Fee - Fees for commercial use permits, designed to provide a fair return to the government for the opportunity to make a profit using Federal resources.

Cover - Trees, shrubs, rocks, or other landscape features that allow an animal to partly or fully conceal itself; area of ground covered by plants of one or more species.

Cubic feet per second (cfs) - Means of measuring the flow rate of a liquid, usually water.

Cultural Resources - Remains of human (historical and archaeological) activity, occupation, or endeavor, reflected in districts, sites, structures, buildings, objects, artifacts, ruins, works of art, architecture and natural features of importance in past human events. Cultural resources consist of: (1) physical remains; (2) areas where significant human events occurred, even though evidence of the events no longer remains; and (3) the environment immediately surrounding the actual resource.

Cumulative Impact - Impacts on the environment resulting from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Such impacts can result from individually minor, but collectively significant actions, occurring over a period of time.

Custodial Management - Management of a group of similar allotments with minimal expenditure of appropriated funds to continue protecting existing resource values.

Customer Use Day - Any day, or portion of a day, that a paying client receives recreation services from an authorized permittee or from an employee of an authorized permittee.

Day Use - Recreational use of public lands that involves no overnight use.

Degraded Site - Any vegetated area in early seral status, or in declining ecological condition.

Desired Use Level - The amount and type of recreational use an area can accommodate without altering either the environment or the user's experience beyond the degree of change deemed acceptable by management objectives for the area. Desired use levels are developed through the use of "Limits of Acceptable Change" or a "Recreation Opportunity Spectrum" analysis.

Developed Campground - Accessible by motor vehicle and containing improvements for camper comfort and sanitation facilities such as toilets, tables and campfire grills.

Dispersed Campsite - Undeveloped campsite without improvements for camper comfort or sanitation.

Dispersed Recreation - Recreation that does not occur in a developed recreation site; for example, hunting or backpacking.

Diversity - A measure of the variety of species and habitats in an area that takes into account the relative abundance of each species or habitat.

Ecological Status - Present state of vegetation on a range site in relation to the potential natural community for that site. Four classes are used to express the degree that production or composition of the present plant

community reflects the potential natural community (climax):

<u>Ecological status (seral stage)</u>	<u>Percent of community in climax condition</u>
Potential natural community	76-100
Late-seral	51-75
Mid-seral	26-50
Early seral	0-25

Ecosystem - An ecological unit consisting of both living and nonliving components that interact to produce a natural, stable system.

Endangered Species - A plant or animal species listed under the Endangered Species Act that is in danger of extinction throughout all or a significant portion of its range.

Environmental Assessment (EA) - One type of document, prepared by Federal agencies to comply with the National Environmental Policy Act (NEPA), which portrays the environmental consequences of proposed Federal actions not expected to have significant impacts on the human environment.

Environmental Impact Statement (EIS) - A formal document, to be filed with the Environmental Protection Agency, which considers significant environmental impacts expected from implementing Federal actions.

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 - Detachment and movement of soil or rock fragments by water, wind, ice or gravity.

Eutrophication - The process whereby a body of water becomes highly productive of aquatic plants such as algae, due to the input (sometimes inadvertent) of large quantities of nutrients, typically to the detriment of other living things.

Evapotranspiration - Loss of water by evaporation from the soil and transpiration from plants.

Evolutionary Significant Unit (ESU) - A term applied for purposes of consideration under the Endangered Species Act to refer to a distinct population segment, which is substantially reproductively isolated from other conspecific population units and represents an important component in the evolutionary legacy of the species.

Exclosure - An area fenced to exclude animals (primarily livestock).

Filter Strip - A strip or area of vegetation for removing sediment, organic matter, and other pollutants from runoff and waste water.

Fire Rehabilitation - Activities necessary to repair damage or disturbance caused by wildfire or the fire suppression activity.

Fire return interval - Number of years between two successive fires documented in a designated area.

Fire suppression - All work activities connected with fire-extinguishing operations, beginning with the discovery and continuing until the fire is completely extinguished.

Floodplain - A relatively flat area, or lowlands, adjoining a body of standing or flowing water that has been or might be covered by floodwater.

Forage - All browse and herbaceous plants available to grazing animals, including wildlife and domestic livestock.

Forb - A broad-leaf herb that is not a grass.

Forest health - Condition in which forest ecosystems sustain their complexity, diversity, resiliency and productivity while providing for human needs and values.

Forestland - Land that is now, or is capable of becoming, at least 10 percent stocked with forest trees and that has not been developed for nontimber use.

Fuels - Includes living and dead plant materials capable of burning.

Ground Cover - Grasses or other plants that keep soil from being blown or washed away.

Group Size - Number of people in a boating or camping party, including guides and any support personnel.

Guide - A permittee, or employee who works for a permittee, who provides services that include leading clients in an authorized commercial use activity.

Guide Days - Any day or portion of a day that an authorized permittee, or employee for the permittee, provides goods of services to a customer.

Guide Permit - A license to conduct activities of a guide.

Gully - A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage.

Habitat - Type of environment in which certain plants or animals live.

Herd Management Area (HMA) - Public land under jurisdiction of the Bureau of Land Management that has been designated for special management to emphasize maintaining an established wild horse herd.

Herpetile - A collective term for amphibians and reptiles; synonymous with herpetofauna.

Historic site - Locations of human activity from the historic period.

Impact - A change in the environment caused by human activities.

Infiltration rate - The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Instream Water Right - A right to the use of water remaining in a stream for fish, recreation or pollution abatement.

Interim Management Policy (IMP) - Policy for managing public lands under Wilderness review. Section 603 of FLPMA states: "During the period of review of such areas and until Congress has determined otherwise, the Secretary shall continue to manage such lands according to his authority under this Act and other applicable law in a manner so as not to impair the suitability of such areas for preservation as wilderness, subject, however, to the continuation of existing mining and grazing uses and mineral leasing in the manner and degree in which the same was being conducted on the date of approval of this Act: Provided, that, in managing the public lands the Secretary shall by regulation or otherwise take any action required to prevent unnecessary or undue degradation of the lands and their resources or to afford environmental protection."

Intermittent Stream - A stream that flows only at certain times of the year when it receives water from other streams or from surface sources such as melting snow.

Issue - A subject or question of widespread public discussion or interest, identified through public participation, regarding management of a geographic area.

Landing Site - Riverbank location where boats are taken from the river.

Late Seral - Ecological condition class corresponding to 51 to 75 percent of the plant composition found in the potential natural plant community.

Launch - An individual river trip. May be comprised of one or more boats and any number of individuals within the authorized party size.

Leasable minerals - Minerals that may be leased to private interests by the Federal government; includes oil, gas, geothermal, coal, and sodium compounds.

Limits of Acceptable Change - Amount of human-caused change to biological, physical, or social components that is tolerable within an acceptable level without degrading the recreation experience.

Locatable Minerals - Metallic minerals subject to development specified in the General Mining Law of 1872. Within the planning area, this includes gold, mercury and bentonite.

LS Factor - The length-slope value from the Revised Universal Soil Loss Equation, where "L" equals the slope length indicator, and "S" equals the slope gradient factor or percentage steepness.

Mainstem - The main channel of the river in a river basin, as opposed to the streams and smaller rivers that feed into it.

Management Objectives - Parameters or goals to be used as standards to measure the success of the management plan.

Mechanical treatment - Use of mechanical equipment for seeding, brush management, and other management practices.

Microbiotic crust - Lichens, mosses, green algae, fungi, cyanobacteria, and bacteria growing on or just below the soil surface.

Monitoring and Evaluation - Collection and analysis of data to evaluate the progress and effectiveness of on-the-ground actions in meeting resource management goals and objectives.

Motorboat - Any boat propelled in whole or in part by machinery, including boats temporarily equipped with detachable motors.

Motorized Boating Use Days - Any day or portion of a day that an individual uses a motorized boat for recreation purposes.

Multiple-use management - Management of public land and resource values to best meet various present and future needs of the American people. Involves coordinated management of resources and uses to assure the long-term health of the ecosystem.

National Register of Historic Places (NRHP) - The official list, established by the Historic Preservation Act of 1966, of the nation's cultural resources worthy of preservation.

National Wild and Scenic Rivers System - A system of Congressionally designated rivers and their immediate environments that have outstanding scenic, recreational, geological, fish and wildlife, historic, cultural and other values and are preserved in a free-flowing condition. The system is of three types (Recreation, Scenic, or Wild), as described below:

Recreation - Rivers or section of rivers readily accessible by road or railroad that may have some development along their shorelines and that may have undergone some impoundment or diversion in the past

Scenic - Rivers or sections of rivers free of impoundments, with shorelines or watersheds still largely undeveloped but accessible in places by roads

Wild - Rivers or sections of rivers free of impoundments and generally inaccessible except by trails, with watersheds or shorelines essentially primitive and waters unpolluted.

Native Species - Plants or animals that are indigenous to an area.

Needs Assessment - A study to determine public need for commercial use; generally includes analyses of resource capability to sustain use, social-carrying capacities, agency mission, potential commercial opportunities, current availability of services, and public input.

Non-Commercial - Activities having a bona fide sharing of the cost of the activity among all participants.

No-Trace Camping - Art of camping without leaving signs of use.

Noxious Weed - A plant specified by law as being especially undesirable, troublesome and difficult to control.

Off-Road Vehicle - Any motorized track or wheeled vehicle designed for cross-country travel over any type of natural terrain.

Organic matter - Plant and animal residue in the soil in various stages of decomposition.

Outfitter - A person who, for compensation or other gain, provides equipment, supplies or materials for the conduct of outdoor recreational activities.

Outplanting - Process of planting selected trees and shrubs, usually nursery grown, into ecologically suitable environments.

Paleontological Resource - Remnants of life from past geological ages, as seen in fossil plants and animals.

Perennial stream - A stream in which water is present during all seasons of the year.

Permeability - Quality of the soil that enables water to move downward through the profile; measured as number of inches per hour that water moves downward through saturated soil.

Permit - A license, revocable by or at the discretion of the BLM, to use public lands for a fixed period of time, and which conveys no possessory interest in the land.

Permit System - A method of allotting use of a public resource through issuance of permits.

Permittee - An individual authorized by permit to use public lands or waters for financial gain.

Physiographic province - A geographic region with similar climatic, land form, and geologic features, and which is significantly different from adjacent regions.

Plan Objectives - Guiding statements or goals that present the purpose and overall intent of the planning effort.

Post Use Report - A document prepared by a permitted outfitter or permittee and submitted to the authorized officer by an agreed upon date.

Prehistoric - A time period when Native American cultural activities that were not yet influenced by contact with historic nonnative cultures occurred.

Prescribed burning - Controlled application of fire to wildland fuels in either their natural or modified state, under specified environmental conditions, which allow the fire to be confined to a predetermined area and at the same time to produce the fire line intensity and rate of spread required to attain planned resource management objectives.

Prescribed fire - Any fire ignited by management action to meet specific objectives. A written, approved

prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition.

Prescription - Written statement defining objectives to be attained, as well measurable criteria, which guide selection of appropriate management actions. Prescription criteria may include safety, economic, public health, environmental, geographic, administrative, social or legal considerations under which the fire will be allowed to burn.

Primitive Campsite - Contains no improvements for comfort or sanitation.

Properly Functioning Condition (PFC) - Rating given to riparian-wetland areas when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high water flows. Streams in PFC reduce erosion, which improves water quality; filter sediment, capture bedload, and aid in floodplain development; improve flood-water retention and ground-water recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity. The functioning condition of riparian-wetland areas is a result of interaction among geology, soil, water, and vegetation.

Riparian-wetland areas that are not in PFC are classified as either "functional-at-risk" or "non-functional," as described below:

Functional-At-Risk - Riparian-wetland areas that are in functional condition, but have an existing soil, water, or vegetation attribute that makes them susceptible to degradation.

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, therefore, are not reducing erosion, improving water quality, etc. Certain physical attributes (such as the absence of a floodplain where one should be) are indicators of non-functioning conditions.

Public land - Any land or interest in land owned by the United States and administered by the Secretary of the Interior, Secretary of Agriculture, or the State of Oregon.

Rangeland - Land on which the native vegetation is predominantly grasses, grass-like plants, forbs, or shrubs; not forest.

Range site - An area of rangeland where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. A range site is the product of all the environmental factors responsible for its development. It is typified by an association of species differing from those on other range sites in kind or proportion of species or total production.

Recreation Use Days - Any day or portion of a day that an individual spends recreating on public lands.

Recreational opportunity - Outdoor recreation activities that offer satisfaction in a particular physical, social, and management setting; includes camping, picnicking, fishing, hunting, wildlife viewing, photography, bike riding, and boating.

Recreation Opportunity Spectrum (ROS) - A means of characterizing recreation opportunities in terms of setting, activity, and experience.

Recreation site - An area where management actions are required to provide a specific recreation setting and activity opportunities, protect resource values, provide public visitor safety and health, and/or meet public recreational use demands and recreation partnership commitments. A site may or may not have permanent facilities.

Recreational river - A Wild and Scenic River designation usually applied to a river or section of river that is readily accessible by road or railroad; it may have had some development along shorelines and may have undergone some impoundments or diversions in the past.

Redd - A depression excavated by anadromous fish in which to lay their eggs.

Regeneration - New growth of a natural plant community, developing from seed.

Research Natural Area (RNA) - An area where natural processes predominate and which is preserved for research and education. Under current BLM policy, an RNA must meet the relevance and importance criteria of an ACEC and is designated as an ACEC.

Resource Management Plan (RMP) - A land use plan as described by the Federal Land Policy and Management Act.

Right-of-way - A permit or easement authorizing a specific use of a specific area of land.

Right-of-way corridor - A parcel of land identified by law, Secretarial Order, through a land use plan or by other management decision as being the preferred location for existing and future right-of-way grants and suitable to accommodate one type of right-of-way or one or more rights-of-way that are similar, identical or compatible.

Riparian Area - Land adjacent to water, where water, soil and vegetation interact to form a unique microclimate.

Riverine Terrace - A flat, usually narrow, stretch of ground between the river bank and the uplands.

Runoff - Precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called "surface runoff." Water that enters the soil before reaching surface streams is called "ground water runoff," or seepage flow from ground water.

Salable Minerals - Common varieties of sand, gravel, rock, and clay usually used in construction and sold by the ton or cubic yard.

Sanitation Facilities - Structures including toilet dump stations for boaters and vault toilets provided for sanitary purposes in collecting human waste.

Section 202 lands - Lands being considered for wilderness designation under Section 202 of the Federal Land Policy and Management Act of 1976.

Sediment - Soil, rock particles, and organic or other debris carried from one place to another by wind, water or gravity.

Seral stage - See ecological status.

Shrub - A low, woody plant, usually with several stems, that may provide food and/or cover for animals.

Soil - A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Special Status Species - Plant or animal species in 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, or Bureau assessment species (see separate definition for each).

Species Diversity - The number, variety, and relative abundances of species occurring in a given area.

Species of Special Interest or Concern - Plant or animal species not yet listed as endangered or threatened, but whose status is being reviewed because of their widely dispersed populations or restricted ranges; a species whose population is particularly sensitive to external disturbance.

Stand - A community of trees occupying a specific area and sufficiently uniform in species, age, spatial arrangement, and condition as to be distinguishable from trees on surrounding lands.

State Lands - Lands managed by an Oregon government agency.

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.

Stewardship - The exercise of responsible care of land, water or other natural resources, or recreational resources such as a campsite.

Stream channel - Hollow bed where a natural stream of surface water flows or may flow; the deepest or central part of the bed, formed by the main current and covered more or less continuously by water.

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.

Traditional Cultural Property (TCP) - Properties that have significance deriving from “the role that the property plays in a community’s historically rooted beliefs, customs, and practices.” Such properties may be eligible for the National Register because of their “association with cultural practices or beliefs of a living community that (a) are rooted in that community’s history, and (b) are important in maintaining the continuing cultural identity of the community” (National Register Bulletin 38).

Traditional cultural properties may include landforms or landscape features, such as pinnacles, buttes or springs or mountains; or may have both artifact and architectural manifestations. These properties may be associated with an event or person, or a past or ongoing traditional practice important to a living community. They may be places with both historic secular and sacred associations. Some properties may be well known and mapped or documented in existing archival histories or ethnographic literature, but many can only be identified by knowledgeable individuals within the community (Sebastian 1993).

Treaty Rights - Reserved rights on ceded lands established in treaties with the United States Government in 1855, for example, as with the Confederated Tribes of the Warm Springs Indian Reservation of Oregon and the Confederated Tribes of the Umatilla Indian Reservation.

Trend - Direction of change in ecological status observed over time. Trend is described as “toward” or “away from” the potential natural community, or as not apparent.

Turbidity - A measure of water clarity.

Undeveloped Campsite - Campsite without improvements for camper comfort or sanitation.

Upland - All rangelands other than riparian or wetlands areas.

Utilization - The proportion or degree of the current year’s forage production that is consumed or destroyed by animals (including insects). Utilization may refer to a single plant species, a group of species, or to the vegetation as a whole. Utilization is synonymous with “use.”

Vegetation Manipulation - Alteration of present vegetation by using fire, plowing, or other means to manipulate natural succession trends.

Visitor Use Day - One person visiting public lands for any portion of one day.

Visual Resource Management Classes - The five categories assigned to public lands based on scenic quality, sensitivity level, and distance zones. Each class has an objective prescribing acceptable visual change within a characteristic landscape (see Appendix O).

Water Quality - Chemical, physical and biological characteristics of water with respect to its suitability for a particular use.

Watershed - The drainage basin contributing water, organic matter, dissolved nutrients, and sediments to a stream or lake.

Wetlands - Areas that are inundated by surface water or ground water with a frequency sufficient to support, and under normal circumstances do or would support, a prevalence of vegetative or aquatic life that require saturated or seasonally saturated soil conditions for growth and reproduction (Executive Order 11990). Wetlands generally include, but are not limited to, swamps, marshes, bogs, and similar areas.

Wild and Scenic River Designation - See National Wild and Scenic River System.

Wilderness - Area where the earth and its community of life have not been substantially disturbed by humans and where humans are only temporary visitors. In this document, the term is capitalized and refers to specific lands designated by Congress as Wilderness Areas and protected and managed to preserve their natural condition.

Wilderness Inventory - A written description of resource information and data, and a map of those public lands, that meet the Wilderness criteria, as established under Section 603 (a) of FLPMA and Section 2 © of the Wilderness Act.

Wilderness Study Area (WSA) - Public land determined to have wilderness character and which is currently in an interim management status awaiting official wilderness designation or release from WSA status by Congress.

Wildfire - Any fire occurring on wildland that is not meeting management objectives and, therefore, requires a suppression response. An unwanted wildland fire.

Wildland fire - Any nonstructure fire, other than prescribed fire, that occurs in the wildland.

Wild horses - Unbranded and unclaimed horses that use public land as all or part of their habitat, or that have been removed from such land by an authorized officer, but have not lost their status under Section 3 of the Wild Free-Roaming Horse and Burro Act.

Woodlands - Forestland not included in the commercial forestland sustainable harvest level. Includes all noncommercial and nonsuitable forestland.

References

- Agee, J.K.
 1990. The Historical Role of Fire in Pacific Northwest Forests. *In* Natural and Prescribed Fire in Pacific Northwest Forest. Walstad, J.D., S.R. Radosevich, and D.V. Sandberg, eds. Oregon State University Press. Corvallis, OR.
 1993. Fire Ecology of Pacific Northwest Forests. Island Press. Washington D.C.
- Ammon, E.M., and P.B. Stacey
 1997. Avian Nest Success in Relation to Past Grazing Regimes in a Montane Riparian System. *Condor* 99(1):7-13.
- Asher, J.
 1993. Noxious Weeds in Eastern Oregon. USDI, Bureau of Land Management, Oregon State Office. Portland, OR.
- Atwell, R.G. and K.T. Katsura
 1995. Site 35-GM-25. *In* Volume IIB, Summary Reports: Prehistoric Sites Oregon. Archaeological Investigations PGT-PG&E Expansion Project Idaho, Washington, Oregon, and California. Michael J. Moratto, General Editor. INFOTEC Research, Inc. Fresno, CA.
- Ballard, T.M.
 1999. Interactions of Cattle and Chinook Salmon. A Masters of Science Thesis, Oregon State University. Corvallis, OR.
- Barber, J.
 1988. Mapping of the Groundwater System on Camp Creek Using Geophysical Methods. Masters Thesis. Oregon State University, Corvallis, OR.
- Bedell, E.T., and M.M. Borman
 1997. Watershed Management Guide for the Interior Northwest. Oregon State University Extension Service, Corvallis, OR.
- Behnke, R.J.
 1992. Native Trout of Western North America. American Fisheries Society Monograph 6. Bethesda, MA.
- Belanger, L., and J. Bedard
 1990. Energetic Cost of Man-Induced Disturbance to Staging Snow Geese. *Journal of Wildlife Management* 54:36-41.
- Bellrose, F.C.
 1976. Ducks, Geese and Swans of North America. Wildlife Management Institute. Stackpole Books Publishing. Harrisburg, PA.
- Belnap, J., and T. Harper
 1995. Influence of Cryptobiotic Soil Crusts on Elemental Content of Tissue in Two Seed Plants. *Arid Soil Research and Rehabilitation* 9:107-115.
- Belnap, J., R. Rosentreter, J. Kaltenecker, J. Williams, S. Leonard, P. Luehring, and D. Eldridge
 1999. Biological Soil Crusts: Ecology and Management. USDI-BLM Training Center, Phoenix, AZ.
- Belsky, A.J.
 1996. Viewpoint: Western Juniper Expansion: Is it a Threat to Arid Northwestern Ecosystems? *Journal of Range Management* 49(1):53-59.

Final John Day River Plan and EIS

Belsky, A.J., A. Matzke, and S. Uselman

1999. Survey of Livestock Influences on Stream and Riparian Ecosystems in the Western United States. *Journal of Soil and Water Conservation*. 54(1):419-431.

Benda, L., D. Miller, J. Sias, T. Dunne, and G. Reeves

1999. General Landscape Theory of Organized Complexity. Special Publication 3.1. Earth Systems Institute, Seattle, WA.

Beschta, R.L. and W.S. Platts

1986. Morphological Features of Small Streams: Significance and Function. *Water Resources Bulletin* 22(3).

Bock, C.E., V.A. Saab, T.D. Rich, and D.S. Dobkin

1993. Effects of Livestock Grazing on Neotropical Migratory Landbirds in Western North America. In Status and Management of Neotropical Migratory Birds. D. M. Finch and P. W. Stengel, eds. USDA Forest Service General Technical Report, RM-229.

Bohn, C.C., and J.C. Buckhouse

1985. Some Responses of Riparian Soils to Grazing Management in Northeastern Oregon. *Journal of Range Management* 38(4):378-381.

Brooks, K.N., P.F. Ffolliott, H.M. Gregersen, and J.L. Thames

1991. Hydrology and the Management of Watersheds. Iowa State University Press, Ames, IA.

Broad, T.M., and C.A. Collins

1996. Estimated Water use and general Hydrologic Conditions for Oregon, 1985 and 1990. US Geologic Survey, Water-Resources Investigative Report 96-4080.

Bryant, L.D., and J.M. Skovlin

1982. Effects of Grazing Strategies and Rehabilitation on an Eastern Oregon Stream. In Symposium on Habitat Disturbance and Recovery. California Trout, Inc. San Francisco, CA. pp 27-30.

Buckhouse, J.C., and G.F. Gifford

1976. Water Quality Implications of Cattle Grazing on a Semiarid Watershed in Southeastern Utah. *Journal of Range Management* 29(2):109-113.

Buckhouse, J.C., J.M. Skovlin, and R.W. Knight

1981. Streambank Erosion and Ungulate Grazing Relationships. *Journal of Range Management* 34:339-340.

Burtchard, G.C.

1998. Environment, Prehistory & Archaeology of the John Day Fossil Beds National Monument, Blue Mountain Region, North-Central Oregon. Prepared for the National Park Service, John Day Fossil Beds National Monument, Oregon and Columbia-Cascade Office, Seattle, Washington.

Busby, F.E.

1994. Preface. Rangeland Health: New Methods to Classify, Inventory, and Monitor Rangelands. In Committee on Rangeland Classification, Board on Agriculture, National Research Council, 1994. National Academy Press, Washington, DC.

Butler, R.G., G.T. Orlob, and P.H. McGauhey

1954. Underground Movement of Bacterial and Chemical Pollutants. *Journal of the American Water Works Association* 46:97-111.

Campbell, A.

1980. John Day River: Drift and Historical Guide. Revised Edition. Frank Amato Publication, Inc. Portland, OR.

- Campbell, A.G., and J.F. Franklin
1979. Riparian Vegetation in Oregon's Western Cascade Mountains: Composition, Biomass, and Autumn Phenology. Coniferous Forest Biome, Ecosystems Analysis Studies, U.S. International Biological Program, Progress Bulletin Number 14. University of Washington, Seattle, WA.
- Center for Population Research and Census
1998. Population Estimates for Oregon: July 1, 1998. Portland State University. Portland, OR. [online]
URL: http://www.uqa.pdx.edu/CPRC/pbsrv_1.html
- Chaney, E., W. Elmore, and W.S. Platts
1993. Managing Change: Livestock Grazing on Western Riparian Areas. Produced for the U.S. Environmental Protection Agency by the Northwest Resources Information Center, Inc. Eagle, ID.
- Cheater, M.
1992. Alien Invasion. Nature Conservancy, Sept/Oct.
- Chilcote, M.W.
1998. Conservation Status of Steelhead in Oregon. Information Reports Number 98-3. Oregon Department of Fish and Wildlife, Fish Division, Portland, OR.
- Claire, E.
1991. Personal Communications, BLM Staff Report
- Clark, R.N., and D.R. Gibbons
1991. Recreation. *In* Influences of Forest and Rangeland Management on Salmonid Fishes and Their Habitats. American Fisheries Society Special Publication 19. Bethesda, MD.
- Clary, W.P.
1999. Stream Channel and Vegetation Responses to Late Spring Cattle Grazing. *Journal of Range Management* 52(3):218-227.
- Clary, W.P., and B.F. Webster
1989. Managing Grazing of Riparian Areas in the Intermountain Region. USDA-FS General Technical Report INT-263. Ogden, UT.
- Clary, W.P., N.L. Shaw, J.G. Dudley, V.A. Saab, J.W. Kinney, and L.C. Smithman
1996. Response of a Depleted Sagebrush Steppe Riparian System to Grazing Control and Woody Plantings. USDA, Forest Service Research Paper INT-RP-492.
- Colbert, J.L., and K.J. St. Mary
1973. Review of Waterpower Classification and Withdrawal, John Day River Basin, Oregon. US Geological Survey Open File Report. Conservation Division. Portland, OR.
- Collette, C. and J. Harrison (editors)
1992a. Columbia River Basin Fish and Wildlife Program - Strategy for Salmon, Volume I. Northwest Power Planning Council.

1992b. Columbia River Basin Fish and Wildlife Program - Strategy for Salmon, Volume II. Northwest Power Planning Council.
- Cooperrider, A.Y., R J. Boyd, and H R. Stuart, eds.
1986. Inventory and Monitoring of Wildlife Habitat. USDI, Bureau of Land Management, Denver Service Center. Denver, CO.
- Congressional Record
1988. Omnibus Oregon Wild and Scenic Rivers Act (S. 2148). October 7, 1988.

Final John Day River Plan and EIS

Conservation Committee Report

1978. Management of National Wildlife Refuges in the United States: Its Impact on Birds. *Wilson Bulletin* 90:309-321.

CRITFC (Columbia River Inter-Tribal Fish Commission)

1996. Wy-Kan-Ush-Mi Wa-Kish-Wit, Spirit of the Salmon: The Columbia River Anadromous Fish Restoration Plan of the Nez Perce, Umatilla, Warm Springs and Yakima Tribes. Volume I. Portland, OR.

Cressman, L.S.

1937. Petroglyphs of Oregon. University of Oregon Monographs, Studies in Anthropology No. 2. Eugene.

1950. Archaeological Research in the John Day Region of North Central Oregon. *American Philosophical Society Proceedings* 94:369-390. Philadelphia.

Cude, C.

2000. Oregon Water Quality Index Report for the John Day Basin Water Years 1986-1995. [on line] URL: <http://www.deq.state.or.us/lab/WQM/WQI/johnday/johnday3.htm>

Cummins, K.W.

1974. Structure and Function of Stream Ecosystems. *Bioscience* 24:631-641.

Doran, J.W., and D. M. Linn

1979. Bacteriological Quality of Runoff from Pastureland. *Applied and Environmental Microbiology* 37:985-991.

Dagget, D.

1995. Beyond the Rangeland Conflict: Toward a West that Works. Grand Canyon Trust. Flagstaff, AZ.

Dobkin, D.S.

1994. Conservation and Management of Neotropical Migrant Landbirds in the Northern Rockies and Great Plains. University of Idaho Press. Moscow, ID.

Duff, D.A.

1977. Livestock Grazing Impacts on Aquatic Habitat in Big Creek, Utah. In: Proceedings of the Workshop on Livestock and Wildlife-Fisheries Relationships in the Great Basin. Pages 129-142. Sparks, Nevada. U.S. Department of Agriculture, Forest Service Pacific S.W. Forestry and Range Experimental Station, Berkeley, Calif. Special Publication 33901.

1979. Riparian Habitat Recovery on Big Creek, Rich County, Utah. Pp. 91. In Proceedings, Forum-Grazing and Riparian/Stream Ecosystems. Trout Unlimited, Inc. Vienna, VA.

1996. Conservation Assessment for Inland Cutthroat Trout Status and Distribution. (tech. ed.). USDA Forest Service, Intermountain Region, Ogden, UT.

Dumond, D.E., and R. Minor

1983. Archaeology in the John Day Reservoir: The Wildcat Canyon Site, 35-GM-9. University of Oregon Anthropology Papers 30. Eugene.

Eberhart, L.E., R.G. Anthony, and W.H. Rickard

1989. Movement and Habitat Use by Great Basin Canada Goose Broods. *Journal of Wildlife Management* 53:740-748.

Ehrhart, R.C. and P.L Hansen

1997. Effective Cattle Management in Riparian Zones: A Field Survey and Literature Review. Montana BLM Riparian Technical Bulletin No. 3, USDI, BLM, Montana State Office.

- Eldridge, D.J., and R. Rosentreter
1999. Morphological Groups: A Framework for Monitoring Microphytic Crusts in Arid Landscapes. *Journal of Arid Environments* 41:11-25.
- Elmore, W.
1998. Twenty-One Years. *Range Magazine*, Spring. Carson City, NV.
1999. Personal communications. USDI, BLM, Prineville.
- Elmore, W., and R.L. Beschta
1987. Riparian Areas: Perceptions in Management. *Rangelands* 9:260-265.
- Elmore, W. and J.B. Kauffman
1994. Riparian and Watershed Systems: Degradation and Restoration. *In Ecological Implications of Herbivory in the West*. M. Vavra, W.A. Laycock, and R.D. Piper, eds. Society of Range Management, Denver, CO. pp 211-232.
- Farmer, J.A., D.B. Karnes, G.T. Babich, T.P. Porterfield and K.L. Holmes
1973. *An Historical Atlas of Early Oregon*. Portland: Historical Cartographic Publications.
- Friedel, M.H.
1991. Range Condition Assessment and the Concept of Thresholds: A Viewpoint. *Journal of Range Management* 44(5):422-426.
- Frost, W.E., and E.L. Smith
1991. Biomass Productivity and Range Condition on Range Sites in Southern Arizona. *Journal of Range Management* 44(1):64-67.
- Frost, W.E., E.L. Smith, and P.R. Ogden
1994. Utilization Guidelines. *Rangelands* 16(6):256-259.
- Garren, J.
1979. *Oregon River Tours*. Garren Publishing, Portland, OR.
- Gary, H.L., S.R. Jhonson, and S.L. Ponce
1983. Cattle Grazing Impact on Surface Water Quality in a Colorado Front Range Stream. *Journal of Soil and Water Conservation* 38:124-128.
- Gerba, C.P., C. Wallis, and J.L. Melnick.
1975. Fate of Wastewater Bacteria and Viruses in Soil. *In Proceedings of the American Society of Civil Engineers, Irrigation and Drainage Division* 101:157-174.
- Green, D.M., and J.B. Kauffman
1995. Succession and Livestock Grazing in a Northeast Oregon Riparian Ecosystem. *Journal of Range Management* 48:307-313.
- Hall, F.C., and L. Bryant
1995. Herbaceous Stubble Height as a Warning of Impending Cattle Grazing Damage to Riparian Areas. USDA-FS, Pacific Northwest Research Station, General Technical Report PNW-GTR-362.
- Hall, F.C., and T. Max
1999. Technical Note: Test of Observer Variability in Measuring Riparian Shrub Twig Length. *Journal of Range Management* 52 (6):633-636.
- Hansen, P.L., R.D. Pfister, K. Boggs, B.J. Cook, J. Joy, and D.K. Hinkley
1995. Classification and Management of Montana's Riparian and Wetland Sites. *Miscellaneous*

Final John Day River Plan and EIS

Publication No. 54, Montana Forest and Conservation Experiment Station, School of Forestry, University of Montana. Missoula, MT.

Hanson, C.B., and G.A. Allen

n.d. Inventory of Paleontological Resources of the John Day River Valley between Kimberly and Picture Gorge, Grant and Wheeler Counties, Oregon. Draft manuscript on file Prineville District BLM, Prineville, OR.

Hanson, W.C., and L.L. Eberhardt

1971. A Columbia River Canada Goose Population, 1950-1970. Wildlife Monograph 28. The Wildlife Society, Washington, D.C.

Harper, K.T., and J.R. Marble

1988. A Role for Nonvascular Plants in Management of Arid and Semiarid Rangelands. In *Vegetation Science Applications for Rangeland Analysis and Management*. P.T. Tueller (ed). Kluwer Academic Publishers. Boston, MA.

Heady, H.F. and R.D. Child

1994. *Rangeland Ecology and Management*. Westview Press, San Francisco, CA.

Helland, R.O.

1931. Memorandum on Power Possibilities of John Day River from Mouth to Mile 33. Bureau of Reclamation, Denver.

Hendricks, C.W., and S.M. Morrison

1967. Multiplication and Growth of Selected Enteric Bacteria in Clear Mountain Stream Water. *Water Resources* 1:567-576.

Hitchcock, C.L. and A. Cronquist

1973. *Flora of the Pacific Northwest, an Illustrated Manual*. University of Washington Press, Seattle, WA.

Holechek, J.L., R. Valdez, S.D. Schemnitz, R.D. Pieper, and C.A. Davis

1982. Manipulation of Grazing to Improve or Maintain Wildlife Habitat. *Wildlife Society Bulletin* 10:204-210.

Holechek, J.L., R.D. Pieper, and C.H. Herbel

1989. *Range Management Principles and Practices*. Printice-Hall, Inc. Englewood Cliffs, New Jersey.

Hormay, A.L.

1970. *Principles of Rest-Rotation Grazing and Multiple-Use Land Management*. USDI, Bureau of Land Management and USDA, Forest Service, Washington, D.C.

Horton, G.E.

1994. Effects of Jet Boats on Salmonid Reproduction in Alaskan Streams. Masters of Science Thesis, University of Alaska, Fairbanks.

Hubert, W.A., R.P. Lanka, T.A. Wesche, and F. Stabler

1985. Grazing Management Influences on Two Brook Trout Streams in Wyoming. In *Riparian Ecosystems and Their Management: Reconciling Conflicting Uses*. First North American Conference. R.R. Johnson, C.D. Ziebell, D.R. Patton, P.F. Ffolliott, and R.H. Hamre (tech. eds.). U.S.D.A. Forest Service General Technical Report RM-120. Fort Collins, CO. pp 290-294.

Interagency Wild and Scenic Rivers Coordinating Council

1997. *Wild and Scenic Rivers Reference Guide: A Technical Report*. Prepared by the Bureau of Land Management, National Park Service, US Fish and Wildlife Service, and the USDA, Forest Service.

- Jackivicz, T.P., JR., and L.N. Kuzminski
 1973a. A Review of Outboard Motor Effects on the Aquatic Environment. *Journal of Wat. Pollut. Control Fed.*, 45:1759-1770.
- 1973b. The Effects of the Interaction of Outboard Motors with the Aquatic Environment - A Review. *Environmental Research* 6:436-454.
- Jensen, S., R. Ryel, and W.S. Platts
 1989. Classification of Riverine/Riparian Habitat and Assessment of Nonpoint Source Impact, North Fork Humboldt River, Nevada. USDA Forest Service Intermountain Research Station. Boise, ID.
- Johansen, J.R., J. Ashley, and W.R. Rayburn
 1993. Effects of Range Fire on Soil Algal Crusts in Semiarid Shrub-Steppe of the Lower Columbia Basin and Their Subsequent Recovery. *Great Basin Naturalist* 53:73-88.
- Johnson, R.E.
 1964. Fish and Fowl. In *Waterfowl Tomorrow*. J.P. Linduska, ed. USDI, Fish and Wildlife Service. U.S. Government Printing Office. Washington, D.C.
- Johnson, R., V. Litz, and K.A. Cheek
 1995. Assessing the Economic Impacts of Outdoor Recreation in Oregon. Prepared for the Oregon State Parks and Recreation Department.
- Karr, J.R., and I.J. Schlosser
 1978. Water Resources and the Land-Water Interface. *Science* 201:229-2354.
- Kauffman, J.B. and W.C. Krueger
 1984. Livestock Impacts on Riparian Ecosystems and Streamside Management Implications...a Review. *Journal of Range Management* 37:430-437.
- Kauffman, J.B., W.C. Krueger, and M. Vavra
 1983a. Impacts of Cattle on Streambanks in Northeastern Oregon. *Journal of Range Management* 36(6):685-691.
- 1983b. Effects of Late Season Cattle Grazing on Riparian Plant Communities. *Journal of Range Management* 36(6):685-691.
- Kauffman, J.B., R.L. Beschta, N. Otting, and D. Lytjen
 1997. An Ecological Perspective of Riparian and Stream Restoration in the Western United States. *Fisheries* 22:12-24.
- Keigley, R.B., and M.R. Frisina
 1998. Browse Evaluation by Analysis of Growth Form: Volume I, Methods for Evaluation Condition and Trend. Montana Fish Wildlife and Parks, Helena, MT.
- Kennedy, C.E.
 1977. Wildlife Conflicts in Riparian Management: Water. *In* Importance, Preservation and Management of Riparian Habitat. USDA Forest Service General Technical Report RM-43. Rocky Mountain Forest and Range Experiment Station, Fort Collins, CO. pp 52-58.
- Kie, G.K., V.C. Bleich, A.L. Medina, J. D. Yoakum, and J.W. Thomas
 1996. Managing Rangelands for Wildlife. *In* Research and Management Techniques for Wildlife and Habitats. T.A. Bookhout, ed. The Wildlife Society. Bethesda, MD.
- Kie, J.C., and E.R. Loft
 1990. Using Livestock to Manage Wildlife Habitat: Some Examples from California Annual Grassland and Wet Meadow Communities. *Journal of Range Management* 43:7-24.

Final John Day River Plan and EIS

Kimball, T.L.

1957. The Economic Aspects of Livestock-Big Game Relationships as Viewed by a Big Game Administrator. *Journal of Range Management* 10:67-70.

Kindschy, R.R.

1986. Rangeland Vegetative Succession: Implications to Wildlife. *Rangelands* 8:157-159.

1996. Fences, Waterholes, and Other Range Improvements. *In* *Rangeland Wildlife*. P.R. Krausman, ed. The Society for Rangeland Management. Denver, CO.

Knapp, R.A., and K.R. Matthews

1996. Livestock Grazing, Golden Trout, and Streams in the Golden Trout Wilderness, California: Impacts and Management Implications. *North American Journal of Fisheries Management* 16:805-820.

Kondolf, G.M.

1993. Lag in Stream Channel Adjustment to Livestock Exclosure, White Mountains, California. *Restoration Ecology* 1:226-230.

Krohn, W.B., and E.G. Bizeau

1980. The Rocky Mountain Population of the Western Canada Goose: Its Distribution, Habitats, and Management. U.S. Fish and Wildlife Service Special Scientific Report - Wildlife 229.

Larsen, R.E., W.C. Krueger, M.R. George, M.R. Barrington, J.C. Buckhouse, and D.E. Johnson

1998. Viewpoint: Livestock Influences on Riparian Zones and Fish Habitat. Literature Classification. *Journal of Range Management* 51:661-664.

Laycock, W.A.

1991. Stable States and Thresholds of Range Condition on North American Rangelands: a Viewpoint. *Journal of Range Management* 44(5):427-433.

Lauman, J.E.

1977. Fish and Wildlife Resources of the John Day Basin, Oregon, and Their Water Requirements. Oregon Department of Fish and Wildlife. Portland, OR.

Leonard, S.

2000. Personal Communication on the vulnerability of biological soil crusts under various soil and moisture conditions. USDI-BLM, Prineville District, Prineville, OR.

Leopold, L.B., and C. Vita-Finzi

1998. Valley Changes in the Mediterranean and America and Their Effects on Humans. *Proceedings of the American Philosophical Society* 142(1):1-17.

Liddle, M.J., and H.R.A. Scorgie

1980. The Effects of Recreation on Freshwater Plants and Animals: A Review. *Biological Conservation* 17:183-206.

Lindsay, R.B., W.J. Knox, M.W. Flesher, B.J. Smith, E.A. Olsen, and L.S. Lutz

1986. Study of Wild Spring Chinook Salmon in the John Day River System, 1985 Final Report. Oregon Department of Fish and Wildlife, US Department of Energy, Bonneville Power Administration, Portland, OR.

Link, S.O., B.D. Ryan, J.L. Downs, L.L. Cadwell, M.A. Hawke, and J. Ponzetti

2000. Lichens and Mosses on Shrub-Steppe Soils in Southeastern Washington. *Northwest Science* 74:50-56.

Lowrance, R., R. Leonard, and J. Sheridan

1985. Managing Riparian Ecosystems to Control Nonpoint Pollution. *Journal of Soil and Water Conservation* 40:87-91.

- Lowry, A.A.
1996. Influence of Ruminant Digestive Processes on Germination of Ingested Seeds. Master of Science Thesis, Oregon State University. Corvallis, OR.
- Marble, J.R., and K.T. Harper
1989. Effects of Timing of Grazing on Soil-Surface Cryptogamic Communities in Great Basin Low-Shrub Desert: A Preliminary Report. *Great Basin Naturalist* 49:104-107.
- Marlow, C.B., and T.M. Pogacnik
1985. Time of Grazing and Cattle-Induced Damage to Streambanks. *In* Riparian ecosystems and Their Management: Reconciling Conflicting Uses. R.R. Johnson, C.D. Ziebell, D.R. Patton, P.F. Follitt, and R.H. Hamre (Technical Coordinators). [First North American Riparian Conference, April 16-18, Tucson, AZ.] USDA Forest Service General Technical Report RM-120. Rocky Mountain Forest and Range Experiment Station, Fort Collins, CO.
- Marshall, R. B.
1915. Profile Surveys in Spokane River Basin, Washington and John Day River Basin, Oregon. US Geological Survey Water-Supply Paper 377. Washington D.C.
- Martin, J.E.
1995. Management of Vertebrate Paleontological Resources. Bureau of Land Management, Oregon State Office. Portland, OR.
- McCune, B., and R. Rosentreter
1995. Field Dey to Soil Lichens of Central and Eastern Oregon. Unpublished Report. Oregon State University, Corvallis, OR.
- McGinnis, Wendy J., R.H. Phillips, and K.P. Connaughton
1996. County Portraits of Oregon and Northern California. USDA Forest Service, PNW Research Station. PNW-GTR-377. Portland, OR.
- Medin, D.E., and W.C. Clary
1990. Bird and Small Mammal Populations in a Grazed and Ungrazed Riparian Habitat in Idaho. USDA Forest Service Research Paper INT-425.
- Meehan, W.R., F.J. Swanson, and J.R. Sedell
1977. Influences of Riparian on Aquatic Ecosystems with Particular Reference to Salmonid Fishes and Their Food Supply. *In* Importance, Preservation and Management of Riparian Habitat. USDA Forest Service General Technical Report RM-43:137-143. Rocky Mountain Forest and Range Experiment Station, Fort Collins, CO.
- Memmott, K.L., V.J. Anderson, and S.B. Monsen
1998. Seasonal Grazing Impact on Cryptogamic Crusts in a Cold Desert Ecosystem. *Journal of Range Management* 51:547-550.
- Mickelson, P.G.
1975. Breeding Biology of Cackling Geese and Associated Species on the Yudon-Kushokwim Delta, Alaska. Wildlife Monograph 45, The Wildlife Society, Washington, D.C.
- Miller, R.F., J.M. Seufert, and M.R. Haferkamp
1994. The Ecology and Management of Bluebunch Wheatgrass (*Agropyron spicatum*): A Review. Agriculture Experiment Station Bulletin 669. Oregon State University, Corvallis, OR.
- Miller, R.F., T.J. Svejcar, and N.E. West
1994. Implications of Livestock Grazing in the Intermountain Sagebrush Region: Plant Composition. *In* Ecological Implications of Herbivory in the West. M. Vavra, W.A. Laycock, and R.D. Piper, eds. Pages 101-146. Society of Range Management, Denver, CO.

Final John Day River Plan and EIS

Moffatt, R.L. R.E. Welleman, and J.M. Gordon

1990. Statistical summaries of Streamflow Data in Oregon: Volume I--Monthly and Annual Streamflow, and Flow-Duration Values. US Geological Survey Open-File Report 90-118. Prepared in cooperation with the Oregon Water Resources Department. Portland, OR.

Moulton, M.

1978. Small Mammal Associations in Grazed Versus Ungrazed Cottonwood Riparian Woodland in Eastern Colorado: A Symposium. Colorado Chapter, Wildlife Society and Colorado Audubon Council, Greeley, Co. pp.133-140.

Myers, T.J., and S. Swanson

1995. Impact of Deferred Rotation Grazing on Stream Characteristics in Central Nevada: A Case Study. North American Journal of Fisheries Management 15:428-439.

Norris, L.A.

1990. An Overview and Synthesis of Knowledge Concerning natural and Prescribed Fire in Pacific Northwest Forests. In Natural and Prescribed Fire in Pacific Northwest Forests. Walstad, J.D., S.R. Radosevich, and D.V. Sandberg, eds. Oregon State University Press. Corvallis, OR.

Northwest Power Planning Council

1992. Columbia River Basin Fish and Wildlife Program: Strategy for Salmon. Volume II. Portland, OR.

Ohmart, R.D.

1996. Historical and Present Impacts of Livestock Grazing on Fish and Wildlife Resources in Western Riparian Habitats. In Rangeland Wildlife. P.R. Krausman, ed. The Society for Range Management, Denver, CO. pp 245-280.

Oosting, H.J., editor

1956. The Study of Plant Communities: An Introduction to Plant Ecology. Second Edition. W.H. Freeman and Co., San Francisco, CA.

Oregon Administrative Rules

1998. Water Resources Department, Division 506, John Day Basin Program. Oregon State Archives.

Oregon Biodiversity Project

1998. Oregon's Living Landscape, Strategies and Opportunities to Conserve Biodiversity. Defenders of Wildlife, Lake Oswego, OR.

Oregon Department of Environmental Quality

1988. Oregon Statewide Assessment of Nonpoint Sources of Water Pollution. Planning & Monitoring Section, Water Quality Division, Oregon Department of Environmental Quality. Portland, OR.

1995. Draft 1994/1996: List of Water Quality Limited Water Bodies: 303(d)(1) List.

1998. Public Comment Draft: Oregon's 1998 Section 303(d) List of Water Quality Limited Waterbodies.

Oregon Department of Fish and Wildlife

1989. John Day River Resident Fish Plan. Unpublished document. John Day, OR.

1990. Columbia Basin System Planning: Salmon and Steelhead Production Plan, John Day River Subbasin.

1995a. John Day River Creel Survey, Boat and Bank Anglers: Lower River Trip 1992-1993. John Day, OR.

1995b. Biennial Report on the Status of Wild Fish in Oregon. Edited by Kathryn Kostrow.

1996. John Day River Creel Survey: Middle Fork 1995. John Day, OR.

1997. Personal communication, T. Unterwegner, John Day Office.

1999. Personal communication, T. Unterwegner, John Day Office.

Oregon Department of Forestry.

Various Years. Oregon Timber Harvest Report. Salem, OR.

Oregon Employment Department

Various Years. Resident Labor Force Tables. Salem, OR.

1999. Oregon Labor Trends. Oregon Statewide Monthly Report of Average Hours and Earnings for Workers in Selected Industries. February. Salem, OR.

No Date (a). 1998 Regional Economic Profile: Region 9. Salem, OR.

No Date (b). 1998 Regional Economic Profile: Region 10. Salem, OR.

No Date (c). 1998 Regional Economic Profile: Region 12. Salem, OR.

No Date (d). 1998 Regional Economic Profile: Region 13. Salem, OR.

No Date (e). 1998 Regional Economic Profile: State of Oregon. Salem, OR.

Oregon State Marine Board

1987. River Use Conflicts in Oregon: A Study of Jet Boat Use on Oregon's Rivers and Streams. A Technical Report to the State Marine Board Director prepared by J.C. Draggoo & Associates, Portland, OR.

Oregon Parks and Recreation Department

1988. Oregon Outdoor Recreation Plan 1988-1993. Prepared by Parks and Recreation Division, Planning and Grants Section.

1991. Recreational Needs Bulletin: Oregon State Comprehensive Outdoor Recreation Plan. Prepared by Parks and Recreation Department, Grants and Program Planning Section.

1994. Oregon Outdoor Recreation Plan 1994-1999. Prepared by Policy and Planning Division.

Oregon State University Extension Service

1998. 1997 Oregon County and State Agricultural Estimates. Special Report 790, July. Corvallis, OR.

Various Years. [Annual] Oregon County and State Agricultural Estimates. Special Report 790. Corvallis, OR.

Oregon Tourism Commission

1997. Oregon Travel Impacts and Visitor Volume, 1991-1997. December. Salem, OR. Prepared by Dean Runyan and Associates. Portland, OR.

Oregon Water Resources Department

1986. John Day River Basin Report. William H. Young, Director. State of Oregon Water Resources Department, Salem, OR.

2000. Streamflow Data: Guage 14044000, Middle Fork John Day River at Ritter, Oregon. [on line] URL: http://www.wrd.state.or.us/cgi-bin/choose_gage.pl?huc=17070203

Oregon Water Resources Department and Commission

1999. Strategic Plan for Managing Oregon's Water Resources 1999-2001: Planning for a New Century. State of Oregon Publishing and Distribution Division, Salem, OR.

Final John Day River Plan and EIS

Pearson, L.C., and S.K. Rope

1987. Lichens of the Idaho National Engineering Laboratory. Department of Energy/ID-12110. Radiological and Environmental Sciences Laboratory, US Department of Energy, Idaho Falls, ID.

Platts, W.S.

1979. Livestock Grazing and Riparian/Stream Ecosystems. *In* Proceedings, Forum-Grazing and Riparian/Stream Ecosystems. Trout Unlimited, Inc., Vienna, VA.

1991. Livestock Grazing. *In* Influences of Forest and Rangeland Management on Salmonid Fishes and Their Habitats. Pages 389-483. American Fisheries Society Special Publication 19, Bethesda, MD.

Polk, M.R.

1976. Cultural Resource Inventory of the John Day River Canyon. Report on file Prineville District BLM, Prineville, OR.

Ponce, S.L.

1989. Baseflow Augmentation by Streambank Storage: Literature Review and Annotated Bibliography (Draft). Contract Report Z-19-0-893-88. Pacific Gas and Electric Company, Research and Development, San Ramon, CA.

Ponce, S.L., and H.L. Gary

1979. The Effect of Lake-Based Recreation and Second Home Use on Surface Water Quality in the Manitou Experimental Forest. USDA Forest Service Research Paper RM-211. Rocky Mountain Forest and Range Experiment Station, Fort Collins, CO.

Punchy, C.A. and D.B. Marshall

1993. Oregon Wildlife Diversity Plan. Oregon Department of Fish and Wildlife, 2nd edition. Portland, OR.

Quigley, T.M., and S.J. Arbelbide (technical editors)

1997. An Assessment of Ecosystem Components in the Interior Columbia Basin and Portions of the Klamath and Great Basins: Volume I-IV. General Technical Report PNW-GTR-405. Portland, OR.

Raveling, D.G.

1979. Traditional Use of Migration and Winter Roost Sites by Canada Geese. *Journal of Wildlife Management* 43:229-235.

Ray, V.F., G.P. Murdock, B. Blythe, and O. Stewart

1938. Tribal Distribution in Eastern Oregon and Adjacent Regions. *American Anthropologist* 40:384-415.

Ringer, F.

1998. Conservation Reserve Enhancement Program: A Partnership Between Landowners, Oregon and U.S. Department of Agriculture. USDA Farm Service Agency.

Rinne, J.N.

1985. Livestock Grazing Effects on Southwestern Streams: A Complex Research Problem. *In* Riparian Ecosystems and Their Management: Reconciling Conflicting Uses. First North American Conference. R.R. Johnson, C.D. Ziebell, D.R. Patton, P.F. Ffolliott, R.H. Hamre (tech. eds.). USDA Forest Service General Technical Report RM-120. Fort Collins, CO. pp 295-299.

Rinne, J.N., and R.A. LaFayette

1991. Southwestern Riparian Stream Ecosystems: Research Design, Complexity, and Opportunity. USDA Forest Service Research Paper RM-299. Rocky Mountain Forest and Range Experiment Station, Fort Collins, CO.

Robinson, W.L., and E.G. Bolen

1989. *Wildlife Ecology and Management*. Macmillan Publishing Co., New York, NY.

- Rosentreter, R.
1986. Compositional Patterns within a Rabbitbrush (*Chrysothamnus*) Community of the Idaho Snake River Plain. *In* Proceedings, Symposium on the Biology of Artemisia and Chrysothamnus. USDA Forest Service Intermountain Research Station General technical Report INT-2000.
- Saab, V.A., C.E. Bock, T.D. Rich, and D.S. Dobkin
1995. Livestock Grazing Effects on Migratory Landbirds in Western North America. *In* Ecology and Management of Neotropical Migratory Birds: A Synthesis and Review of Critical Issues. T.E. Martin and D.M. Finch, eds. Oxford University Press, New York. pp 311-353.
- Sanderson, H.R., T.M. Quigley, E.E. Swan, and L.R. Spink
1990. Specifications for Structural Range Improvements. USDA Forest Service, Pacific Northwest Research Station, General Technical Report PNW-250.
- Sarr, D., R.A. Knapp, J. Owens, T. Balsler, and T. Dudley
1996. Ecosystem Recovery from Livestock Grazing in the Southern Sierra Nevada. Aldo Leopold Wilderness Research Institute, Missoula, MT.
- Satterthwaite, T.D.
1995. Effects of Boat Traffic on Juvenile Salmonids in the Rogue River. Prepared by the Oregon Department of Fish and Wildlife for the USDI - BLM, Medford District.
- Schalk, Randall F. (editor)
1987. Archeology of the Morris Site (35GM91) on the John Day River, Gilliam County, Oregon. Prepared by the University of Washington, Office of Public Archaeology, for the U.S. Army Corps of Engineers, Portland District.
- Schlosser, I.J., and J.R. Karr
1981. Riparian Vegetation and Channel Morphology Impact on Spatial Patterns of Water Quality in Agricultural Watersheds. *Environmental Management* 5:233-243.
- Schumm, S.A. and David F. Meyer
1979. Morphology of Alluvial Rivers of the Great Plains. *In* Riparian and Wetland Habitats of the Great Plains: Proceedings of the 31st Annual Meeting, Great Plains Agricultural Council. Publication Number 91. Rocky Mountain Forest and Range Experiment Station, Fort Collins, CO.
- Scott, W.B., and E.J. Crossman
1973. Freshwater Fishes of Canada. Bulletin 184. Fisheries Research Board of Canada, Ottawa. Ontario.
- Scotter, G.W.
1980. Management of Wild Ungulate Habitat in the western United States and Canada: A Review. *Journal of Range Management* 33:16-27.
- Sebatian, Lynne
1993. Protecting Traditional Cultural Properties Through the Section 106 Process. *In* CRM, Special Issue 16:22-26. National Park Service, Washington, D.C.
- Sedgwick, J.A., and F.L. Knopf
1991. Prescribed Grazing as a Secondary Impact in a Western Riparian Floodplain. *Journal of Range Management* 44:369-373.
- Settergren, C.D.
1977. Impacts of River Recreation Use on Streambank Soils and Vegetation: State-of-the-Knowledge. *In* Proceedings of River Recreation Management and Research Symposium. USDA Forest Service General Technical Report NC-28. pp 55-59.

Final John Day River Plan and EIS

Severson, K.E. (Technical Coordinator)

1990. Can Livestock Be Used as a Tool to Enhance Wildlife Habitat? USDA Forest Service General Technical Report RM-194.

Shaw, N.L.

1992. Recruitment and Growth of Pacific Willow and Sandbar Willow Seedlings in Response to Season and Intensity of Cattle Grazing. *In* Symposium on Ecology and Management of Riparian Shrub Communities. Sun Valley, ID., May 29-31, 1991. pp 130-137.

Sheerer, B.M., J.R. Miner, J.A. Moore, and J.C. Buckhouse

1988. Resuspending Organisms from a Rangeland Stream Bottom. *Transactions of the American Society of Agricultural Engineers* 31:1217-1222.

1992. Indicator Bacterial Survival in Stream Sediments. *Journal of Environmental Quality* 21:591-596.

Sherwood, G.A.

1965. Canada Geese of the Seney National Wildlife Refuge. Completion Report for Wildlife Management Studies 1 and 2, Seney National Wildlife Refuge, Seney, Michigan. U.S. Fish and Wildlife Service, Region 3, Minneapolis, MN.

Shrader, T., and M.E. Gray

1998. Biology and Management of John Day River Smallmouth Bass. Information Reports Number 99-1. Oregon Department of Fish and Wildlife: Fish Division. Portland, OR.

Siekert, R.E., Q.D. Skinner, M.A. Smith, J.L. Dodd, and J.D. Rodgers

1985. Channel Response of an Ephemeral Stream in Wyoming to Selected Grazing Treatments. *In* Riparian Ecosystems and Their Management: Reconciling Conflicting Uses. First North American Conference. R.R. Johnson, C.D. Ziebell, D.R. Patton, P.F. Folliott, R.H. Hamre (tech. eds.). USDA Forest Service General Technical Report RM-120. Fort Collins, CO. pp 27-278.

Skinner, Q.D.

1998. Stubble Height and Function of Riparian Communities. *In* Stubble Height and Utilization Measurements: Uses and Misuses. R. Heitschmidt, ed. Agricultural Experiment Station, Oregon State University, Station Bulletin 682. Corvallis, OR.

Skovlin, J.M.

1984. Impacts of Grazing on Wetlands and Riparian Habitat. *In* Developing Strategies for Rangeland Management. National Research Council/National Academy of Sciences (eds). Westview Press, Inc., Boulder, CO.

Smith, E.L.

1989. Range Condition and Secondary Succession: a Critique. *In*, Secondary Succession and the Evaluation of Rangeland Condition. W.K. Laurenroth and W.A. Laycock (editors). Westview Press, Boulder CO.

Solley, W.B., R.R. Pierce, and H.A. Perlman

1998. Estimated Use of Water in the United States in 1995. USGS Circular 1200.

Stankey, G.H., D.N. Cole, R.C. Lucas, M.E. Petersen, and S.S. Frissell

1985. The Limits of Acceptable Change (LAC) System for Wilderness Planning. USDA Forest Service General Technical Report INT-176, Intermountain Forest and Range Experiment Station, Ogden, UT.

St. Claire, L.L., J.R. Johansen, and S.R. Rushforth

1993. Lichens of Soil Crust Communities in the Intermountain Area of the Western United States. *Great Basin Naturalist* 53:5-12.

- Stephenson, G.R., and L.V. Street
1978. Bacterial Variation in Streams from a Southwest Idaho Rangeland Watershed. *Journal of Environmental Quality* 7(1):150-157.
- Stephenson, G.R., and R.C. Rychert
1982. Bottom Sediment: A Reservoir of *Escherichia coli* in Rangeland Streams. *Journal of Range Management* 35:119-123.
- Steward, O.C.
1939. The Northern Paiute Bands. *Anthropological Records*, vol. 2, no. 3. University of California Press, Berkeley.
- Stohlgren, T.J., K.A. Bull, Y. Otsuki, C.A. Villa, and M. Lee
1998. Riparian Zones as Havens for Exotic Plant Species in the Central Grasslands. *Plant Ecology* 138:113-125.
- Stohlgren, T.J., D. Brinkley, G.W. Chong, M.A. Kalkhan, L.D. Schell, K.A. Bull, Y. Otsuki, G. Newman, M. Bashkin, and Y. Son
1999a. Exotic Plant Species Invade Hot Spots of Native Plant Diversity. *Ecological Monographs*, 69(1):25-46.
- Stohlgren, T.J., L.D. Schell, and B. Vanden Heuvel
1999b. How Grazing and soil Quality Affect Native and Exotic Plant Diversity in Rocky Mountain Grasslands. *Ecological Applications*, 9(1):45-64.
- Stringham, T.K., J.C. Buckhouse, and D.W. Krueger
1998. Stream Temperatures as Related to Subsurface Waterflows Originating from Irrigation. *Journal of Range Management* 51:88-90.
- Suphan, R.J.
1974. Ethnological Report on the Wasco and Tenino Indians. *Ethnological Report on the Umatilla, Walla Walla, and Cayuse Indians: Commission Findings*. In *Oregon Indians II*, edited by D.A. Horr, pp. 1-180. New York: Garland Series in American Indian Ethnohistory.
- Sutherland, A.J., and D.G. Ogle
1975. Effect of jet boats on Salmon Eggs. *New Zealand Journal of Marine & Freshwater Research* 9:273-282.
- Taylor, G. H.
1999. Long-Term Wet-Dry Cycles in Oregon. [on line] URL: <http://www.ocs.orst.edu/reports/wet-dry.html>
- Thomas, J.W., C. Maser, and J.E. Rodiek
1979. Wildlife Habitats in Managed Rangelands - The Great Basin of Southeastern Oregon; Riparian Zones. USDA Forest Service, USDI Bureau of Land Management General Technical Report PNW-80 (special edition, March 1986). Pacific Northwest Forest and Range Experimental Station, Portland, OR.
- Tiedeman, J.A., D.A. Higgins, T.M. Quigley, J.R. Sanderson, and D.B. Marx
1987. Responses of Fecal Coliform in Streamwater to Four Grazing Strategies. *Journal of Range Management* 40:322-329.
- Tiedeman, J.A., R. Beck and R. Vanhorn Ecret
1991. Dependence of Standing Crop on Range Condition Rating in New Mexico. *Journal of Range Management* 44(6):602-605.

Final John Day River Plan and EIS

Tubbs, N.J.

1922. Reconnaissance Report of John Day River, Oregon, to Classify Adjacent Lands as to Power Site Values. US Geological Survey. Portland, OR.

US Army Corps of Engineers

1987 Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1. U.S. Army Corps of Engineers, Washington DC.

USDA, Forest Service

1990. Final Environmental Impact Statement: Land and Resource Management Plan, Malheur National Forest. USDA Forest Service, Pacific Northwest Region, Portland, OR.

1992. Wild and Scenic River North Fork John Day East and West Viewshed Corridor Plan, Prepared by Walker and Macy.

1993. Environmental Assessment for the North Fork of the John Day Wild and Scenic River Management Plan. Umatilla and Wallowa-Whitman National Forests. June 1993. pp II-18 to II-19.

1997. Outfitter-Guide Administration Guidebook. USDA Forest Service, Northwest Region.

1998. Upper Middle Fork John Day Watershed Analysis Report. USDA-FS, Malheur National Forest, Grant Co., OR.

USDA Forest Service and USDI Bureau of Land Management

1995. Decision Notice/Decision Record, Finding of No Significant Impact, Environmental Assessment for the Interim Strategies for Managing Anadromous Fish-Producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California. Decision Notice/Record, Finding of No Significant Impact.

USDA Forest Service, USDI Bureau of Land Management, and USDA Natural Resources Conservation Service

1997. Accelerating Cooperative Riparian Restoration and Management: An Interagency Strategy. Prepared by The National Riparian Service Team. July.

USDA, Natural Resources Conservation Service

1996. Environmental Quality Incentives Program Fact Sheet - 1996 Farm Bill Conservation Provisions [online] URL: <http://www.nhq.nrcs.usda.gov/OPA/FB96OPA/eqipfact>.

1997. National Range and Pasture Handbook. Washington, D.C.

1998. Oregon Field Office Technical Guide, Practice Standard 393A - Filter Strip, January 1998.

USDA, Soil Conservation Service and Oregon Agricultural Experiment Station

1964. Soil Survey, Sherman County, Oregon.

USDA, Soil Conservation Service and Oregon Agricultural Experiment Station

1975. Soil Survey of Grant County, Oregon, Central Part.

USDA, Soil Conservation Service, Oregon Agricultural Experiment Station and Forest Service

1970. Soil Survey of Trout Creek-Shaniko Area, Oregon.

USDA, Soil Conservation Service and Oregon Agricultural Experiment Station.

1977. Soil Survey of Gilliam County, Oregon.

USDI, US Geological Survey

2000. Historical Streamflow Daily Values for John Day River at McDonald Ferry, OR. (14048000). [on line] URL: <http://waterdata.usgs.gov/nwisw/OR/data.components/hist.cgi?statnum=14048000>.

USDI, Bureau of Land Management

- 1985a. John Day Resource Management Plan, Record of Decision, Rangeland Program Summary (RPS). Burns District, BLM. Burns, OR.
- 1985b. Northwest Area Noxious Weed Control Program FEIS. Bureau of Land Management, Oregon State Office, Portland, OR.
- 1986a. Two Rivers Resource Management Plan, Record of Decision, Rangeland Program Summary (RPS). Prineville District, BLM. Prineville, OR.
- 1986b. Muddy Creek Land Exchange. Cultural Resource Report #85-05-03. Report on file Prineville District, BLM. Prineville, OR.
- 1987a. Supplemental to the Northwest Area Noxious Weed Control Program FEIS. Bureau of Land Management, Oregon State Office, Portland, OR.
- 1987b. Handbook H-8372-1, Special Recreation Permits for Commercial Use. Bureau of Land Management, Washington, D.C.
- 1987c. John Day River Bighorn Sheep Reintroduction Environmental Assessment (OR-050-7-38). Prineville District, BLM. Prineville, OR.
- 1989a. Recreation 2000: A Strategic Plan. Bureau of Land Management, Washington Office. Washington, D.C.
- 1989b. Fencing. BLM Manual Handbook H-1741-1
- 1991a. South Fork of the John Day Wild and Scenic River Resource Assessment. Prineville District, BLM. Prineville, OR.
- 1991b. Lower John Day Wild and Scenic River Resource Assessment. Prineville District, BLM. Prineville, OR.
- 1991c. Vegetation Treatment on BLM Lands in Thirteen Western States FEIS. Bureau of Land Management, Wyoming State Office. Cheyenne, WY.
- 1991d. Wilderness Study Report: Volume I. Bureau of Land Management, Oregon State Office. Portland, OR.
- 1992a. Riparian Area Management TR 1737-7: Procedures for Ecological Site Inventory - With Special Reference to Riparian-Wetland Sites. USDI, BLM, Denver, CO.
- 1992b. South Fork John Day River Photo Points. Prineville District, BLM. Prineville, OR.
- 1992c. Wild and Scenic Rivers - Policy and Program Direction for Identification, Evaluation, and Management. BLM Manual 8351.
1993. Riparian Area Management TR 1737-9: Process for Assessing Proper Functioning Condition. USDI, BLM, Denver, CO.
1994. District-Wide Interim Weed Management Environmental Assessment #OR-053-3-062). Prineville District, BLM. Prineville, OR.
- 1995a. Sutton Mountain Coordinated Resource Management Plan (CRMP). Prineville District BLM. Prineville, OR.
- 1995b. BLM Manual H-8550-1: Interim Management Policy for Lands Under Wilderness Review.

Final John Day River Plan and EIS

- 1995c. Native Hardwood Supplementation Project Environmental Assessment (#OR-054-95-004). BLM Prineville District. Prineville, OR.
- 1996a. An Evaluation of the Willow Recovery Status along the John Day River. USDI, BLM, Prineville, OR.
- 1996b. North Fork John Day River and Tributaries. Prineville District, BLM. Prineville, OR.
- 1996c. Clarno Homestead Stream Rehabilitation Project. Environmental Assessment No. OR-054-5-47. Prineville District BLM. Prineville, OR.
- 1996d. Sutton Mountain Coordinated Resource Plan (CRMP): Decision Record. Prineville District BLM. Prineville, OR.
- 1997a. Standards for Rangeland Health and Guidelines for Livestock Grazing Management of Public Lands Administered by the Bureau of Land Management in the States of Oregon and Washington. BLM, Oregon State Office, Portland, OR.
- 1997b. Lower John Day River Interim Weed Management Environmental Assessment #OR-054-3-063. Prineville District BLM. Prineville, OR.
- 1997c. Supplement to the Lower Deschutes River Management Plan, Final Decision, Lower Deschutes River Allocation System. Prineville District, BLM. Prineville, OR.
- 1998a. Endangered Species Act Riparian Monitoring. Prineville District, BLM. Prineville, OR.
- 1998b. Northeast Oregon Assembled Land Exchange and Final Environmental Impact Statement. Prineville District, BLM. Prineville, OR.
- 1998c. Riparian Area Management TR 1737-15: A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas. USDI, National Applied Resource Sciences Center, Denver, CO.
- 1998d. Draft Southeast Oregon Resource Management Plan/Environmental Impact Statement. BLM Vale District Office. Vale, OR.
- 1998e. Northeast Assembled Land Exchange Survey: Cultural Report 97-05-01(+). Prineville District, BLM. Prineville, OR.
- 1998f. North Pole Ridge Coordinated Resource Management Plan: Decision Record. Prineville District BLM. Prineville, OR.
2000. Interpreting Indicators of Rangeland Health Version 3.0. In *Interagency Rangeland Health Evaluation Technical Reference*. USDI-BLM, National Training Center, Phoenix, AZ.
- USDI, National Park Service and USDA, Forest Service
1995. Federal Wildland Fire Management Policy and Program Review. Final Report. Boise, Idaho: National Interagency Fire Center.
1998. Wildland and Prescribed Fire Management Policy: Implementation Procedures Reference Guide. Prepared at the National Interagency Fire Center, Boise, Idaho. August 1998.
- USDI-US Geologic Survey
- 1999.
2000. Historical Streamflow Daily Values for the John Day River at McDonald Ferry, OR. [on line] URL: <http://waterdata.usgs.gov/nwis-w/OR/data/components/hist.cgi?statnum=14048000>

- Van Haveren, B.P., J.E. Williams, M.L. Pattison, and J.R. Haugh
1997. Restoring the Ecological Integrity of Public Lands. *Journal of Soil and Water Conservation*, July-August:226-231.
- Vidourek, B.
1998. Personal Communications by FAX. November 24.
- Weber, M.
1999. Personal Communication (FAX). 1998 Agricultural Statistics: Central Oregon. By Marvin Butler, OSU Extension Crop Scientist.
- Westoby, M., B. Walker, and I. Noy-Meir
1989. Opportunistic Management for Rangelands not at Equilibrium. *Journal of Range Management*, Vol.42(4): 266-274.
- Wiens, J.A., and M.I. Dyer
1975. Rangeland Avifaunas: Their Composition, Energetics, and Role in the Ecosystem. *In* Symposium on Management of Forest and Range Habitats for Nongame Birds. D.R. Smith, ed. USDA Forest Service General Technical Report WO-1. Washington, D.C. pp 146-182.
- Willamette Kayak & Canoe Club
1994. *Soggy Sneakers: A Guide to Oregon Rivers*. Third Edition. The Mountaineers. Seattle, WA.
- Wineburg, H.
1998. Population Estimates for Oregon: July 1, 1997. Center for Population Research and Census. Portland State University. Portland, OR.
- Young, D.K.
1991. BLM Staff Report, Prineville District.

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